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Commentary



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Managing COVID-19 beyond lockdowns and vaccine research

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The sharp escalation of COVID-19 cases in central and western Canada, the US and Europe this fall has highlighted the problems of government responses to COVID-19. Since March, government approaches in Canada and elsewhere have included extensive reliance upon emergency powers and far-reaching orders that limit activities. In essence, they approached the pandemic as an "acute crisis." This reflects an undue focus by these governments on vaccines as the dominant near-term solution to the pandemic without recognizing and addressing the uncertain timeline and other major challenges until safe and effective vaccines are available and well distributed, and sufficient take-up by the population at large has occurred.

Despite the encouraging progress on vaccine development announced in late 2020, the repercussions of governments' vaccine-centric policies are serious weaknesses in communication and inadequate resourcing of necessary coping mechanisms. It has made the re-imposition of tough restrictions this fall, including partial-to-full lockdowns, the default policy response when these could have otherwise been avoided. In contrast, an approach based on COVID-19 as a chronic condition in 2020 and 2021 –

focusing on effective communications and much better testing, tracing and treatments – is crucial to managing COVID-19's impacts and transitioning effectively to a vaccine solution.

Managing the pandemic: Bridging to a vaccine situation

COVID-19's dramatic resurgence in central and western Canada, throughout the US, and in most of Europe has led to renewed restrictions on close-contact businesses, large gatherings and an array of other activities in Canada. These restrictions range from a code-red, province-wide lockdown in Manitoba to more targeted, but increasing measures in Ontario, BC, and elsewhere, as well as the reintroduction of large-scale lockdowns in various European countries. These measures will incur major economic costs, even as we continue to face the ongoing health risks posed by COVID's resurgence.

It did not have to be this way. The "great lockdowns" in early 2020 gave us significant time to prepare for this resurgence. We benefited from the subsequent reduced incidence of COVID-19 in the late spring through summer. Unfortunately, governments did not use this period to sufficiently bolster their testing and tracing capabilities and to invest significantly more in advancing treatments and communications. Restrictions on close-contact settings were lifted too quickly, communications about the need for continued adherence to protocols were inadequate and inconsistent, and complacency set in among the public and governments.

Even in those countries where testing and tracing capabilities were increased, they have been overwhelmed by the magnitude and pace of COVID-19's resurgence. Sadly, the experiences of governments in Europe and North America have underscored the weaknesses of governments managing the severe health risks and economic repercussions with an acute approach to policy.

The very good news on the vaccine front centres upon the late-stage test results such as those from Pfizer and BioNTech (*The Economist* 2020b) and from Moderna (Gallagher 2020), both of which showed over 90 percent effectiveness in preventing symptomatic cases of COVID-19. With at least 11 other vaccines in late-stage trials (Picard 2020), the prospects for additional vaccines bear emphasis. Yet a host of obstacles remain before a vaccine solution occurs, including the highly uncertain timeline before massive production, widespread distribution and take-up are in place. Major issues include, but are not limited to, the logistical challenges of frozen and ultra-frozen storage (Praet and McClearn 2020), whether the vaccines are efficacious beyond the short-term, prioritizing use for those at highest risk and for essential health workers, and whether the anti-vaccination and vaccine-reluctant population segments¹ reduce its take-up to levels too low to stop the virus spread.

Even if the many uncertainties associated with a vaccine solution are resolved, it will very likely be a lengthy and highly uneven process (Frank and Arim 2020; Pelley 2020). This means that even in the best of all possible worlds, we will be living with COVID-19 through at least much of 2021. Accordingly, the policy response from governments needs to shift to much better crisis management until a vaccine solution is in place. Simply put, we cannot continue to rely excessively on lockdowns and other far-reaching orders to limit activities as our primary means of battling the pandemic.

Much-improved crisis management begins with clearer and more consistent communications, especially about the potential length of time and the challenges to get to a vaccine solution. A better approach will focus resources and messaging on the "3T's" of testing, tracing and treatment. It will allow for enhanced and more effective communications about the importance of adherence to key protocols such as wearing masks, hand washing and maintaining social distancing. Improved policy will target specific interventions in lieu of full-scale lockdowns, focus on evidence-based medicine, and will accelerate the use of and investment in better treatments (e.g., corticosteroids and proning). It needs to embrace medium- and long-term planning, including devising and implementing policies to (i) facilitate an effective transition from the pandemic, and (ii) prevent/minimize future pandemic risks from COVID-19 mutations and other zoonotic diseases.

Behavioural challenges and policy communication opportunities

Better crisis management is essential to help achieve behaviours that will improve containment of COVID-19. While fear may work in motivating behavioural change in the short-term or in an emergency, over the medium- and longer-term, fear loses its effectiveness. Decision fatigue, information overload and other major behavioural challenges overwhelm people in ongoing stressful environments. This is especially problematic with the pandemic. Behavioural science has demonstrated that most people are poor at assessing risks, often fail to reflect risks in their actions, and frequently minimize risk when it is convenient. Weaknesses in people's ongoing adherence to key protocols have been key to COVID-19's resurgence in Canada, Europe and the US in recent months.

Making good decisions, and sifting through and selecting important information, is especially difficult given COVID-19's serious emotional stress and the cognitive pressures generated by its major health risks and economic repercussions. It makes the form and nature of information and the platforms and influencers/spokespeople used to convey it even more important. These factors crucially shape what we attend to, how we interpret things and the choices that we make. The importance of persuasion and messenger effects

– people are most open to and engaged by messengers who are viewed as likeable and trustworthy – merits highlighting.

Improved communication starts with better information architecture and choice architecture for people to understand why and how they need to adhere to COVID-19 protocols on a sustained basis. Too often, government messages have been inconsistent and confusing. Enhancing the messaging and messengers of government policies starts with providing clearer, more consistent and simpler messages. More effective and sustained messaging starts with the need to avoid the "3Cs" – closed spaces, crowded places and close-contact settings. Using credible and trustworthy spokespeople and influencers via social and traditional media, and through in-person discussions is crucial as is improved information and choice architecture, especially online. These will provide better context and user-friendly approaches that are vital to achieve greater adherence to pandemic protocols and engagement in better behaviour.

Communication must convey the importance of individual agency as the core part of improved messaging. People's efforts in wearing masks, keeping socially distant and not gathering in indoor spaces with poor ventilation or in large numbers when this can be prevented need to be explained as ongoing essential requirements. Mixed messages about the pandemic subsiding by near-term dates (e.g., Thanksgiving, Halloween and Christmas), and errors in not requiring more than short-term behavioural efforts have been highly problematic, especially when restrictions were eased in mid-2020. Governments are missing the opportunity to use evidence to demonstrate and communicate the benefits of the 3Cs and other COVID-19 protocols, and thus to reinforce and support these crucial behaviours. As of late October, more than 1500 trials of vaccine and treatments were underway globally but just eight were rigorously assessing vital non-medical practices such as the benefits of wearing masks, maintaining social distancing and avoiding large gatherings (Ahuja 2020).

Dedicating more resources to studies of how non-medical protocols such as avoiding the 3Cs, wearing masks and social distancing can prevent COVID-19 as well as communicating these results effectively to the public will help prompt changed behaviour. Again, effective use of social media for messaging these benefits to those under 40 is essential as are credible and trustworthy influencers and spokespeople.

Testing

Thoughtful compromises need to be made to allow for far more testing and faster processing of results. The current gold standard for detecting CO-VID-19 in Canada and globally is called polymerase chain reaction (PCR), which identifies genetic material to detect the viral markers of COVID-19.

PCR testing is resource-intensive and has proven to be very challenging to scale up when infection rates have surged in many countries, including Canada.

Accordingly, for countries such as Canada whose testing remains far below desired and necessary levels, rapid antigen testing, which identifies viral proteins, is a much less resource-intensive option. Although concerns over rapid antigen test accuracy are valid, the main concern is sensitivity, meaning that it might misdiagnose an infected individual as healthy. This means that a positive antigen test can be trusted and a negative one can be complemented with either a clinical diagnosis or a PCR test. Beyond diagnosing patients, these antigen tests are valuable for the purposes of screening individuals who do not exhibit symptoms, and for community or even nation-wide virus surveillance. In these cases, issues of sensitivity must be weighed against the problems and uncertainty that nation-wide testing backlogs have created.

Other country examples such as those of Germany, Slovakia and the UK are informative in how using antigen tests on a very large scale can hugely complement PCR testing (The Economist 2020a). Since mid-October, Germany's testing strategy was expanded to make antigen testing widely available for people's use to facilitate vital activities such as visits to hospitals and care homes. Roughly 10 million antigen tests are now available each month at a low price. In the UK, just after its national lockdown began in early November, full city testing in Liverpool was underway using a combination of PCR and antigen tests to test the whole population. For its part, Slovakia undertook a massive testing of 3.6 million people (66 percent of its population) using antigen tests in late October and then again in early November. Each of these countries' initiatives will offer valuable experience and evidence of the effectiveness of massive antigen testing.

For Canada, critical PCR testing deficiencies such as insufficient and slow investments in equipment and facilities, poor logistics management and skilled personnel shortages need to be urgently addressed in Ontario, Quebec and elsewhere. Information from Germany's, Slovakia's and the UK's initiatives as well as empirical studies² suggest the much-increased use of rapid antigen tests would be very beneficial in offsetting Canada's PCR testing capacity issues.

Tracing

While far more testing is the critical first step in containing COVID-19, it is essential to also have a better, much more extensive contact-tracing program that appropriately uses modern technology to control community spread. Although the Canadian government has taken commendable steps in providing an easily accessible tool to track transmission through the COVID Alert mobile app, government statistics suggest a serious challenge in the applica-

tion's effective mobilization to date (mid-November). With approximately five million downloads and roughly 3000 instances of identified COVID-19 cases, the application is covering less than 15 percent of Canada's population and has cumulatively identified only a small portion of the over 200,000 cases in Canada to date (Government of Canada 2020).³

Given the inadequate tracing to date, all three levels of government need to focus on the problems of funding, training and logistics plaguing local tracing efforts. They may include using regulatory and legislative means to improve tracing capabilities in order to ensure the adoption of nation-wide tracing technology. Tying increases in health care transfers to the adoption of a common technology also need to be considered to accelerate much better tracing capabilities.

Treatment

Both the treatment and understanding of COVID-19 have improved rapidly and significantly since the onset of the pandemic. These advances have been vital in keeping mortality at much lower levels than earlier in the pandemic despite COVID-19's surge this fall. As medical understanding of COVID-19 has increased, so have treatments that deal with the various clinical manifestations of the virus.

Certain drug and treatment therapies have shown promising results (Griffin 2020; Marchione 2020). Among these is Eli Lilly's new antibody drug that was developed with the Canadian biotech firm AbCellera Biologics. This treatment won US emergency use authorization in November based on early data that supported its success in keeping people with infections from being hospitalized. Remdesivir, an antiviral medicine given to hospitalized patients intravenously, was the first treatment drug given full approval by the US in October after test results showed major reductions in patient recovery times. It was authorized for use on an emergency basis for COVID-19 since the spring.

The concerns here include the availability and distribution of these drugs (Griffin 2020), conflicting interim medical trial results (Pan *et al.* 2020) and insufficient investment in and use of other treatments (e.g., corticosteroids and proning).⁴ Treatment should improve if more resources are dedicated toward it, and will help better manage COVID-19 cases.

Other policies

There are clear opportunities for better policy coordination and integration in support of the 3Ts. Increased and more effective investment in public health⁵ and fiscal policy⁶ is vital as well as in transportation and other infrastructure.

More intergovernmental transfers to support the 3Ts are also vital.

In the short-term, focusing more testing and tracing resources on the highest risk areas and sectors may help reduce some of the most serious near-term problems with inadequate testing and tracing. These areas and sectors include long-term care homes, as well as low-income and marginalized communities (Warner 2020). Potential near-term solutions also include adding additional buses and other transit capacity in low income and marginalized communities to enable more social distancing.

In the medium-term, more investment needs to be made in infrastructure and technology that help schools, hospitals and all other workplaces adapt. Technology already exists to help re-open workplaces and enable, amongst other things, physical distancing, touch-less entry and sanitation. Governments could enable and accelerate this process by playing the role of early adopter and driving down the costs of these investments. Governments should also subsidize the implementation of these innovations, especially for close-contact locations.

Better and more investment needs to be made in innovation that will allow for the hospitality and travel industry to return to a more normal state. Testing ultra violet light as well as agents that kill airborne pathogens may be examples of innovations that can help restore confidence. Accurate preboarding and post-flight tests as well as better follow-up tracing and testing are essential to the rebound of the airline, cruise and other travel industries before a vaccine solution. The initiatives of Alberta and various airlines could be instructive in this regard.

In the long-term, policy needs to take account of the probability that the pandemic may have permanently altered certain behaviours. While it will vary significantly by sector, more work from home may well be a structural change that will require more investment in digital infrastructure and in daycare. More work from home could mean fewer commuters and/or different travel patterns. It may involve a rethinking of transportation infrastructure given the pandemic-changed preferences of many people for living in the suburbs and countryside versus major cities.

Conclusion

Policy-making at its best is a delicate balance between the world that we want, and the world as we find it. Successful policy embraces thinking about short, medium- and long-term goals, and the choices and trade-offs they involve. We cannot approach the pandemic as an acute crisis that relies excessively on emergency lockdown measures while not addressing the serious weaknesses in communications, testing, tracing and treatment. Large-scale non-pharmaceutical interventions through lockdowns were necessary early in the

pandemic. Their re-imposition this fall reflects numerous factors, but policy weaknesses have been decisive contributors. Going forward, the use of lockdowns and other large-scale non-medical interventions must be weighed against their significant drawbacks, especially given the success in selected Asian countries and Australia with enhanced communications and heavy emphasis on the 3Ts.

As the scientific understanding of COVID-19 continues to evolve rapidly, it is to be expected that treatments or vaccine solutions will occur that materially improve the path to containing the virus and reducing its health risks and economic costs. However, others that initially appear to be promising may later be found to be wanting. This scientific reality demonstrates the need for communications and public policy that are based upon the principles of managing a chronic condition as opposed to a belief that a vaccine solution can be found and implemented within a few months. A focus on better messaging of the 3Cs and investing in the 3Ts is likely to lead to behavioural changes that can better help to control, slow down and, potentially, eliminate community spread.

About the authors



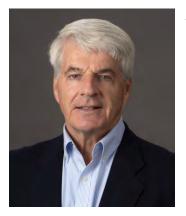
Hugh O'Reilly is the President and CEO of Acuity Global, a boutique consulting firm that provides advice on strategy to insurance companies, investment managers, real estate developers and start-ups. Hugh is the Executive Director of Innovate Cities, and a Senior Fellow at the C.D. Howe Institute. Hugh is a member of a number of boards including the Board of the VanCity Community Investment Bank and Namerind, a not-for-profit aboriginal housing corporation. The former President and CEO

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Endnotes

- 1 For an in-depth survey of vaccine hesitancy, whether this is outright refusal or reluctance to be vaccinated, see Frank and Arim (2020).
- 2 See those cited in Gans (2020).
- 3 Among the challenges of the COVID-19 app are the "tiny fraction of its millions of users have used a "one-time key" to report a positive COVID-19 result. Though there have been more than 200,000 confirmed cases of the virus across Canada, only about 1700 keys have been used." See Forani (2020).
- 4 On the merits and risks of corticosteroids, see National Institutes of Health. (2020). For proning skills issues, see Cotton et al (2020).
- 5 For detailed proposals on better health policy, see Wyonch with Maqbool (2020).
- 6 For improved fiscal policy, see Stewart, O'Reilly and Tullo (2020).

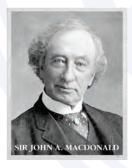
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