



## Getting Young Canadians Back to School

Special article by Dr. Paul Hebert, Founder and Director of the Centre for Biodiversity Genomics (University of Guelph), and Dr. Tina McDivitt, Founder and President of Spindle Strategy Corp.

Until early March, five million Canadian children were at school, gaining the skills and knowledge needed to power the future of our nation. With the sudden termination of their academic year and fluid government directives for returning to classrooms in September, students face uncertainty. And so, in turn does Canada's economic recovery, with millions of parents striving to deliver home-based child care and education while meeting their work responsibilities.

What shall we do? Policy-makers are sailing in uncharted waters as they try to balance the mental and physical wellness of Canadians with workforce stabilization and economic revitalization. Navigation is further complicated by other issues such as the near overnight depletion of women from the workplace as many were first to assume caregiver roles within their family.

We cannot wait for COVID-19 to retreat. It's going to be with us for the foreseeable future perhaps as localized outbreaks, or as a crashing tsunami this winter, or a seasonal flu once a vaccine is available. Given this uncertainty, things must change. The shuffling of accountability between federal and provincial governments must stop and there is a need for a long term, thoughtful view and targeted scientific investment. We are at war with a biological agent and this demands solidarity of action coupled with innovation.

In April 2020, The Rockefeller Foundation released a white paper entitled 'National Covid-19 Testing Action Plan' that proposed the largest public health project in American history. It called for a screening program that would test 30 million people every week at an annual cost of \$1 trillion. Although testing ramped up, the early relaxation of lockdowns meant that the viral spread outpaced the testing gains with disastrous consequences. Canada's more cautious approach has been rewarded, but the tide might yet turn. Just as the tortoise outran the hare, Canada's relative success in managing the suppression of the virus may prove transient. The USA is building unprecedented testing capacity. A single firm will run 500,000 tests daily and



more COVID-screening factories are planned. By comparison, Canadian facilities are downright artisanal; each of the 40 sites in Ontario runs an average of 1,000 tests on a good day.

What about our kids? How do we get them back to school while doing our very best to ensure their safety? We can't precisely predict how the congregation of students and teachers will impact the trajectory of COVID-19, but assemblies do favour viral transmission. The activation of a weekly screening program will provide parents and school staff with far more assurance than masks or social distancing alone. This isn't a moon shot. If Ontario had a single factory like those rising in the USA, our schools could open this fall with confidence that every COVID flicker would be intercepted before it became a flame.

How can we do this and what will it cost? At the Centre for Biodiversity Genomics, we use high-throughput DNA sequencers to identify millions of organisms every year. This same infrastructure and analytical approach can complete many tens of thousands of COVID-19 tests daily for roughly 80% the cost of other protocols. What does this mean for the school system in a province such as Ontario where about two million students are taught by more than 100,000 teachers? The cost to screen teachers would be trivial; a screening program could be undertaken for 0.1% of the \$28 billion spent by the province on public education. Testing students would raise costs, but surely everyone would agree that there's no better investment than \$10 a week to ensure our kids are back at school, learning how to power our nation.

As we build testing factories, let's understand that they are an essential investment for the future. COVID-19 is a serious risk but a more potent pandemic is certain. The timing of its arrival is not. Let's shift our strategy from reactive to proactive, and let's develop flexible and powerful systems as opposed to short-term stop-gap measures, to protect public health now and into the future. Most importantly, let's get our kids back to their second home and re-ignite the economy. Canada has the required technology and the medical and scientific expertise; all that's left is political will, forethought, and some courage. ■

Dr. Paul Hebert, OC FRSC is a Canadian biologist. He has pioneered DNA barcoding technology for the identification of species and is founder and director of the Centre for Biodiversity Genomics at the University of Guelph in Ontario, Canada.

Dr. Tina McDivitt holds a doctorate in infectious disease biology from the University of Toronto. She is founder and president of Spindle Strategy Corp., a management consulting firm focused on advancement of the Canadian research and innovation sector.