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Chair: Mr. Ron McKinnon



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• (1615)

[English]

The Chair (Mr. Ron McKinnon (Coquitlam—Port Coquitlam, Lib.)): I now call this meeting to order.

I'd like to welcome everyone to meeting number 22 of the House of Commons Standing Committee on Health. Pursuant to the orders of reference of April 11 and April 20, 2020, the committee is meeting for the purpose of receiving evidence concerning matters related to the government's response to the COVID-19 pandemic.

In order to facilitate the work of our interpreters and ensure an orderly meeting, I would like to outline a few rules to follow.

First, interpretation in this video conference will work very much like in a regular committee meeting. You have the choice at the bottom of your screen of floor, English or French. Please speak slowly and clearly and hold your microphone in front of your mouth.

If you will be speaking in both official languages, please ensure that the interpretation is listed as the language you will speak in before you start. For example, if you're going to speak in English, please switch to the English feed and then speak. This allows for better sound quality for interpretation.

Before speaking, please wait until I recognize you by name. For witnesses, the questioner will basically identify who they would like to respond to the questions. When you're ready to speak, click on the microphone icon to activate your mike. Should members need to request the floor outside of their designated time for questions, they should activate their mike and state that they have a point of order.

As a reminder, all comments by members and witnesses should be addressed through the chair. Should any technical challenges arise, please advise the chair or the clerk immediately and the technical team will work to resolve them. It may be necessary to suspend the meeting in such cases in order to sort things out.

Before we get started, could everyone check on the upper right-hand corner of their screen if they're using a personal computer. In the top right-hand corner there's a choice between speaker view and gallery view. Gallery view will ensure that all video participants can see each other.

I'd now like to welcome our witnesses. Each witness will have 10 minutes for an opening statement, followed by the usual rounds of questions from members. First, as an individual, we have Dr. Amir Attaran, professor, faculty of law, University of Ottawa. As an individual, we have Dr. David Fisman, professor of epidemiology,

University of Toronto; and as an individual, Dr. Richard Schabas, former chief medical officer of health for Ontario. From Blue-Dot we have Dr. Kamran Khan, chief executive officer and founder; and from Dynacare we have Vito Ciciretto, president and chief executive officer.

Welcome everyone. Thank you for joining us today.

We will begin with Dr. Attaran. Welcome back. You have 10 minutes. Please go ahead.

Professor Amir Attaran (Professor, Faculty of Law, University of Ottawa, As an Individual): Thank you.

Good afternoon, ladies and gentlemen. Thank you for having me back at the health committee. I hope you've been well.

Mr. Tony Van Bynen (Newmarket—Aurora, Lib.): Mr. Chair, I'm sorry. The interpretation is overriding the English language.

The Chair: Dr. Attaran, are you on the appropriate translation channel? You should be on the channel for the language you're speaking.

Prof. Amir Attaran: I'm sorry, I forgot that. Let's start over.

The Chair: Thank you.

Prof. Amir Attaran: Good afternoon, ladies and gentlemen.

Thank you for having me back at the health committee. I hope you've been well and that your families have been keeping safe.

When we last met, Canada was in a full lockdown, and I strove to explain how we might get out of it. I offered a road map for exiting the lockdown gradually. That road map remains valid. First, a nationwide lockdown to bring disease transmission to virtually nil, and simultaneously a massive push to increase testing and contact tracing by a factor of ten or more, followed by a sequence of gradual reopenings and infection wavelets that are well calibrated by disease forecasts and monitored by testing to minimize deaths. No competent expert disagrees with this basic strategy.

I said that following this road map would be long and difficult, and I reassured you that there is light at the end of the tunnel. Sadly, some weeks on, today I am here to tell you that the light seems dimmer than I imagined, not for scientific reasons, but for political reasons, which you can fix.

As you know, countries like Australia, Denmark, New Zealand and Norway are executing successful reopenings. Meanwhile, Canada is flying somewhat blind because provincial and federal governments have still not solved their massive failure to co-operate in sharing and analyzing epidemiological data. Without data and analysis, many experts think reopening is arriving too early in some places like Toronto, which will kill people needlessly, and arriving too late in others, like Kingston or the Maritimes, after crippling the economy and ballooning the deficit. This isn't good.

My goal today is to offer a frank reality check, franker than Dr. Tam and Dr. Nemer delivered. I was saddened and frustrated that yesterday many of you asked excellent questions, but got evasive and, at times, mealy-mouthed answers. Please feel free to ask me those same questions. If I can help, I promise I will.

First, let's start with some data and the big question. Is Canada really bending the curve? The answer is sort of.

Many Canadians think we have done well because we are better than the United States, a country that has no public health care, vocal COVID-19 deniers and a president who recommends injecting bleach. The Americans are obviously not the right comparison for us. It's better to compare Canada with other wealthy countries, especially confederations, because they have federal-provincial complications like our own.

Please turn to the line graph I've provided to the committee. It's one of two graphs that were provided.

This graph shows confirmed COVID-19 cases, adjusted for population, starting on the day that a country exceeded the threshold of one case per million population. Canada was the last country to face COVID-19. That's luck, and it gave us extra time to prepare and the benefit of learning from others who went before us. With those advantages we achieved a lower infection peak. However, we come to the question of bending the curve down, we're doing poorly. Instead of the successful nosedive the graph shows for France, Germany, Spain or Switzerland, which they achieved despite a faster and higher peak than ours, our curve looks more like an undulating plateau that gradually drops off like a bunny ski hill. By May 18, our daily confirmed cases were tied with those on April 4. Between those dates are weeks of squandered time, lives and money, the latter being around \$12 billion a week to the macro economy.

- (1620)

I find the comparison with Australia the most interesting. It proves that Canada could have done better. It is a large confederation of states, much like our own provinces, and it crossed the threshold of one case per million just one day before we did. In other words, we started off tied, but instead of dithering, Australia smacked down its curve hard and fast. Its results are almost as impressive as South Korea's, which many reckon to be the world's most successful country. Now Australia is opening thoroughly, and

we are not, so the costs of this failure are just massive. The next time you hear the Prime Minister and Dr. Tam say that Canada is bending the curve, be skeptical. Be much more skeptical than you have been.

Let's now talk about testing. You heard from nearly everyone that Canada is doing a poor job and that without more and faster testing it is impossible to reopen without unnecessarily risking and losing Canadian lives. The scientific goal is not simply testing the sick, but over-testing the vulnerable and anyone else who might have come been contact with the sick so as to isolate them for 14 days and nip outbreaks in the bud, yet Canada's testing remains awful, especially in Ontario and Quebec.

The bar graph I furnished to the committee shows over-testing as the ratio of total COVID-19 tests per positive test. The higher that ratio, the better the chance of spotting infections and avoiding outbreaks. If one chooses not to worry about the price of testing—and one shouldn't, because testing costs peanuts compared to hospitalizations or lockdowns—then it is far better to test too much than too little.

On this measure of testing, Canada lags behind not just top performers like Australia and South Korea, but also behind Ethiopia, Rwanda, Kenya, Cuba and Ghana. We are such testing tightwads that low-income countries in Africa surpass us. Africans also out-class Canada on contact tracing. Addis Ababa's extensive testing and contact tracing puts Montreal and Toronto to shame.

For Canada to be beaten by the world's poorest countries has got to puncture the myth of competence and success. It cannot be that Canada lacks Africa's scientists, laboratories, equipment or chemicals, any of that. No. The reason we have failed is the cupidity and stupidity of certain governments, and this is where I put my constitutional lawyer hat on to talk about federalism. American lawyers have a great saying. They say that the Constitution is not a suicide pact, but I'm afraid, ladies and gentlemen, that during a killer pandemic our usually accepted federal-provincial relations can turn into a suicide pact.

I believe that our most fundamental failing right now is that pandemic responses are handicapped by a mythological, schismatic view of federalism. Thus, when provinces withhold epidemiological data or do a poor job of testing, collectively we grumble, we shrug and we mutter that health is provincial, but this is wrong. Speaking as a constitutional lawyer, health is actually a shared federal/provincial jurisdiction. The Supreme Court is dead clear about that. It says, "Health is a jurisdiction shared by both the provinces and the federal government." That's our Supreme Court, and it's perfectly accurate.

I think it is good for the federal government to let provinces run their show, and that's normally how it should work, but I'll suggest that a pandemic is not normal. There comes a point when the federal government must step in, the point where provincial actions are killing Canadians. If our country cannot show that once-in-a-century flexibility, then, yes, we are turning the Canadian Constitution into a suicide pact.

I know that what I've just said will be outrageously controversial. I'm sorry, but as a person who loves this country, I cannot let obvious mistakes pass and kill my neighbours.

• (1625)

Let me close with three recommendations.

First, Parliament must pressure cabinet into taking legal steps to force provinces to share epidemiological data. These are the data that scientists like Dr. Fisman and Dr. Khan absolutely need to keep me, you and your loved ones alive as this lockdown lifts. Parliament gave cabinet the power to demand data in section 15 of the Public Health Agency of Canada Act, but the Prime Minister has not used that power. It's frankly pathetic.

Second, demand that the Public Health Agency of Canada set minimum standards for things like testing. We cannot remain stuck behind Africa. Come on. It was only last week that the Prime Minister proposed a national testing strategy. That is much too late. We need it now.

The Chair: Dr. Attaran, you're at 11 minutes. Could you wrap up, please?

Prof. Amir Attaran: Sure.

Third, sign an accord with the provinces on co-operating throughout this pandemic. In Australia, the prime minister and the premiers signed a COVID accord on March 13, and the Vikings have killed this thing. Those Australian Vikings have put it down.

It's unbelievable that two months later, Canadian governments still have no COVID accord.

I'll close there. I hope you take these suggestions in the spirit they are intended, not to gore anyone's sacred cow, but to save the lives of the Canadians we love.

Thank you for hearing me.

• (1630)

The Chair: Thank you, Dr. Attaran.

We go now to Dr. Fisman.

Dr. Fisman, please go ahead. You have 10 minutes.

Dr. David Fisman (Professor of Epidemiology, University of Toronto, As an Individual): Honourable committee members, thank you for the privilege of appearing before you.

The last several months have offered us as a country extraordinary challenges. As an epidemiologist, internist and parent, these challenges have subsumed every part of my work life and my personal life. I haven't hugged my kids since mid-March. I have watched patients admitted to hospital with mild breathing difficulties and have seen these same patients wheeled into the intensive care unit 72 hours later. My colleagues have cared for married couples, and have had to tell the surviving spouse of the death of their partner while on clinical rounds. I've had the gratifying experience of watching our modelling work influence policy. I've also experienced the annoyance of watching epidemiological data abused, misused and distorted in support of various political, economic and social agendas.

The challenges I have faced pale next to those faced by many Canadians, those who have lost their jobs or lost their loved ones, often without the chance to hold hands or say goodbye. They pale next to the challenges faced by those who have worked at essential jobs under pressure from employers but without access to adequate personal protective equipment. We've watched extraordinary leadership from senior public health officials across the country. Here I'd like to single out the clear, compassionate messaging from Drs. Henry, Hinshaw and Tam for special praise.

We have also struggled with more limited leadership in other provinces. Here I would note in particular the failure of provincial public health officials in Ontario to act swiftly and courageously to stop the spread of COVID-19 in long-term care facilities, the failure to clearly articulate that COVID-19 was spreading in our communities in early March, and the failure to keep up with the best epidemiological evidence on important issues like transmission of disease by individuals with few or no symptoms.

So yes, we have seen many challenges, some of which we have met and some of which we have not. My group prepares forecasts for several federal and provincial colleagues each morning. We have documented a reproduction number for the epidemic in Canada of below one since around May 9, 2020. That's a hopeful sign. The reproduction number of an epidemic, the number of new cases created by an old case, is an index of epidemic growth and decline. A sustained reproduction number of below one suggests that this first wave of the COVID-19 pandemic is approaching an end in Canada.

I have been concerned by how this encouraging turn of events has been interpreted by some to mean that this wave is ending in spite of, rather than because of, the patient and selfless actions of many Canadians who've experienced hardship, isolation and deprivation in order to distance themselves from workplaces, friends and family. In Canada we have seen health care systems stretched and challenged, but we have not witnessed the tragic overflow of intensive care units as has occurred in Wuhan, Lombardy, New York and Madrid.

Make no mistake, our failure to experience these tragedies does not mean that models were wrong. Cities around the world that failed to react to approaching epidemics as promptly as Canadian cities did have experienced astounding surges in mortality—a 300% increase in deaths in New York, 75% in Stockholm, 460% in Bergamo, and a 100% increase in mortality in London. We reacted to approaching disaster in time to avert the worst of this first wave, but in our two largest cities, Montreal and Toronto, we still have several hundred individuals in intensive care units.

Now we face what I'll refer to as the “paradox of prevention”. By preventing widespread infection in the country, we've maintained susceptibility in the population, which leaves us vulnerable to future epidemic waves. This is the defining paradox of public health. Our fundamental deliverable is the non-occurrence of events. Those of us who work in the field are accustomed to having our outputs taken for granted. To note one familiar example, vaccination programs are criticized because their very success means we don't experience outbreaks. Perhaps a silver lining to this episode, moving forward, will be a greater appreciation of what public health provides us in normal times.

To go back to our successful avoidance of even greater tragedy in Canada in March and April, having achieved this important success, we need to move forward with economic revitalization. I think the presentation of our choice as economic revitalization versus prevention of disease transmission is a Hobson's choice or false dichotomy. We can't ignore our economy, but we won't have robust revitalization without strong surveillance systems and health protection measures. A frightened and grieving population will not drive a strong economy. In the United States, data assembled by JP-

Morgan Chase show clearly that declines in spending are strongly linked to levels of disease activity.

• (1635)

The bedrock on which revitalization rests will be public health surveillance and laboratory testing. We can't see this epidemic without testing, and we can't fight an epidemic that we cannot see.

The virus is a slippery foe, and it's a study in contradictions. I call it Schrödinger's coronavirus. It's dangerous and it's lethal, but it causes mild illness and even infection without symptoms. It kills over 7% of the Canadians with recognized infection, but it gives most children a free pass.

Asymptomatic and presymptomatic infections are a Trojan horse that gives entry to congregate settings like long-term care and retirement homes, health care facilities, prisons and food processing plants. Once it's spreading in these institutions, it can take a terrible toll, as we have seen in long-term care facilities.

We can look around the world for successful responses to this epidemic and emulate best practices, but we can also emulate best practices here in our own country. Colleagues in Newfoundland have controlled COVID-19 rapidly; they tell us to hunt the virus and be proactive. Colleagues in British Columbia teach us how important clear strategy and communication are in this fight. Alberta can show us how to scale up testing, and our northern territories can show us how to protect isolated remote communities. Saskatchewan has shown us how to deal swiftly with growing outbreaks to prevent geographic spread of infection.

But I do believe that our most potent weapon in the fight is testing. Work by my colleague, Dr. Ashleigh Tuite, shows that without aggressive testing, control measures like contact tracing are likely to be fruitless, as we will only perform contact tracing on tested cases. If we fail to test at scale, we will miss too many additional cases for contact tracing to change the dynamics of the epidemic. It will simply be a waste of resources. If we test at scale, we can keep the epidemic in our sight and move toward economic revitalization while keeping Canadians safe.

Testing will be our eyes and ears as we move forward to open our economy, but the laboratory is a tool that needs to be used differently in different settings. We need to establish regular testing regimens for those who work in congregate settings with vulnerable individuals, especially in long-term care and in hospitals. Testing in a stable and consistent way allows us to estimate the reproduction number of the epidemic and know when we're headed back into exponential growth. We want to find all the cases we can. That's how we prevent sparks from turning into forest fires.

Hospitalizations and deaths are easy to see, but they're lagging indicators. Instituting control policies once those are surging means that we've already missed the boat. We can use non-traditional surveillance tools, too, like web-based syndromic surveillance, and even surveillance of sewage for coronavirus levels, as is already being done in other countries. Situational awareness will keep us safe as our economy comes back to life.

We can also demand more of our country. This epidemic shows us that having laboratories with 21st century diagnostic technology, but public health information systems that depend on fax machines from 1995, will hold us back. We can demand more transparency from our leaders. As action by the public is central to disease control, it's important that the public be kept in the loop and made to feel like they're on the team. Indeed, they are the team.

We need clear, transparent benchmarks across the country on testing, on turnaround times for case reporting and contact tracing and for the reproduction numbers that will be used to determine when we need to strengthen distancing and when we can loosen it. We will have more setbacks; the countries with the strongest response programs in the world have all suffered them. We will too. I'd ask you not to throw your hands up and let the virus win.

Don't let uncertainty distract you from the mission. Uncertainty is to be expected for a disease that's been in humans for 24 weeks. Don't let smug professors bully you about the absence of randomized controlled trial evidence for control of a disease that has only existed for half a year. We can acknowledge uncertainty and be humble about this disease, but always put the lives and livelihoods of Canadians at the forefront when we make our decisions.

Thank you for the opportunity to answer your questions today.

● (1640)

The Chair: Thank you, Dr. Fisman.

We go now to Dr. Schabas.

Please go ahead. You have 10 minutes.

Dr. Richard Schabas (Former Chief Medical Officer of Health for Ontario, As an Individual): Mr. Chair and members of the committee, it's a privilege to speak with you today.

I'm a retired physician. I practised medicine for 40 years in two specialties: public health and internal medicine. I worked in local public health for 15 years. I was Ontario's chief medical officer of health for 10 years. I was directly involved in the 2003 SARS outbreak as the chief of staff of York Central Hospital. I have published academic and popular articles on relevant subjects, such as SARS, quarantine and bird flu.

Canadians on the whole enjoy a wonderful standard of health, resting on the foundation of the social determinants of health: education, employment and our social fabric. Anything that threatens these foundations threatens our public health.

Canada is now faced with both a tragedy and a crisis. The tragedy is caused by COVID, a respiratory virus. It has the potential to cause the deaths of tens of thousands of Canadians, overwhelmingly old and infirm.

The crisis is caused by our attempts to control that virus. The crisis has the potential to cause severe and lasting damage to the fabric of our country's economy, education, social and cultural institutions, and mental health that will have repercussions for our public health for decades.

The tragedy is a natural disaster that saddens me and saddens us all. The crisis is a self-inflicted wound that frankly terrifies me. It offends social justice, because the burden of the crisis falls disproportionately on children, young families and blue-collar workers. The more we focus exclusively on COVID, the greater the danger to our public health.

The best analogy to the COVID outbreak is the H2N2 Asian flu pandemic that swept around the world in the fall of 1957. Asian flu caused more disease and a much higher death rate, especially in younger people, than COVID. Asian flu killed between one million and two million people in a matter of a few months in a world population one-third the size of today's. That's the equivalent of three million to six million deaths today, many more than from COVID. Asian flu was a tragedy, but it wasn't a crisis, because 60 years ago people responded differently. Some modest control measures were taken, but they were very temporary. The world moved on.

Perspective isn't very popular with COVID, but I think it's important. We get spooked by COVID deaths because every day we see the numbers for COVID, but not for anything else. Death is a common phenomenon in our world. Almost 300,000 Canadians will die this year, like every year, from cancer, heart disease, stroke, motor vehicle crashes, suicide and a myriad of other causes. Since mid-March, for every Canadian outside long-term care who has died of COVID, 50 Canadians have died of something else.

We have frightened people. Predictably, the media has led the way. But public health has also frightened people, I think, to promote better compliance with social distancing. This was wrong for two reasons: first, it's cynical; and second, it now will make it that much harder to step down.

My wife and I live in Toronto. When we walk our dog, we see two kinds of people— those like us who have done the math and aren't really frightened by COVID, and those who think walking the streets is dangerous. But there's a third group, the people in our building whom we haven't seen for two months who are too terrified to even go outside. Getting them to re-enter the world will be a tremendous challenge.

The only reliable defence against a respiratory virus is immunity. You can get immunity from being infected or you can get it from a vaccine. A safe and effective vaccine would be wonderful, but it would be foolish to build public policy around expectations of a vaccine any time soon. Any strategy that doesn't take us towards immunity ultimately leads us nowhere. So long as the disease is circulating elsewhere, it's coming back here too. Provincial or national elimination is a false promise.

• (1645)

Population immunity leading to herd immunity is a natural phenomenon not an intervention, not an experiment. Herd immunity is what has controlled every other respiratory virus. We will get there sooner or later with COVID. The policy challenge is to mitigate the worst effects of the disease while protecting the real determinants of our health: education, employment and our social fabric.

We have better information about COVID than we did two months ago. We know that COVID is very serious, certainly much more serious than I, for one, expected. However, it's also not the apocalypse that some of the models had predicted, not even remotely close. The comparison should be with 1957, not 1918.

We know that our health care system can cope. A combination of expanded capacity, better treatment strategies, and triage mean that the apparent capacity crisis in Italy has not been repeated here or really anywhere else. We know that the great majority of people in Canada are at very little personal risk of death from COVID. For virtually everyone under the age of 60 and for people without serious comorbidities to a much older age, the risk of death from COVID infection is not materially different from the risk of dying from influenza. We are two populations: the frail elderly for whom COVID is a deadly disease and the great majority for whom it is not.

Canada's experience in the last two months has been problematic. We seem to have been reasonably effective at reducing infection in the community, but we have not been effective in protecting the institutionalized, frail elderly because of a massive failure of infection control in some facilities. As a consequence, we have had many deaths, but we have relatively little population immunity.

The COVID outbreak in the northern hemisphere has been on the wane since late March—for almost two months. The policy tide worldwide is now towards reopening. Canada will be swept along.

My real concern is that the virus will return, probably in September, and that our attempts to control it with widespread testing and contact tracing will probably fail. I've worked long enough in public health to understand the limitations of contact tracing as a disease control strategy, particularly for a disease like COVID.

However, when this strategy fails, will we panic and lockdown again, this time indefinitely, or will we respond in a more measured and rational way? We have some time to prepare. If plan A is based on testing and contact tracing, we need a plan B. What should we do now?

First, we need to identify those things that are fundamentally non-negotiable. Education, which requires the reopening of schools, and employment, which requires that many people return physically to work, should be top of the list, along with access to medical and dental care.

Second, we need to be clear that we are pursuing the policy of mitigation not elimination. With mitigation, we can tolerate an increase in cases when we open up now, and again when the disease resurges in the fall. We will regard community spread as inevitable and as a step towards population immunity.

Third, we need to do serious policy work to identify those aspects of social distancing that are effective, acceptable and sustainable. Canada's latest fad is for non-medical masks, based on the thinnest of evidence. Let's think carefully before we change ourselves into a society that hides its face in public.

Fourth, we must develop better strategies to protect the vulnerable, particularly better infection control in long-term care institutions. This alone will go a long way towards reducing mortality.

Fifth, we need to change our messaging to the public to better reflect their real risk of serious illness and death so that people will be willing to come out of isolation and resume normal life.

Sixth, we need to look for ways to develop public health policy nationally. We need a national, not a federal, public health agency that engages the provinces with the federal government as equal partners.

Thank you.

• (1650)

The Chair: Thank you, Dr. Schabas.

We'll go now to Dr. Khan from BlueDot. You have 10 minutes.

Dr. Kamran Khan (Professor of Medicine and Public Health, University of Toronto, Chief Executive Officer and Founder, BlueDot): Good afternoon, ladies and gentlemen, and thank you for inviting me to be a part of this important discussion today.

First let me introduce myself and tell you a bit about my background and its relevance to today's meeting. My name is Kamran Khan, and I'm a physician trained in internal medicine, infectious diseases, and preventive medicine and public health. I practise medicine and am an epidemiologist who has been studying outbreaks and emerging infectious diseases at St. Michael's Hospital in Toronto for the past 17 years. I'm a professor of medicine and public health at the University of Toronto and am the founder and CEO of a digital health company called BlueDot.

What has motivated me to dedicate my professional life as a clinician, an academic and an entrepreneur to the field of emerging infectious diseases? Twenty years ago, I began my training in infectious diseases and public health in New York when West Nile virus arrived in the city and began its westward march across the continent. Two years later, shortly after the terrorist attacks of September 11, 2001, anthrax was weaponized and dispersed through the U.S. postal system, reminding us that deadly outbreaks can arise from deliberate acts. After returning to my home in Toronto two years later, a coronavirus known as SARS spread from mainland China to dozens of cities and countries around the world, including Toronto, where it triggered a deadly outbreak that lasted four very long months. While the world had never seen an outbreak quite like SARS before, it was clear that this wouldn't be the last time.

The world is changing in ways that are driving the emergence and spread of dangerous diseases, but it's also changing in other ways that can play to our advantage. The rise of big data, the advent of artificial intelligence and emerging digital technologies offer us the raw materials needed to literally spread knowledge around the world faster than any outbreak. This was the inspiration for BlueDot's founding six and a half years ago, to build a digital global early warning system for infectious diseases that can transform how the world prepares for and responds to tomorrow's inevitable infectious disease threats, whether they arise from Mother Nature, accidents or deliberate acts.

The early warning system we have developed at BlueDot serves three key objectives: first, to detect infectious disease threats as early as possible to buy ourselves valuable time; second, to assess their potential for global spread and impact so that we can channel our finite resources to the right place at the right moment; third, to empower a wider array of decision-makers, from government to health care to the private sector, with timely insights so that together we can mobilize highly effective, efficient and coordinated responses.

To detect threats at their earliest stages, our early warning system processes vast amounts of online data in 65 languages, searching for early signals of outbreaks involving over 150 different diseases and syndromes, 24 hours a day, 365 days a year. The surveillance engine does not rely solely on official news of outbreaks reported by government agencies, but also analyzes unofficial information generated through digital media, health blogs and other online sources.

This engine picked up an article in Chinese on the morning of December 31, 2019, reporting on an outbreak of pneumonia of an unknown cause in Wuhan, China. This event certainly captured my attention, given the number of parallels to the emergence of SARS in 2003. Within a few seconds of detecting the outbreak in Wuhan, our system analyzed the flight schedules and anonymous itineraries of hundreds of thousands of travellers departing Wuhan on commercial flights for destinations around the world. Given our early concerns about this outbreak, my team submitted results of this analysis for publication in an open access, peer-reviewed scientific journal on January 8, 2020, in order to make this data freely available for anyone to access. This analysis accurately identified many of the cities outside of mainland China that were among the first to confirm cases of COVID-19.

As cases of COVID-19 arrived in North America, our team began generating insights to support public health efforts to mitigate domestic transmission of this virus within our communities. These analyses made use of anonymous location data generated from mobile apps to understand the movements of populations—critical insights for public health officials to optimize and strategically make use of their finite human resources across the country and over time.

It's worth noting that BlueDot only makes use of third party data that is anonymized, adheres to all legal and regulatory requirements, and is aggregated up to the level of populations. These location data have been used for years in sectors from urban planning to transportation to retail, among others. Here, we're making use of them for the sole purpose of safeguarding communities and protecting lives during the midst of a pandemic.

• (1655)

At BlueDot, our diverse team, comprising physicians, veterinarians, epidemiologists, geographers, ecologists, data scientists and engineers, has been diligently working for the past six and a half years leveraging data, advanced analytics and emerging digital technologies to develop innovative solutions that are capable of generating insights to mitigate risks from infectious disease threats in our rapidly changing world. But insights are only meaningful if they are translated into action, and that translation can only happen through partnerships.

In this regard, BlueDot has a long-standing partnership with Global Affairs Canada, going back to 2014, in which we have been building and implementing digital systems to manage infectious disease risks across the Association of Southeast Asian Nations. In 2019 we began a partnership with the Public Health Agency of Canada, channelling our efforts to mitigate domestic risks from global infectious diseases. Now, as the COVID-19 pandemic evolves into new phases, we continue to work together to mitigate its impacts across the country.

I'd like to conclude by saying that Mother Nature is sending us a message. A confluence of forces in our rapidly changing world—population growth, urbanization, the industrialization of agriculture, the disruption of wildlife ecosystems, climate change and increases in global population mobility—is accelerating the emergence and global spread of infectious diseases with unprecedented consequences. As global citizens, this is a reality we have to confront, or we risk finding ourselves in the same precarious position we are in today a few years down the road.

We have also learned that outbreaks move incredibly fast in our hyper-connected world. If we want to remain a step ahead, we are going to have to move even faster. Thankfully, we have what is needed to generate powerful insights: access to diverse and novel data, and human intelligence coupled with artificial intelligence to derive meaning from these complex data.

We need to translate insights into actions that reach across the whole of society. Governments empowered with timely insights will be better able to protect their citizens and economies from dangerous global infectious diseases. Hospitals and health care providers will be better able to protect themselves and the rest of us from these very same diseases. Businesses will be better able to protect the lives and livelihoods of their employees and customers. Creating an ecosystem to manage these risks together is not only possible, but, in my opinion, necessary.

A final thought to leave with you is that our most valuable resource is time, and it is a non-renewable resource. When we get through COVID-19—and we will—the question for all of us will be whether we will use every day of peacetime to prepare for the next inevitable threat with the same sense of urgency with which we are responding to COVID-19 today.

Thank you for the opportunity to share my thoughts with this committee.

The Chair: Thank you, Dr. Khan.

We go now to Mr. Ciciretto, president and chief executive officer of Dynacare.

Go ahead, please. You have 10 minutes.

Mr. Vito Ciciretto (President and Chief Executive Officer, Dynacare): Good afternoon. Thank you, Mr. Chair and members of the House of Commons Standing Committee on Health, for your invitation to this very important meeting. I hope that each of you and your families are healthy and well. It is a privilege to be with you today on behalf of Dynacare to discuss the Canadian response to the COVID-19 pandemic.

At Dynacare, we believe that life is precious. Our mission is to support the health of Canadians with commitment and care. That is why we do what we do. Our 2,900 Dynacare employees deliver the highest level of clinical and scientific testing to provide the necessary information that supports the diagnosis, treatment and well-being of Canadians. Each and every day we provide testing and medical laboratory services to over 32,000 Canadians across the country, amounting to over 11 million tests annually. We operate 200 convenient and accessible specimen collection centres in Ontario, Manitoba and Quebec. We operate seven state-of-the-art laboratories in

four Canadian provinces. We report over 500 critical results requiring immediate action by physicians.

Our goal is to inspire confidence in Canadians when it comes to managing their health and well-being. To achieve this, we have elevated the patient experience at our specimen collection centres. We continuously innovate by introducing new and improved test methodologies such as genetic testing; liquid-based cytology; non-invasive prenatal testing; and the piloting of Pixel, a self-collection test methodology utilized in remote rural communities. We have introduced patient-friendly diagnostic testing reports and digital apps that help Canadians better manage their health journeys.

This unprecedented pandemic has highlighted that the work we do at Dynacare matters now more than ever. We are very proud to play a critically important role in supporting the provincial public health authorities of Ontario, Manitoba and Quebec in their efforts to control this pandemic. Since March 25, our talented scientific and laboratory professionals at Dynacare have conducted over 40,000 COVID-19 molecular tests across these provinces, including COVID-19 testing for members of vulnerable and priority populations, such as those in emergency shelter systems, residents of long-term care facilities, EMS first responders and health care workers.

Even throughout this pandemic, Dynacare has continued to operate its laboratories and accept patients at our collection sites for urgent non-COVID-19 testing. In addition to the provision of COVID-19 testing, our community laboratory infrastructure has helped to alleviate pressure on provincial public health systems and hospitals. In particular, our medical couriers have quickly and safely transported COVID-19 test specimens from screening and assessment centres to Dynacare, public health and hospital laboratories. On behalf of the provincial public health labs, we have delivered negative COVID-19 test results to over 25,000 patients. We have supported vulnerable populations by establishing designated Dynacare specimen collection sites for immunocompromised patients and for COVID-19 positive patients. We have engaged in non-COVID-19 sample collection at long-term care facilities.

Our employees have rallied behind Dynacare's response to this pandemic and, as such, we celebrate the many acts of compassion through our Dynacare health care heroes social media campaigns. Our people are the ones who have truly stepped up.

The COVID-19 testing system has generally been working well with strong collaboration among public health agencies, community laboratories and hospitals. But, as with any unprecedented and rapidly evolving environment, there are challenges and opportunities for improvement.

The technical nature of the nasopharyngeal collection process, along with the required swabs that are employed in the collection of a COVID-19 sample, have been rate-limiters in terms of testing and have increased the demand for PPE. At over 200 collection centres, Dynacare has over 850 phlebotomists who are not authorized to collect samples using the current collection devices.

● (1700)

By employing alternative specimen collection procedures used in other countries, our team can support provincial screening. To this end, Dynacare is embarking on a study with Sunnybrook Occupational Health to validate alternative sample collection methods using saliva and front-of-nose collected specimens. The results of this study are expected within a few weeks.

Second, shortages of testing reagents and collection kits were common early in this pandemic. Due to increased vendor production and the proactive response of our supply chain team, we appear to have sufficient supply for our current volume of testing. However, in order to support expanded testing needs, our intention is to increase testing capacity, both through new collection techniques and through supply chain preparedness. Global demand has made it very difficult to secure additional testing capacity and reagent supply on a timely basis. Vendor allocation practices drive more test capacity and reagent to jurisdictions that have been more severely impacted by the COVID-19 virus than Canada has.

It's important to everyone at Dynacare that at the end of every laboratory test we perform there is a person—a mom, a dad, a daughter, a friend. It is not uncommon for our dedicated teams of employees to go above and beyond the call of duty by helping to secure a replacement test requisition for a patient, by leading a drive-by convoy to acknowledge the efforts of front-line health care workers at hospitals, or by making extended efforts to contact a patient with a critical result.

We treasure the value that our dedicated employees bring to the health care system, and we go to great lengths to take care of them. Notwithstanding the significant drop in non-COVID-19 test volumes during this pandemic, we have not thus far implemented furloughs, layoffs or reductions in base pay, due to our long-term philosophy and government wage programs. We are very proud of this and believe that it positions us well for the future. As doctors' offices and clinics reopen, as elective surgeries start again, as insurers and employers resume regular activities, Dynacare will be in a position to meet the laboratory testing needs of our patients and clients and support our health systems across Canada.

Unquestionably, our workplace will be defined by a new normal, with new social distancing and PPE protocols that will protect our patients and our people. As the number of patients requiring service continues to increase, these new protocols will demand the need to adapt, and we will.

Across Canada, some provinces are slowly beginning to open back up in ways that we would not characterize as business as usual. In the absence of a vaccine and lack of scientific consensus on the potential for immunity to the COVID-19 virus, some employers are expressing concern that their workplaces could be prone to COVID-19 outbreaks. Employers across a number of sectors, including food and beverage production, natural resources, manufacturing and many more have expressed an interest in the provision of COVID-19 testing at their own cost. Dynacare's priority will always be supporting health systems in responding to the emergency presented by COVID-19. As the economy opens up, we see a need to work with industry to avoid workplace outbreaks as a means to limiting the community spread of COVID-19.

Key to restarting the Canadian economy is high-quality antibody testing, which can determine whether an individual has been exposed to the COVID-19 virus. Public health authorities, in conjunction with medical and scientific experts, are working to determine how COVID-19 antibody testing could be applied.

This past week, two COVID-19 antibody tests were approved by Health Canada. Dynacare is currently working with two additional vendors who will be seeking Health Canada approval for an antibody test. A community laboratory like Dynacare is very well positioned to support large-scale provincial COVID-19 antibody testing surveillance programs through its extensive specimen collection network of 200 centres, our well-equipped laboratory facilities and our extensive logistics network. We do this every day—efficiently, effectively and with compassion.

In public health emergencies, those in poor health or with underlying chronic conditions are often the most vulnerable.

● (1705)

For many, the COVID-19 pandemic has emphasized the importance of keeping Canadians healthy and decreasing the prevalence of chronic conditions such as cardiovascular disease, lung disease, metabolic syndrome and diabetes.

At Dynacare, we believe that life is precious, and we look forward to continuing to improve the health of Canadians by providing ongoing support to provincial health care systems and through health and well-being programs at Canadian workplaces both through the COVID-19 pandemic and beyond.

Thank you again for the opportunity to address this committee.

Take care and be well.

The Chair: Thank you, Mr. Ciciretto.

We'll start our rounds of questioning now. We will do three rounds. We will start the first round with Ms. Jansen.

Ms. Jansen, please go ahead. You have six minutes.

Mrs. Tamara Jansen (Cloverdale—Langley City, CPC): Thank you to everybody for all your presentations. That was very wholesome. It was great.

I'd like to start with Professor Attaran. I found your written submission very interesting, and I had to chuckle when you pointed out the fact that some hospitals are still faxing in their data. My first foray into state-of-the-art technology on the farm was when we bought a fax machine back in 1992, 28 years ago.

However, in order to stay in business, we obviously had to invest in better and better data collecting technology. I have to say that I was completely shocked to find out from previous witness testimony at this committee that our health care system doesn't have a real-time data collection system in place, especially considering the different recommendations that have been made following previous pandemics.

We have had several witnesses come to this committee and beg us to find a way to move forward with a pan-Canadian data collection system that works in real time. A system like this could help us on so many different levels, not just during a pandemic, but it seems there is this fear that sharing information in this way will compromise the autonomy of provincial and local health authorities.

In your opinion, is there not a way to ensure that each provincial and regional jurisdiction can continue to make decisions that make sense for them while still sharing their data and helping the country with a more informed pandemic response?

• (1710)

Prof. Amir Attaran: What a great question, thank you.

On the question of sharing epidemiological data, it's like this: If you had a number of people who had pieces of a map of a minefield, would you tolerate them not sharing that data? I think you'd probably want to have a map of the entire minefield, not just your little patch of it, if you were setting out on a journey.

The current situation is as foolish as that. Each province has a certain amount of data about the outbreak within its borders, and it can either contribute that piece to modelling exercises or not, and depending on whether it does so or not, we have a better or worse view of the epidemic.

The answer to your question lies in a legal part as well as an administrative part. Legally it's very simple. Cabinet just needs to use section 15 of the Public Health Agency of Canada Act and issue an order in council that data must be provided, period.

Parliament gave it that power. It simply leaves me speechless that the current cabinet hasn't used it. That is something I hope you follow up.

Mrs. Tamara Jansen: Okay, I have a really short amount of time, sorry.

Prof. Amir Attaran: I'm sorry.

Mrs. Tamara Jansen: Okay, I appreciate that.

You mentioned in your submission the dysfunction that we have in sharing data, and, again, being from a business background.... I worked in the retail sector for many years, and our spring season was always very short. We had an eight-week period across multiple provinces, so that meant timely data was absolutely critical to make these decisions on where to send what product and when. We were able to take into consideration those regional differences to ensure the right assets were sent to the right place at just the right time, and we know the technology is available for a pan-Canadian data system.

Yesterday Dr. Tam mentioned that PHAC has no choice, and now you are mentioning they actually do under section 15, so it strikes me that, if Statistics Canada is able to aggregate information about Canadians without violating privacy rights, surely the health care system can do the same.

Prof. Amir Attaran: Statistics Canada can do the same, too. They could build the system inside of about a couple of weeks, I'm told, but they need the mandate from cabinet. That is what's missing. There you go.

Mrs. Tamara Jansen: Okay.

Prof. Amir Attaran: I will just add one last thing to this. There was a time in this country when the federal government did provide a contract to somebody to develop such an epidemic data reporting system. It was given to IBM Canada. The system did not function, and they are the same ones who are behind Phoenix, so there is not a good history here.

Mrs. Tamara Jansen: Okay. Thank you.

I've asked numerous witnesses if they would give PHAC a grade on their pandemic response. So far no one has been willing to give me a straight answer. I've been hearing of some backlash by PHAC to those who are vocally critical in their response to the pandemic.

Are you willing to give me a grade, or could that disadvantage you in your work in some way?

Prof. Amir Attaran: My grade is a C-minus or a D. And there is retaliation, yes. Since the last time I appeared in front of this committee, and was negative about some of those efforts, I was asked to join a grant application with people from PHAC. I understand they said they wouldn't participate unless I stood off it, which I did willingly because I didn't want to cause trouble for my colleagues. But I don't feel there should be retaliation against witnesses simply for providing our democratic government what we think is the truth.

Mrs. Tamara Jansen: Okay. Thank you for that direct answer. I appreciate that.

Yesterday, Dr. Nemer talked about the task forces she set up to tackle the Canadian pandemic response. She mentioned that, although she could share the agendas, she couldn't share the deliberations or findings because they are secret. I believe other countries around the world that have set up similar task forces are sharing their research papers publicly, which helps us all.

Do you think the findings of these task forces should also be public so we can have that timely data sharing for a better pandemic response?

• (1715)

Prof. Amir Attaran: I can't even believe that's a question. Of course, it has to be public. Science is always conducted in public. If you look at a country like Switzerland, they too have a task force on COVID, a scientific task force. If you go to the website over two dozen public reports by that task force are published. If Switzerland, little Switzerland, can get two dozen reports out of their task force by now, why does Canada have zero? It's shameful.

The Chair: Thank you.

Mr. Fisher, please, go ahead. You have six minutes.

Mr. Darren Fisher (Dartmouth—Cole Harbour, Lib.): Thank you, Mr. Chair.

Dr. Fisman, you have a wealth of experience in the battle against infectious diseases, yet you've publicly explained that predictions you made earlier this year on the virus were wrong. I think we can both agree that hindsight is 20/20. There's been a lot of discussion at this committee about why certain decisions were made in the early days of this virus.

I wonder if you could explain to this committee, and to Canadians, about the difficulties of making predictions around a novel virus, and why what's considered the best advice one day can change and evolve so quickly the next?

Dr. David Fisman: I think part of the difficulty relates to the fact that viruses are the troublemakers, and Dr. Khan alluded to this. The troublemakers tend to be RNA viruses, that's their genetic material that comes from animals. RNA viruses are very good at mutating. What we see with this virus, which is a cousin of SARS 1, and bears a lot of similarity to SARS 1, is that it behaves differently in important ways. Being 80% similar can still translate into some very important differences, but some very important similarities.

What we tend to see, what we almost always see with infectious diseases as they emerge, is we find out about hot spots first. Typically we have this sense of the virus being more virulent than it ultimately turns out to be. That's certainly been the case with some outbreaks. What we saw with this virus, also initially, was it looked a lot like SARS based on the information we knew from China. I've acknowledged publicly I think my biggest mistake was thinking it really was looking like SARS in China. We did some forecasting on how the Chinese seemed to be doing in controlling it, and we accurately forecasted that it would be done in Wuhan by early March. That was right, but the difficulty was we didn't see Iran coming. Once you saw this in Iran, you knew the game was over, and this was going to disseminate around the world.

They're all the same, but they're all different. When you look at some of the key parameters, as we talk about, with these diseases, which let you sort of predict how things are going to play out, some important numbers include the reproduction number of the disease, the number of new cases per old case. This virus turns out to be a real trickster, in that it's got what's called an overdistributed reproduction number, where many cases are dead ends but some individual cases make 40 secondary cases. You see that play out again and again, whether it's in nursing homes, on cruise ships or in restaurants. As you know, there's the single individual in Korea who infected 40 secondary cases and sparked a massive outbreak in the city of Daegu.

That makes it difficult. It also provides a potential vulnerability for the virus in terms of control, because once you get rid of those large gatherings that make super-spreading events difficult, the virus becomes much less transmissible. The initial case fatality that we saw coming out of China—that's deaths per case—was listed as 2.4%. Of course, deaths go up slowly with this thing, because people die in the ICU. The China case fatality I think at this point is 5% or 6%. We're at 7% in Canada.

As for what we know now, we've been helped a lot in this regard by data from Spain from last week, from a national seroprevalence study, where they were able to find both the recognized and the unrecognized infections. About 5% of the country of Spain has had this, with 27,000 deaths. Now we're able to go from a case fatality in Spain, which is deaths per recognized case, down to an infection fatality rate, which in Spain we now are pretty sure is about 1.2%, based on seroprevalence data.

The fact that Spain is at 5% prevalence 30,000 deaths in, with an infection fatality rate of 1%, makes me very concerned about some of Dr. Schabas's remarks in terms of moving towards herd immunity. We think that we'd hit herd immunity at 60% to 70% of Canadians infected. Seventy per cent of Canadians infected is 28 million people, and 1% of that is 280,000 Canadians dead. I would note that the failure to have mass mortality in Canada to date relates to the public health response.

I would also note that we can do this because we've shown around the country that we can control this disease without just letting it rip and pushing for herd immunity, as they're doing in Sweden. We've seen competence in British Columbia. We've seen tremendous competence in Atlantic Canada and on the Prairies. We can do this. We just need to get the job done.

Throwing your hands up and saying that we're going to follow Stockholm, Sweden, which is currently leading Europe in per capita mortality, is not the way to go, in my opinion.

• (1720)

Mr. Darren Fisher: Thank you. I had other questions for you, and I think we've run out the clock—

Dr. David Fisman: I'm sorry.

Mr. Darren Fisher: —but I do want to say that this is excellent and very thoughtful testimony, and I want to thank you for that, Doctor.

Dr. David Fisman: Thank you.

Mr. Don Davies (Vancouver Kingsway, NDP): Mr. Chair, I have a point of order.

I'm still somewhat shocked at the evidence I heard from Dr. Attaran about him potentially being discriminated against or having retribution threatened against him as a result of this testimony before the health committee. All of us, as members of this committee, have an interest in upholding the integrity of this committee and ensuring that all witnesses who come before us can give us the sincere, unvarnished benefit of their opinion, particularly when we're talking about science.

I would like to ask that this committee formally request that Dr. Attaran indicate to us full details of what has occurred by PHAC or Stats Canada, or whoever it was, to ensure that the integrity of this committee is upheld at all times.

The Chair: Thank you, Mr. Davies.

Under our current operating mandate, we don't have the authority to do that. We can certainly invite him to submit all of the evidence, all of the allegations he has, to us or to the Speaker of the House. We would be unable to deal with a matter of this kind in our current operating situation.

Mr. Don Davies: Mr. Chair, if I might—

Mr. Robert Kitchen (Souris—Moose Mountain, CPC): Mr. Chair—

Mr. Don Davies: —I would vehemently dispute that. This committee is mandated to receive evidence. It's clearly in the consent order of the House of Commons. If we have evidence before us that witnesses are being pressured or intimidated against not giving evidence, that is a direct interference with the precise mandate of this committee.

On the record, I'm happy to ask Dr. Attaran to provide those details, but for the record, I want to state in the strongest terms possible that it is absolutely the prerogative and mandate of this committee to ensure that we uphold the integrity of our process. Any time we hear that a witness may have been intimidated, or harmed in any way, for simply accepting the invitation from us to come and give us the benefit of their testimony, it's absolutely part of the pith and substance of this committee, and I will pursue this matter fully once we get that information from Dr. Attaran.

The Chair: Thank you, Mr. Davies. Your point is well taken. I will take the matter under advisement and—

Mr. Robert Kitchen: Mr. Chair, I have a point of order.

The Chair: Dr. Kitchen, go ahead.

Mr. Robert Kitchen: Mr. Chair, I'm 100% behind what Mr. Davies said, but my point of order extends further than that. We as committee members are here to present and ask questions, to protect our witnesses as well as ourselves, and to make certain that we have that protection. If we do not have that as a committee, the questions and points that we may bring up can be held against us,

and that's just not acceptable. How can we function as a committee if that's not the place?

• (1725)

Mr. Matt Jeneroux (Edmonton Riverbend, CPC): Mr. Chair, just to add on to that, if you could point us in some direction as to why you don't think we have these powers to be able to do that in this committee....

I disagree with you. I agree with Mr. Davies that it's within the mandate of this committee to ask for that testimony.

If you can point us in that direction, please do. If you can't, then I suggest we allow Mr. Davies to proceed with his point of order.

The Chair: Your points are well taken. It should be pointed out that all testimony before this committee, when it's operating in official capacity, is privileged. We have parliamentary privilege. Any repercussions that follow from that would be a serious matter, but our mandate is solely to receive evidence.

We are explicitly allowed to move motions relating to the invitation and scheduling of witnesses. We do not have the authority at this time to undertake a motion to demand information about matters such as this, but I certainly would welcome Dr. Attaran's information if he should provide it.

I wonder if our clerk would like to give an opinion on this.

[*Translation*]

Mr. Luc Thériault (Montcalm, BQ): Mr. Chair, I would like to raise a point of order.

Professor Attaran seems to want to add a comment. Perhaps he could clarify what it is, which could help you deliberate further. I would be prepared to let him speak quickly, since I thought I saw him raise his hand. So I would like us to hear what he has to say. Then you could deliberate on that.

[*English*]

The Chair: Witnesses aren't able to participate in the committee on points of order, but as I said, I will welcome his information. I invite him to bring it to the committee, to send it to the committee.

The clerk will be looking into this matter and will come back to us at a later time with an opinion. In the interim, I will reserve judgment and suggest that we carry on with the testimony.

Mr. Thériault, please go ahead. You have six minutes.

[*Translation*]

Mr. Luc Thériault: Thank you, Mr. Chair.

I am going to address Professor Attaran first. These days, we can say that science is being tossed around a lot. All decisions are supposedly made in the name of science. One might even think that it is being used more to justify some political dithering.

Mr. Attaran, on page 3 of your brief, you say the following:

...the Prime Minister hesitated, perhaps because of the scientifically inaccurate advice from his Minister of Health, that closing the borders to slow the disease down is "very ineffective."

Some people argue that border closures have no significant effect in stopping the spread of the disease. I understand you disagree. Should the borders—especially the U.S. border—have been closed much sooner?

Did we have all the information we needed to make that decision? If not, what would have been required to make that decision as quickly as possible? What is the reason for the conflicting scientific advice?

Prof. Amir Attaran: You are right that scientific issues are often politicized, and that was the case with the border closure.

In my view, the purpose of closing the border is to protect us, especially in the case of the U.S. border. However, as you already know, the WHO says that it is almost useless, and the minister said that it is useless, but I disagree.

I know that, after the disaster we are now experiencing, we will rethink these issues. In Africa, for example, the borders between countries were quickly closed. They learned that lesson from the Ebola crisis. Now we see that nations are more protected. The infection rate in Kenya and Rwanda, for example, is lower than it would normally be. So it works.

• (1730)

Mr. Luc Thériault: Some witnesses have told us that we cannot fall behind in the case of this virus. The fact that the incubation period is often 14 days means that, since the beginning of the pandemic, we have constantly been feeling that we are playing catch-up. So I imagine that things should have been done differently and that decisions should have been made much more quickly.

You were talking about structural and systemic difficulties related to the Confederation and the inability of the scientific community and public health authorities to work in a coordinated manner and in real time with respect to sharing data.

What is the point of not working together? What justifies it? You gave the example of Ontario during the SARS episode. What is the point of those provinces or Quebec not working together? I have trouble understanding that.

Prof. Amir Attaran: I don't understand it either. It's almost dangerous to think of our Confederation as 10 provinces that are not connected through their biomedical resources, especially considering the virus that's connecting us right now. You are right.

Mr. Luc Thériault: How could legislating or establishing regulations be more effective? I'm trying to understand the motivation behind this inefficiency.

Prof. Amir Attaran: To answer more effectively, I have to speak in English. May I?

Mr. Luc Thériault: Yes, of course.

[English]

Prof. Amir Attaran: I'm sorry, but some of the legal words I don't know in French. I try.

The order in council that would be necessary to make data exchange mandatory between the federal government and the provinces is not a controversial thing. It is something that Parliament put into the law in, I believe, 2004 or 2005. Simply put, it

should be used. We should not let our preconceptions about the appropriateness of what the province may do, or what the federal government may do, stand in the way of the clear reading of the law. You, as parliamentarians, created that law on sharing, and I'm grateful to you for doing so. It's a very useful tool, but it does need to be used.

I think Dr. Fisman would probably be able to add something to this.

Dr. David Fisman: I'm not sure, though I could add my perspective as a researcher based in Toronto since 2006.

What I've always found astounding is the failure to make accessible data that are paid for, assembled and cleaned on the public dime available to Canadians in a manner that doesn't threaten anyone's privacy or well-being. I've found that astounding for a long time.

A lot of my work, since I've come to Toronto, uses the national hospital discharge survey from the United States, which is pretty similar to the stuff you get from CIHI, except that if you ask for the data online from the CDC, they will FedEx it to you and pay for the FedEx, whereas if you ask for the same stuff from CIHI, you pay them. I don't understand it.

There's a much deeper issue here than COVID, and I thank my colleague for flagging it. We have a culture of what I call data hugging in Canada, and it does need to change. It harms us all.

• (1735)

The Chair: Thank you, Mr. Thériault.

We will now go to Mr. Davies.

Mr. Davies, please go ahead for six minutes.

Mr. Don Davies: Thank you.

Dr. Fisman, last week you were interviewed on TVO and you said, "I think there are a lot of folks who are itching to declare victory and open things up again, which is a bit of a problem because the reason that infections are subsiding is because we have distancing in place." Are you concerned that some provinces and territories may be moving too rapidly to open?

Dr. David Fisman: I think my own province is, and I appreciate tremendously the pressure our premier is under. I think he's done a marvellous job given the cards he's been dealt, but I'm also aware there are a lot of folks who want to get back to business.

I'm not sure whether doing a screen share on Zoom is part of parliamentary committees, but we are looking at reproduction numbers here in Ontario. That is the number of new cases per old case. What we see is that the disease has clearly surged over the last week in Toronto, particularly in Peel. Part of that is from the liberalized use of testing, which drives the numbers up. Part of that is probably from the anticipation of greater economic opening. I think we may get a couple of rude bumps along the way, but ultimately distancing will be our parachute. If things start to look too grim, they'll be able to close things back down again, but, yes, I'm concerned that there's tremendous momentum to get folks back to business.

There's a lot of economic activity that could resume safely in the province of Ontario. Ontario is a big place. It's bigger than France, and we have regions.... Dr. Attaran referred to the city of Kingston. It has had one or two cases over the last 10 days but is subject to the same blanket lockdown as Toronto and Peel, which have had a couple of hundred cases a day. I think more—

Mr. Don Davies: I'd like to direct you to some of the things we should be doing.

You also said in the interview, "Predictably, as we reopen, we'll see a resurgence of disease."

Dr. David Fisman: Right.

Mr. Don Davies: That's exactly what we've seen in Korea and in Germany this week, two places that controlled their initial epidemic faster than we did and are moving toward revitalization. They've seen resurgences, just as Singapore did before them and just as Wuhan did last week.

What do you recommend we do, given that you see resurgences? What steps should we be taking to get in front of that, if there are any?

Dr. David Fisman: The resurgences will happen. It's just how this works. It's simple math. The reproduction of a disease is number of contacts times the probability of transmission per contact times how long a person is infectious for. We can forget about immunity right now, because immunity is low. Even if it's 5%, it's too low to bring the reproduction number down. Therefore, as contacts go up, the reproduction number predictably goes up.

The Chair: Doctor, could you please hold the mike?

Dr. David Fisman: My apologies.

We're going to go too far. We're going to try to open things up and go too far. That's why we need strong surveillance systems, to see that as it happens.

Mr. Don Davies: I want to move to testing. Maybe you and Dr. Attaran can comment on this.

We hear repeatedly at this committee, from every expert, that we have to test, test, test, and that it's key to getting control of this disease and reopening. However, we've barely done a million tests since January. Wuhan is gearing up to do a million tests per day. We're behind Germany. We're behind South Korea. In fact, we're at barely half of Dr. Tam's target of 60,000 tests a day.

Why are we unable to test at the rate that all experts are telling us we need to? Where is the problem here?

Dr. David Fisman: I don't know. Mr. Ciciretto is an expert on how labs work and could probably give you a more meaningful answer than I could.

We do work with local public health units. My concern at the moment is that it's not just the testing. If people are saying we're going to do contact tracing once we open up and we're going to track the contacts of cases as they did in Korea—I think they had a couple of hundred secondary cases associated with a nightclub outbreak—I don't think we could do that.

We have lags all the way along and it gets back to the 1990s technology where it takes time to test, the tests get faxed, it takes a while for them to percolate through the public health system and—

• (1740)

Mr. Don Davies: I'm sorry to interrupt, but I want to give Dr. Attaran a chance to weigh in on this too.

Other countries are testing at much higher rates. Why can't Canada do it?

Prof. Amir Attaran: Again, I am not a testing expert. What I can say is that it's obviously a systemic and administrative problem, because for Ethiopia or Rwanda to be surpassing us in testing.... They're getting the reagents and supplies from somewhere. They are pulling it off.

I did mention the city of Addis Ababa, the capital of Ethiopia. They have actually sent health workers around to every door in the city already to interview people about their travel or exposure history and test them if necessary. If Ethiopia can do that, I refuse to believe Canada can't. We just need to understand better—and I'm not the person to give you the answer—what the administrative holdup is in the testing, but it's clearly administrative not scientific.

Mr. Don Davies: Thank you, Dr. Attaran.

I have one quick question for you.

Your chart spoke for itself. The question I have is why is Canada performing below comparative countries like Australia and other countries you mentioned. Your chart clearly shows we are. What are the reasons for that?

Prof. Amir Attaran: In terms of bending the curve, or the testing, specifically?

Mr. Don Davies: Bending the curve.

Prof. Amir Attaran: In terms of bending the curve, Dr. Fisman can be more detailed on this, but it's clear that we have not adopted as rigorous a lockdown as some other countries have. We've also had a slow-burning problem in the care homes and this has taken what could have been a sharp peak and broadened it into something of a plateau.

I am very uncomfortable with the fact that we are opening up without the testing at the necessary level, or the tracing. I'm not saying I don't want to open up. I hate being locked up as much as anyone else—you should see my children. There has to be groundwork done, and it is the fact that the governments of this country—some of them, especially the federal government—just haven't done the groundwork.

Mr. Don Davies: Thank you.

The Chair: That ends round one.

We will start round two.

Mr. Jeneroux, please go ahead. You have five minutes.

Mr. Matt Jeneroux: Thank you, Mr. Chair.

Thank you to the witnesses for joining us here again today.

I want to address Dr. Khan and some of the comments you made. In particular, I am hoping to get a grasp on when BlueDot—obviously ahead of the curve, early on—provided the first data regarding the coronavirus to the Public Health Agency of Canada.

Dr. Kamran Khan: As I mentioned in my opening remarks, our surveillance system had picked this up on December 31. You may also be aware that the Public Health Agency of Canada has a platform called the Global Public Health Intelligence Network, GPHIN. There are some parallels with the platform we're using. I think we may be using a bit more machine learning and artificial intelligence in our system.

I believe, with respect to awareness of the event in Wuhan, this was at a similar time; I believe it was around the end of December or beginning of January. We have had, as I mentioned, a relationship with the Public Health Agency, going past detection of threats and then looking at dispersion, how they might spread and where they might go next. All of the systems that we use internally—software systems, all of the internal data on commercial flights, passenger movements around the planet—are accessible by the Public Health Agency. This is part of our partnership.

I also did share the results of some of our analysis directly with Dr. Tam back in early January—I believe it may have been January 4 or 5, a few days after the new year. I communicated some of our initial findings and then had a follow-up meeting. I think, around the January 9 or 10 to discuss some of this in person.

• (1745)

Mr. Matt Jeneroux: What information did you provide exactly? Did you provide that information from December 31 that you had attributed to the beginning of this?

Dr. Kamran Khan: Because the Public Health Agency already has a surveillance system and GPHIN had picked up news of the outbreak in Wuhan around the same time as BlueDot, we didn't send them that information because it was something they already had access to. But we have been working with the Public Health Agency around contextualizing this.

Understanding that something is appearing in the world is very different from understanding what risk it presents to Canada and where those risks are greatest at the particular moment. Is it in British Columbia, in Halifax, or somewhere else?

We shared some of our findings on the movements of travellers across the world with Dr. Tam and her office and then met in person to discuss some of the results and, more broadly, really, the need for systems. We had some earlier comments about data internally within Canada. We're clearly not a closed population; we are a microcosm of the world, one of the most connected populations on earth.

It was critical for us to have better systems not only to detect threats but also to quickly assess what risks they present, so that we could be a step ahead and mobilize our resources, heighten our surveillance in the right places at the right time, and to share with

you the specifics of the risks associated with the events in Wuhan. That was really just a few days after New Year's in early January.

Mr. Matt Jeneroux: Did you make any recommendations at that time about shutting down borders and what that would mean to Dr. Tam, and perhaps her team?

Dr. Kamran Khan: We discussed obviously what the risks were, but, of course, as you remember, in early January we didn't even know this was the coronavirus. Clearly it caused enough concern from our end just because there were some parallels with the SARS event that had emerged in late 2002 in Guangdong. We had some concerns given the parallels with SARS.

However, as more information became available, as soon as we knew this was a novel coronavirus, we did follow up directly with Dr. Tam and her office. Obviously, they were aware, but our concerns at that point were that we knew the last two novel coronaviruses, MERS and SARS, had killed a third and 10% of their patients, respectively. They have no known vaccines, no known effective antivirals.

A novel coronavirus means that the whole world is susceptible, and that's a lot of fuel for an outbreak, and it's in the middle of wintertime, which is when you have respiratory illnesses. Given the signal-to-noise ratio and the detection of this behind a whole background of febrile illnesses, that certainly caused us quite a bit of concern.

The last point I will make is that I believe it was on January 13 when the first case was reported in Bangkok. By the way, coincidentally, it was the top city that we had identified as being at risk. At that moment we knew this was not a few dozen cases. In order for there for cases to be showing up in a city of 11 million, we had to be dealing with hundreds, maybe even thousands of cases. That was really the moment we became quite concerned, but of course with emerging diseases, unfortunately, you learn as you go. You don't have all the answers and you have to make decisions as new information becomes available.

The Chair: Thank you, Mr. Jeneroux.

Mr. Matt Jeneroux: Mr. Chair, do you mind if I request that Dr. Khan share that early information he provided to the Public Health Agency with the committee?

The Chair: Sure.

Mr. Matt Jeneroux: Thanks.

Dr. Kamran Khan: I'd be happy to do that.

The Chair: Thank you, Mr. Jeneroux.

We go now to Dr. Jaczek.

Dr. Jaczek, please go ahead for five minutes.

Ms. Helena Jaczek (Markham—Stouffville, Lib.): Thank you very much, Chair.

Thank you to all the witnesses. This session has certainly been fascinating. There has been a real divergence of views, especially from the first three witnesses.

Thank you, all three, for your very considered opinions. We go from one extreme, with Dr. Attaran saying that we haven't gone nearly far enough, to Dr. Schabas saying that perhaps we have gone too far.

Speaking as a member of this committee, of course we're very interested in all of your opinions, but part of what we need to do is to find some commonality, to find where there is agreement. The area where there seems to be agreement, and that we have heard a great deal about from many witnesses, is that there needs to be more of a national data surveillance system as it relates to public health. It's been exemplified by many of you that in fact provinces are collecting data differently. Even in the use of the case definition, there has been a difference from province to province.

Dr. Schabas, given all of your experience, and having known you for so very many years in the trenches, in both urban and rural settings, I will address this question to you. At the end of your remarks, you made a comment in relation to a national surveillance system. I'd like to hear from you on what kind of data you would like to see and where the important areas are that need to be collected. I'm sure you've had to make decisions based on inadequate data, or not as much data as you would like to have had, on many occasions. Could you flesh out for us how you see that national surveillance system?

• (1750)

Dr. Richard Schabas: Thank you, Helena, and thank you again for arranging my invitation to this meeting. It's been great. It's been fascinating listening to David and Amir. Maybe at some point I'll have a chance to rebut some of the other things that have been said.

On the notion of having a national agency, we were always very envious of the Americans. They had the Centers for Disease Control, a highly respected agency that led and that took the high ground. It was where everyone turned to for advice and direction and guidelines. We had the old Laboratory Centre for Disease Control at Health Canada. There were some very good people there, but it didn't have the same clout—

The Chair: Dr. Schabas, could you speak a little bit closer to the mike and maybe a little bit slower for the interpreters?

Dr. Richard Schabas: I'm sorry.

The idea emerged almost 20 years ago—I actually wrote an editorial in the Canadian Medical Association Journal on this—of really proposing a national agency that would fulfill some of those roles. I think we had an opportunity 15 years ago after SARS, when there was this surge in interest in public health and improving our national public health capacity, which led to the—

The Chair: Pardon me, Dr. Schabas.

The interpretation has stopped. We'll suspend for a minute until that resumes.

• (1750)

(Pause)

• (1755)

The Chair: The meeting has now resumed.

Dr. Schabas, please carry on.

Dr. Richard Schabas: As I was saying, 15 years ago, the vision I had hoped we would adopt was not so much one of a federal agency, but a national agency. We had some resources with the federal government, but it was also a time when Ontario was developing Public Health Ontario and British Columbia was augmenting the BCCDC.

There was a real advantage in developing a sense of co-operation between the federal government and the provinces, because the reality is that the provinces collect the data and the provinces make most of the public health decisions. You don't have the federal authority to tell them what to do. They're going to do what they want to do. The only way to get consistency in a truly national approach to a problem like this is to get people to buy in, to get people to be willing to do it because they think it's the right thing to do and because the prestige of the direction they're getting from the national agency is sufficient for them to.... I'm not going to say fall in line, but be consistent with their approach.

We don't ever expect everything to be the same. Here's a great example: Why should British Columbia be doing with COVID what Quebec is doing? They are very different sorts of situations. I think we would all be much happier if we knew there was a common purpose, common objectives and a common directive.

I'm hoping, maybe a little naively, that there will be another surge in interest in public health—I'm sure there will be—after the COVID crisis comes and goes. I hope we rethink how we set things up. That's not a criticism of the Public Health Agency of Canada. I just think it would function better if it was better integrated with the provincial agencies and if the provinces and the federal government were truly partners in this.

The Chair: Dr. Jaczek, your time is pretty much up but because of the problem in the middle, I'll give you one more question.

Ms. Helena Jaczek: Thank you, Chair.

Dr. Khan, perhaps I can ask you. Obviously you and BlueDot have been very helpful to the Public Health Agency of Canada. What kinds of interactions have you and BlueDot had with the provincial agencies, such as Public Health Ontario?

• (1800)

Dr. Kamran Khan: We have had interactions with the ministry of health in Ontario and have been actively working with the province there. At BlueDot, we're a team of about 50 people. We're also working via Global Affairs Canada—

The Chair: I'm sorry, Dr. Khan. Please adjust your microphone.

Dr. Kamran Khan: I'm so sorry about that.

We are also working with Global Affairs Canada to support capacity building—as I mentioned in my opening remarks—in 10 countries in Southeast Asia. We're working with the State of California.

In many regards I think we would be very eager to support public health responses across the country and work closely with the provinces and territories. We've had, in some ways, an issue with respect to capacity to do this in the midst of the COVID-19 pandemic. However, we have had engagement at the federal level, and are producing analytics across the entire country on a week-over-week basis, and also with the Province of Ontario.

I'm not sure if that answers your question, but a lot of the analytics are focused on understanding issues related to social distancing and how that is related to epidemic activity. Also, keep in mind that while today we're in a bit of a lockdown, as the economy reopens and we have a highly susceptible population, we're going to have to start.... We may find ourselves in the same place as New Zealand in the future, where we have to start looking outward again and start to think about introductions that could trigger the next wave.

We've been involved in supporting both an internal look and tackling this in our own backyards, as well as monitoring the global situation and potential introductions.

The Chair: Thank you, Dr. Jaczek.

Dr. Kitchen, it's over to you for five minutes, please.

Mr. Robert Kitchen: Thank you, Mr. Chair,

Thank you, everybody, for your presentations today. They've been greatly appreciated.

Dr. Attaran, yesterday I spoke to Dr. Tam and asked her a question about data sharing between the provinces and organizations with the federal government. You've answered a lot of those questions I had for you, but further to that, I was asking her about demographic data, in particular how New York City has come up with a lot more demographic information, etc. She indicated to me that it's on the Public Health Agency of Canada's website, so I took the opportunity this morning to go onto that site. With some help from my staff, I finally managed to find some information on that.

They talk about updating the data as of today and about 4,201 cases of clinical presentations, and of those, 561 cases or 13% were clinically or radiologically diagnosed with pneumonia. My point about that is it provides a lot of information and then, all of a sudden, I find a little bit further down a little statement: "The epidemiology update is based upon information received for 38,746 cases. Not all data fields are complete, only cases with data available are included." The bottom line is they're providing inappropriate information on the data that we have.

How is it that we ask you or other epidemiologists to come up with data and provide modelling when we put this out with inappropriate information?

Prof. Amir Attaran: Dr. Kitchen, thank you for a very intelligent question. You're exactly right. You mentioned there were

roughly 38,000 cases in the data that you looked at. I'm going by memory here, but I think we've had about 80,000 cases reported in Canada so far, so that's under 50%. What that means is that at the high-water mark, anyone like Dr. Fisman or Dr. Khan doing modelling, or me when I do it in my amateurish way, are working with less than half a deck.

Mr. Robert Kitchen: Right, and—

Prof. Amir Attaran: There are obvious problems with that.

Mr. Robert Kitchen: When the Public Health Agency is making these decisions based on World Health Organization data, which is maybe coming in from China or wherever, which is inappropriate, again how do you come up with that proper information?

Dr. Fisman, do you have any comments?

• (1805)

Dr. David Fisman: I'll tell you, my group at University of Toronto call ourselves "data raccoons", because we've sort of managed to thrive for about 15 years on data that most people regard as garbage, so it's sort of a bit of the normal state of affairs for us with public health data analysis. The stuff we have is pretty good by our standards.

Working with folks here in Ontario, there's been a modelling table convened over the last few weeks. We've been given access to case files. There's a lot you can learn, but there are also a lot of fields that are missing. We could potentially do better, but I think it's also important to remember that those fields are being filled in by very harried front-line public health epidemiologists.

I suspect that what you're seeing from the Public Health Agency of Canada is that they're putting out the data where they have complete fields, and that it's their way of dealing with missing data. Missing data is just part of epidemiologic data analysis. It happens no matter how good the data are that you have. I'd sort of want to know more about how they've made those decisions, but sometimes it's good enough.

Mr. Robert Kitchen: That's a challenge, though, when you don't have proper data and you don't understand that.

I'm going to go on a little bit further.

Mr. Ciciretto, you talked about high-quality antibody testing. We've heard a lot from you today and all of the witnesses about testing. Last week Health Canada approved the first serological test for detecting antibodies in those who contracted or may have contracted COVID-19. The approved serological test comes from an Italian biotechnology company.

Do we have the capacity to produce these tests domestically? Do you know that?

Mr. Vito Ciciretto: The answer to the question is, we do have capacity. The particular test that was approved was from a company called DiaSorin. We don't have that testing platform, in particular, so that's critical. Could we acquire it? Yes, we could acquire it.

There are other companies that we're working with right now, large diagnostics organizations that are looking to get Health Canada approval as well for a serological test. Once that happens, I have 200 collection centres and 850 phlebotomists who can collect those samples and bring them into a laboratory and onto existing test platforms that we have today that could do that testing quickly, efficiently and accurately.

The Chair: Thank you, Dr. Kitchen.

We'll go now to Mr. Kelloway.

Go ahead. You have five minutes, please.

Mr. Mike Kelloway (Cape Breton—Canso, Lib.): Thanks, Mr. Chair.

Hello, colleagues.

I want to say a really special thank you to the witnesses today. I'll echo Dr. Jaczek's that it's interesting to see such a rich series of viewpoints, insights, opinions and also backgrounds in a variety of areas. I really appreciate it. It's very illuminating.

Dr. Khan, I find your work very fascinating in terms of the technology you use. I don't necessarily want to look to the past but to potentially a second or third wave.

Can you talk about how your technology may be able to be used to track and identify, in many ways, a second or third wave? Could you illuminate a little bit what the biggest risk factor is that could trigger the next wave?

Dr. Kamran Khan: Maybe the way I could sort of frame what we have been building with the metaphor of a smoke detector and fire extinguisher. For six and a half years, we've been building systems to be able to detect threats early, because we know, as I mentioned, that time is our most valuable resource.

To be able to quickly go from detection to what kind of risks we are facing—not just from the dispersion of the disease, but what kind of disruption might occur—is very important because diseases spread around the world all the time. They don't all cause outbreaks or pandemics. That is a complex requirement because every disease behaves differently. Zika virus is different from Ebola, which is different from COVID-19 or measles for that matter.

We've been spending a number of years building up that capacity to have a bird's-eye view of what's happening around the planet, to be able to relate it to geographies across the planet, and to do this in, really, a matter of seconds.

With respect to once an outbreak starts to spread and is now occurring locally, this is where we have been using—again, I want to underscore, anonymously—just the pings, the digital locations from hundreds of millions of mobile apps and mobile devices.

That kind of information can help us understand. Ultimately, this is a virus that spreads, as Dr. Fisman mentioned, through the movements and interactions of people. These are really rich datasets—

over three billion data points a day—that can really allow us to understand how those movements are occurring so that we can then start to anticipate how the epidemic might evolve. It also allows us to generate insights about some of the non-pharmaceutical interventions like physical distancing or recommendations for quarantine. Are those being adhered to at a population level?

I do want to highlight that we're not tracking anyone who is infected or their contacts. We're looking at population movement.

With respect to going forward to the next wave, I think the simple reality is that no one really quite knows what this is going to look like or exactly how it's going to unfold. We are dealing with a completely novel disease. Certainly, we have concerns that as we get into the latter months in the fall.... We know that coronaviruses tend to be in cooler, drier climates where they may be more efficiently transmitted. As that occurs, currently we are relating a lot of this mobility data to understanding how the epidemic curve is evolving. Perhaps there are lessons that we can learn about which geographies and which locations seem to be opening up society in such a way that they can, you know, generate some sense of normalcy and some kind of economic activity without having an exponential increase in the epidemic. I think that's really the \$6,400 question. How do we do this gracefully? How do we thread the needle?

These are things that I, candidly speaking, don't know anyone has the answers for just yet. I think it goes back to the point that surveillance, testing and monitoring are critically important, because as we start to reopen society, it is going to be incredibly important for us to be watching very closely what the response is in terms of epidemic activity and transmission.

I hope that I perhaps have given you a little bit of a sense of what we're thinking going forward.

• (1810)

Mr. Mike Kelloway: You have.

I think you mentioned measuring disruption in society. Maybe I'm miscategorizing that.

Can you unpack that a bit?

Dr. Kamran Khan: Yes, thank you. It's a really big and very important issue.

The four Ds that we work on are detection, dispersion, disruption and dissemination. Detection speaks for itself, early detection. Dispersion mean, how do these things leap across continents in hours? How do we anticipate the next move? Without getting into a lot of detailed epidemiology, what sometimes is called the infectious disease triangle is a disruption or an outbreak that really lies at the crossroads of the characteristics of the microbe or the germ itself, the characteristics of the population, and the environmental conditions.

The Zika virus is not going to spread here locally in Toronto, because there's no mosquito and it's too cold; it might spread in Miami in July, but maybe not in January. That is a very complex set of data and we're bringing in hundreds of data sources, from real-time satellite data to insect observations, demographics, etc. We can do this for over 100 different diseases so we can try to get a sense of whether the necessary ingredients are there for this to actually cause a disruption, an outbreak.

As you can imagine, this is not a data problem. It requires deep subject matter expertise integrated with deep data analytical expertise and data science. This is the area we're actively involved in. We're well on our path and well on our way, but this is a formidable challenge that really is going to take years.

The Chair: Thank you, Mr. Kelloway.

Mr. Mike Kelloway: Thank you very much.

The Chair: We go now to Mr. Thériault.

Mr. Thériault, please go ahead for two and a half minutes.

[*Translation*]

Mr. Luc Thériault: Thank you, Mr. Chair.

My question is for Professor Fisman. Perhaps Mr. Schabas can express his opinion as well.

We do not yet have a vaccine or antivirals. Serological tests are just beginning. Faced with the desire for reopening, we have suddenly and a little hastily seen the notion of herd immunity appear. But there is no real certainty about the exact data, about the connection between COVID-19 and herd immunity.

Can you tell us where we are at in terms of knowledge or studies on herd immunity with COVID-19? Can you describe the situation?

If reopening were at an ideal rate, would we achieve herd immunity? At what rate would we need to achieve it to make everything safe?

• (1815)

[*English*]

Dr. David Fisman: Thank you very much.

There are a lot of moving parts here. Herd immunity can be approximated as a function of the reproduction number of the disease. The higher the reproduction number, the more people need to be immune if the disease is not to take off. That's why we see measles outbreaks when vaccine levels fall off just a little bit, because the reproduction number for measles in a susceptible population is about 20. You can get about 20 new cases from an old case.

This is a much less infectious disease. The reproduction number is somewhere between two and three. That means you need somewhere between half and two-thirds of the population to be immune to have herd immunity, so that if you bring an infectious case into the population you won't don't have an epidemic.

Where are we right now? We don't know. I've been doing a running meta-analysis on seroprevalence studies as they've come out. I'm up to about 50 of them. You can compare antibody prevalence in populations to what those communities think they have going on in the number of cases they have. It's called a cumulative meta-

analysis, just adding study to study to study. The long and short of it is that I think we probably detect about 7% of cases. We have an inflation factor of somewhere between tenfold and twentyfold.

If we look at Canada with 80,000 recognized cases, that would be somewhere between 800,000 and 1.6 million cases in reality. That puts us—I'm going to get hung up in trying to do the math on the fly—at 4%.

If we're there now, New York is well ahead of us. New York has good seroprevalence data. They're at about 15%, but they had to go through hell to get there. They did experience a wholesale collapse of hospital systems in much of the city, including the Bronx and Queens, to get to 15%. That means they might be able to get to 50%, 60%, or 70% herd immunity by going through that a few more times. I don't think they will allow that to happen. They've lost approximately 20,000 New Yorkers of all ages, I would add, to get to that point.

What we have to do right now—a lot of countries around the world, indeed a lot of provinces in Canada, show us that we can knock this disease down to low levels and then we can use good public health practice. I agree with Dr. Schabas that you can't do contact tracing if you're having 200 cases a day, as we are in Toronto. It's just too much. If you're having five cases a day, you sure can. If you're testing a lot, you sure can. You need to use the distancing to knock the reproduction number down. We're still at around one in Quebec and Ontario. I would add that the Canadian epidemic, at this point, is a Quebec and Ontario epidemic. The other provinces have got the job done at this point. If you can do that, then we can start to use other public health measures, like contact tracing, to keep a lid on this and get through the summer and allow the economy to reopen.

We haven't touched on masks at all. There's pretty good ecological evidence at this point that the countries that are doing much better than us are mostly mask-adopting countries. You can argue the science, and we can have a symposium in five years about who was right, or we can use the precautionary principle and move towards masks now, which I think Dr. Tam has started to do.

We can do a lot to keep that reproduction number low and reopen our economy to a degree, and muddle through.

Exciting stuff is happening with vaccines. There are RNA vaccines that weren't on the table 10 years ago. There's a really exciting live virus vaccine from the U.K., where AstraZeneca, the pharmaceutical company, is manufacturing the vaccine at scale while the trials go on. If the trials are a success, they're going to have millions of doses ready to put into people's arms.

We need to avoid mass death situations until we can get through to a point where we can effectively deal with this pandemic. We will, but it's a matter of tenacity, patience and competence, and that's very patchy across the country. Some places have shown it; other places haven't. I'm sad to tell you that I feel that my province, at a provincial level, is one of the places that hasn't shown that, although individual local public health units have really shone and distinguished themselves.

• (1820)

The Chair: Thank you, Mr. Thériault.

We go now to Mr. Davies for two and a half minutes, please.

Mr. Don Davies: Thank you.

Dr. Fisman, last week, you stated, “I continue to be concerned that there hasn't been enough attention given to epidemiology in kids. I know folks are starting to study that in Germany and Switzerland, but we haven't really studied it in North America.” Then you said, “For those of us who have been really concerned about the possibility that children may be important vectors of this disease..”.

Given that we haven't done much research in North America and your concern that children may be important vectors, how do we square that with sending our kids back to school?

Dr. David Fisman: Honestly, it's a dilemma.

I think I mentioned earlier that the signature of this disease is that it takes off with big gatherings, so there's a lot you can probably reopen economically, safely, if you stay away from large gatherings of people. The one big gathering that's really, really tough to cancel—and which has huge economic implications—is at schools. That's the hardest thing.

The reason to be concerned about aggregating kids is that we see evidence from other respiratory infectious diseases that kids don't die of them, but they are tremendously good at transmitting these diseases.

Mr. Don Davies: That being the case, why would we be sending kids, who are vectors of this disease, to gather in large gatherings and to come back to homes where they may be in contact with seniors?

I don't see what the dilemma is there. What is the dilemma?

Dr. David Fisman: I think the idea is that economically it holds a country back. Even if we have 40% of our workforce able to work from home, for the parents, it's often difficult to get their jobs done if they're minding children in parallel.

However, yes, it's an issue. Countries like Korea have kept their schools closed. Hong Kong continues to have its schools closed. I think they're just starting to reopen, because they have approximately zero cases at this point.

I think places with good public health leadership have done it very cautiously. Kids are the transmitters of infectious disease for many respiratory diseases, even if they themselves tend not to be sick from them.

Mr. Don Davies: Thank you.

Dr. Khan, I will go quickly to you.

I know you did a commendable job. An article in U of T News said that BlueDot was among the first to warn the world of a potentially dangerous new illness, COVID-19. You rang the alarm on December 31, 2019, before both the U.S. Centers for Disease Control and Prevention or the World Health Organization. You also predicted the next 11 cities that the novel coronavirus would hit.

You're quoted as saying, “We didn't necessarily know it would be of this size.... But what we did know is that it had the ingredients.”

Approximately when were you aware that COVID-19, or the novel coronavirus, had the potential for serious, significant, widespread transmission?

Dr. Kamran Khan: I think the point—and this is sort of a gradient—was literally December 31. First seeing that information certainly caused some alarm. Around the middle of January—and I'd have to double-check the exact date—was when the first case showed up in Bangkok.

I'll give you a bit of a sense of the increasing concern.

When we learned that this was a novel coronavirus, I believe somewhere around January 8 or so, there was concern for all the reasons I mentioned earlier, MERS and SARS, and comparing those: no vaccine, no effective antivirals, no underlying immunity and we were in the middle of flu season.

What we had been learning up until that point is that the number of cases being reported in China were in the dozens. When the case showed up in Bangkok, which was the top place we had concerns about because of the movement of travellers from Wuhan out into the region, in a city of 11 million.... The math doesn't work if you have a case show up in another city and knowing the volume of travellers who were leaving. That was the moment for me and our team, when we were really quite concerned.

Again, we didn't have all the answers, but we were quite concerned that this was a novel coronavirus. The outbreak was much larger than it appeared to be. This inevitably told us this was not just a spillover event. This was not just the people who were at the market who became infected. If there were hundreds or thousands of cases, this had to be something that was more efficiently being spread from person to person.

It was roughly around the middle of January that we had serious concerns about how this might unfold.

• (1825)

The Chair: Thank you.

That brings round two to a close. We start round three with Mr. Webber.

Mr. Webber, go ahead, please, for five minutes.

Mr. Len Webber (Calgary Confederation, CPC): Thank you, Mr. Chair, and thank you to all our presenters, whose opening remarks were very interesting indeed.

My first question is for you, Dr. Attaran. Thank you for sharing with the committee your paper on the pandemic data sharing. In this paper, you mentioned the SARS issue back in 2003 and how the World Health Organization demanded epidemiological data from Canada about the scope of the epidemic back then, particularly in Toronto. The problem was that Canada had no way to fulfill the World Health Organization's demand because of the jurisdictional fight that you described today with regard to data sharing.

Because of that, Health Canada was in no position to answer the World Health Organization's questions, so they grew afraid of Canada. They thought that Canada was concealing this epidemiological data, which then resulted in the World Health Organization recommending against travel to Canada, making Canada one of only two countries—that and China—that they sanctioned back then.

Sadly, I see this occurring again. Dr. Attaran, do you see this occurring? What will the implications be of being sanctioned once again?

Prof. Amir Attaran: Mr. Webber, you summarized that exactly right. Back in SARS, there were two countries in the world that got slammed with a WHO travel advisory, and we were one. China, not exactly having been honest, shall we say, was the other. Now, we weren't trying to deceive, the way China was. We were just unable to be honest. We were unable to get the data from Ontario to Ottawa and then onward to Geneva, where the WHO is.

Nothing has changed. That is a risk that could repeat itself. Yesterday, I believe it was Dr. Kitchen who asked about the multilateral information sharing agreement, which is an accord between the provinces and the federal government to share data. It is so secretive and ineffectual that to this day we don't know which provinces have signed that agreement and which have not. Can you believe it?

As for the Public Health Agency, I've asked them that question directly. Which provinces have signed the information sharing agreement and which haven't? They won't answer the question. Parts of that agreement actually stand in the way of data analysis, the sort that Dr. Fisman does. Under that agreement, provinces have to give their permission before analyses using their data can be published, which means that they have the ability to suppress analyses that can save lives. It's terrible.

Mr. Len Webber: It's unbelievable, Dr. Attaran, it really is. Thank you for sharing your testimony today.

Dr. Fisman, again, thank you as well, and thank you for your work, your commitment and your sacrifices, too, along with those of all health care workers in Canada. Thanks to all of them.

You've talked about some of the best practices around the country. It's in Nova Scotia, I think, that you indicated they hunt the virus, and you also talked about how in Saskatchewan they deal swiftly with and contain areas of outbreak.

Then you talked about Alberta and how they've scaled up their testing and are the most potent and aggressive testing province in the country. I'm just at odds here. I don't understand. How come Alberta can do it but the rest of Canada cannot? Where are they getting their testing material? What's their secret in Alberta?

● (1830)

Dr. David Fisman: Do you know what? I'm not sure to what extent I can talk about private conversations in this public forum but, as I speak to colleagues across the country, what is clear to me is that the places that got the job done were aware of their deficiencies as laboratory systems and worked with commercial partners to automate processes in their labs. It's one thing to be testing 100 specimens a day. It's another to be testing 10,000 a day.

I think that the laboratories that are able to have high throughput here, and—Mr. Ciciretto is probably the better one to answer this question—we do have folks in the country who know this stuff. From the time the specimen arrives until the report goes out to the public health unit, not by fax but electronically, operations can be tremendously streamlined so you don't get the bottlenecks that we've had in Ontario.

I think a lot of the problems got blamed on the supply chain but clearly, as the supply chain has cleared up, it's still a rocky ride. In Ontario there have been a lot of politics as well. I think you see that. You've had access to some testing data via the modelling process. You see that there's still this hugging going on where, even as testing is supposed to get dispersed out to hospital labs and private labs, it's still getting hugged by the public health laboratory system.

I think, in a time of national crisis, it's time to check your ego and work with whoever you can work with. Essentially, the folks in Newfoundland.... It was a remarkable experience to interact with them. Perhaps this is a size thing, but it seemed a lot to me like an ego thing. They have a provincial working group that has some former politicians, some leaders from health, leaders from business and a couple of academics, and they're all at the table and they're all exchanging ideas. It reminds me of the children's story, *Stone Soup*, where everyone brings something and puts something in. At the end of that, they all have a good soup to enjoy together.

That's how they do it in Newfoundland. It was a revelation to me, as someone coming from Ontario who's used to being asked for information that then goes off into a dark place and you're never really sure who's seen it, used it or responded to it. It's just a very different way of doing business, and I think it's served them well. They got the idea of hunting the virus from Iceland. They looked over to the east and thought, "Well, you know we've got Canada over to the west and we've got this other country over to the east, and the country to the east is doing a bang-up job. Let's talk to them."

I think being humble and looking for folks who are doing this better than you, and learning from them, is part of the magic.

Mr. Len Webber: Absolutely, it is.

The Chair: Thank you.

Mr. Van Bynen, go ahead, please. You have five minutes.

Mr. Tony Van Bynen: Thank you, Mr. Chair. Thank you, Dr. Fisman, for joining our committee today. It's so refreshing to hear such a wide variety of perspectives, and that certainly helps us to develop a good understanding of the situation that we're trying to find some solutions for.

It's my understanding that you co-authored a study that examined the impact of enhanced contact tracing and restrictive physical distancing measures in comparison to a combination of enhanced contact tracing and less restrictive distancing measures.

Could you please share with the committee the findings of your study and what the implications may be?

Dr. David Fisman: I think what you're referring to was our paper in the Canadian Medical Association Journal, CMAJ, in March. Our model looks a lot like most other models by competent modelling groups. It looks like the publication by a guy named Steve Kissler, in *Science*, that happened about a month after.

What we projected was that reducing transmission through a variety of means can knock down the reproduction number of the disease and prevent intensive care units from overflowing. Something we learned.... We didn't really anticipate that a lot of deaths in Ontario would come in the long-term care facilities. We knew that long-term care facilities were vulnerable, but we assumed, as we were doing our modelling, that people would try to protect them, which turned out not to be the case.

What we've found is that various combinations of case identification with contact tracing or straight physical distancing are sufficient to knock the reproduction number down enough that ICUs don't overflow. This has been the case in Canada, which is wonderful.

Moving forward, we now have a second iteration of that model in press, in a journal called *Annals of Internal Medicine*. Thanks to the provincial modelling table, we've been able to calibrate the model. That means we've fit the model to real data. We couldn't do that beforehand because we didn't have an epidemic to fit it to. We can fit it to ICU occupancy in Ontario and can fit it to hospital deaths. The long-term care stuff is very challenging to try to fit into any sort of model. What we see is that, basically, the lower disease activity goes and the slower we reopen, the longer it will be before we have a resurgence.

In our paper in March, in the Canadian Medical Association Journal, my colleague, Dr. Ashleigh Tuite, who I've referenced previously and is a brilliant modeller, came up with the idea of dynamic social distancing, which depends on really good public health surveillance, so that you know when your hospital is starting to fill up again and when you have to strengthen distancing measures. I really think the group at Harvard, who we're friends with, may have copied that from us. That came out in the *Science* paper as well a couple of weeks later. It's this idea—and journalists refer to it as surfing the wave—that we're likely to go up and down and up and down with this disease for a while until we have a vaccine, which may come sooner than I ever would have imagined.

• (1835)

Mr. Tony Van Bynen: Thank you.

Yesterday I asked Dr. Tam about the provinces and territories and their plans to reopen their economies, as well as people starting to leave their homes as the weather gets nicer. As a follow-up, with the information obtained from your study in mind, what are your thoughts on how this can be implemented safely?

Dr. David Fisman: This is not our work. There's a marvellous mathematician at Waterloo by the name of Chris Bauch who has a paper looking at regional reopening in Ontario as opposed to blanket policies, with the outcome of interest being how we can minimize the amount of time in lockdown.

I think some organic reopening is happening anyway as the weather gets better, and that's all right. This doesn't seem to be an

infectious disease that spreads particularly well in parks or as people are out enjoying themselves, as long as they're maintaining a bit of distance. This disease really continues to show that it likes big crowds and indoor places. I think our most recent superspreader event here in Ontario was among greenhouse workers in Chatham, which fits the description to a T: 50 people were infected working in a greenhouse. When folks are in small groups and there's a low upper bound on the number of people they're working with—we call that “work bubbles”—or when folks are enjoying themselves outside to stay fit, going to parks or enjoying the outside with their kids, that generates minimal risk for us.

What we do need is good, strong surveillance systems—and this circles back to our initial conversation about testing—that let us know when we're getting into danger again, as we were in March. I do think we're going to struggle in the fall. Again, there's a lot of hindsight at this point. This thing emerged in January, but we didn't really get serious about it until March, and I think we're going through that again. Anyone who looks at disease dynamics for a living can tell you that we're in a lull now but the disease is probably going to be coming back in September or October. We have some golden time now to get prepared for a likely resurgence in the fall. I think we need to build those surveillance systems and get much better at this by the time we get to the fall, because we're going to have to be more nimble then. There's much we can do, and there's much we can do safely if we avoid large gatherings.

The bubble idea—and a lot of corporations have already instituted this—is simply that if you divide people up into relatively small teams, they don't work simultaneously in the office and there's a deep clean between when teams are in the office, you have an upper bound on how many people are going to get infected if someone comes into the bubble with infection.

I think there's a lot of ingenuity and a lot of wiggle room in reopening the economy safely, as long as we have the surveillance systems that allow us to see when we're getting back into trouble.

The Chair: Thank you.

Ms. Jansen, please go ahead. You have five minutes.

Mrs. Tamara Jansen: Dr. Khan, I'm curious about your thoughts, as an infectious disease specialist, on the current deal that Health Canada has made with China on developing a COVID-19 vaccine.

The announcement mentioned that the National Research Council is working with CanSino Biologics to advance a vaccine, which is being developed jointly with the People's Liberation Army. Apparently Health Canada has even approved the first human clinical trial that will be run at Dalhousie University in spite of the fact that CanSino has not published any data from its first trial phase for any sort of public scrutiny.

This really shocked me. Vaccine development cycles are normally 10 to 15 years, and the shortest ever was four years. Our Five Eyes intelligence alliance has raised concerns regarding China's transparency regarding this particular pandemic. They even denied, initially, human-to-human contact. And some whistle-blowers have disappeared.

If we want Canadians to buy into a COVID-19 vaccine, wouldn't it make more sense to be working with a more trustworthy partner on this sort of thing? Does it strike you as being dangerous?

• (1840)

Dr. Kamran Khan: Thank you for the question. I'm going to try to see if I can tackle it.

With respect to vaccine development and partnerships, I would say that I'm not fully aware of all the details of how Canada is looking at vaccine development, perhaps, with the Government of China or with scientific groups in China.

I think all of the points that you've raised are very important. Clearly, there is a race to get to a vaccine as quickly as possible, not only from a preventative standpoint but also to develop therapeutics.

I think I'm probably not well equipped to speak to the broader ethical issues here. I'm just less informed about the specifics of this particular circumstance.

But clearly, the points that you're raising around transparency are critical in any scientific endeavour. I think that is a critical issue.

I'm not sure if, perhaps, Vito or others want to chime in on that.

Mrs. Tamara Jansen: My time is limited. I have another question, but not specifically for you.

Going back to Professor Attaran, you mentioned that we could ask you questions about yesterday's meeting.

I asked Dr. Tam about her flip-flop on the use of masks. Up until early April, Dr. Tam stated that an asymptomatic person shouldn't wear a mask. It didn't work. It might even be harmful. Then on April 6, she changed her mind and said that a mask was good for additional protection.

Her response to my question on why her message changed was that, apparently, new evidence had come to light.

As this was a respiratory pathogen, I imagine that out of the abundance of caution, masks would have been helpful right from the beginning.

In your opinion, what sort of new evidence has come to light over the course of this pandemic that would substantively change the way we consider the effectiveness of masks as prophylactics?

Prof. Amir Attaran: There's no easy way for me to say this, but Dr. Tam was not being truthful.

In the week or 10 days.... Pardon me, I don't know the exact time span between her statement that masks were not to be recommended to the public and then changing her view to give permissive guidance that masks of a non-medical sort could be used. In that

short period of, as I say, about a week or 10 days, there was no new evidence that emerged to justify that change.

There have been additional studies of masks, of course, some of it biophysics, what particle size will penetrate a mask in what conditions. But there was definitely not in that crucial window a game-changing study.

Mrs. Tamara Jansen: I have a really quick question. My time is almost out.

You provided a chart in your submission that showed that Australia and, I believe, South Korea had much better pandemic trajectories than Canada did. As with all catastrophic emergencies, there's never just one thing that goes wrong that causes the tragedy, and I assume that's the same when things go right.

What, in your estimation, are the critical things that ensured better outcomes in those countries compared to Canada?

Prof. Amir Attaran: Australia, for instance, was very quick at cutting off travel with China. It did so at the same time as President Trump did, but for sounder reasons than Mr. Trump.

It was also incredibly quick at organizing coordination between the states—the provinces, if you will—and the federal government. As I mentioned, they signed an accord on co-operation on March 13. Such an accord doesn't exist in this country yet.

The Australians have, generally speaking, a very strong sense of biosecurity because they are an island continent and they have honed that over years. They're much more attuned to risks coming in from abroad than we have been. The error of not being tougher on travel sooner is one that we will, of course, regret for many years to come.

The Australians also, I feel, were extraordinarily good at their social distancing. Now, precise measures of how aggressive social distancing is are hard to come by. Dr. Fisman would be able to speak to that far better than I could, but even from my inexpert point of view on this, it's clear the Australians did take the social distancing more seriously early on than did Canadians, and that has had an effect.

• (1845)

The Chair: Thank you.

Ms. Sidhu, go ahead, five minutes.

Ms. Sonia Sidhu (Brampton South, Lib.): Thank you, Chair.

Thank you everyone for coming today.

As you know, I really like all the witnesses. Yesterday Dr. Tam and her team were here.

This committee has really been focusing on supporting Canadians and how we can better help all Canadians.

Today I really want to say thank you to all the witnesses and my first question is to Dr. Khan.

You talked about the rigorous factor and triggering the next wave. Can you explain to the committee how your technology can be used to track second or third waves of COVID-19? What do you see as the biggest risk that's coming?

Dr. Kamran Khan: In the technology that we've developed, and I'm going back to that metaphor of smoke detector and fire extinguisher, we've really been focusing much more on developing the early warning systems that could give us a signal that there is a threat coming.

COVID-19 is here now and we're all very well aware of it and we're now sort of more in firefighting mode, grabbing the fire extinguisher to put fires out.

From the standpoint of our technology, the area where we are supporting public health decisions is around an understanding of population movements and how that relates to the transmission of COVID-19 across the country.

With respect to the next set of waves, I have two thoughts. One is clearly the vast majority of the population in Canada remains susceptible, as we've heard. We either could see an uptick in cases later in the fall because of a variety of factors including climate conditions and dynamics of how people are interacting, or we could find ourselves in a similar position to some countries like Australia and New Zealand, where imported cases become the catalyst for another wave.

So we're going to have to be thinking both internally and externally. These are a couple of examples of how our technology is looking internally within the country domestically as well as globally.

Ms. Sonia Sidhu: Thank you.

My next question is for Mr. Ciciretto. Your company is based in Brampton. Your company recently moved to providing COVID-19 test results online instead of over the phone. How has that increased the efficiency of your testing process?

In Canada today, 1.3 million people have been tested. What do you think? How has online reporting instead of over the phone reporting increased the efficiency of your testing process?

Mr. Vito Ciciretto: The ability to transmit results directly from an analyzer onto your laboratory information system and into provincial health repositories is critical from at least two perspectives. One is from a timeliness perspective. As soon as that test result is available you want to make sure that you're able to release it.

The second and perhaps even more important perspective has to do with accuracy. The minute that there's any type of human interaction, of taking a manual result from a machine and then transmit-

ting it onto a computer, there's always that risk of error, and that's not something you want, obviously.

• (1850)

Ms. Sonia Sidhu: Dr. Fisman, as you know the Public Health Agency has its opinion on non-medical masks.

You also mentioned the mask adoption strategy; how is this beneficial to Canadians?

Dr. David Fisman: We don't know but we can be highly suspicious that it would help us a lot. Especially if we can get the reproduction number of the disease down to around one. That's a tipping point. At that tipping point, very small changes in infection transmissibility can really make the epidemic fall through the floor and go away.

What you have to remember about masks and disease like this is that masks work in both directions. They reduce the likelihood that you get infectious particles into your nose, mouth and eyes potentially, if you keep your hands off your face. They also prevent you from infecting other people. Probably the more important part with this disease is the reduction of transmission, which happens very efficiently even with cloth masks. The reason that's so important with this particular disease is that what we know of the work of Gabriel Leung and his colleagues in Hong Kong, which was published in Nature about a month ago, is they estimate about 44% of transmissions in Hong Kong occur in presymptomatic individuals. Those are people who are going to feel sick tomorrow, but they feel just fine today. They haven't changed their behaviour.

Masks can be extremely impactful because if I'm wearing a mask and I become infectious but I don't know it yet, I don't infect you. Everybody wants to wear a mask to protect themselves from other people. I'm fine to have folks leverage that to get the masks on. It's pretty clear. There's a reason why surgeons wear masks in the operating room because they block extrusion of respiratory droplets that infect with bacteria the patients they're operating on. This would be the same idea except out in public you're wearing a mask not to protect yourself necessarily—although it might—but to protect other people from you if you're infectious but don't have symptoms.

As I say, we've had reproduction numbers in Ontario and Quebec, which is basically where our epidemic lives now, rumbling along around a reproduction number of one. In Ontario it's been there since early April, we just can't seem to get it down. If anything knocks that reproduction number down to 0.7 or 0.6, we're going to get back to a lot more rapid economic opening up. We're going to be able to open up more. The lower we keep that reproduction number, the more we'll be able to open up the economy while still staying safe.

To me it's a no-brainer. We can argue about class 1A evidence or what have you. We can have a symposium about this in five years and decide what exactly the science shows. But now is the time for action.

As Professor Attaran said, we're burning through \$12 billion a week. Getting masks on Canadians and teaching them how to use them is change from between the couch cushions relative to what we're burning through by keeping our society closed. To me it's worth the gamble.

• (1855)

The Chair: Thank you.

We go now to Mr. Desilets for two minutes and a half, please.

[*Translation*]

Mr. Luc Desilets (Rivière-des-Mille-Îles, BQ): Thank you, Mr. Chair.

My thanks to all the witnesses for joining us. The content they have shared with us is very interesting.

My first question is for—

[*English*]

The Chair: Pardon me, Mr. Desilets, your sound is bad as well.

Could you try and unplug your headset and plug it back in?

I will suspend for a minute.

• (1855)

(Pause)

• (1900)

The Chair: I declare this meeting resumed.

Please go ahead, Mr. Thériault, on behalf of Mr. Desilets.

[*Translation*]

Mr. Luc Thériault: Okay.

Earlier, when I asked Dr. Fisman a question, I noticed that Dr. Schabas was reacting. I think he wants to answer the question.

It had to do with the rate of safe reopening that Canada should adopt in order to have herd immunity, given that we don't have a vaccine yet, we don't have antivirals, and we are just beginning serological testing.

My question is for Dr. Schabas.

[*English*]

Dr. Richard Schabas: One really profoundly unfortunate thing about what's happened in Canada, where we in fact did the lockdown in advance of our outbreak, unlike many places in western Europe or in the United States, is that in a sense we've had the worst of both worlds. We have achieved very little herd immunity, certainly no more than 5%, at least in the whole country, yet we've had a lot of deaths. We've had a lot of deaths because of the outbreaks in the long-term care homes. The population death rate in the city of Montreal is twice as high as it is in Stockholm, Sweden and is starting to close in on the city of New York. It's not been a very happy experience.

There were two kinds of outbreaks. There was the long-term care outbreak, which drives mortality, and then there's the community outbreak, where there has been very little mortality.

The fundamental question is: Is it safe to reopen in the presence of active disease? No, not in the sense that we're not going to see more COVID disease. We will. When we start to open up, we are going to see more COVID disease.

The whole thrust of my presentation is to look at it the other way. Is it safe not to open up? We talked, and one of the earlier questions was: When are we going to open the schools? Why are we opening the schools? There's going to be more COVID spread. Well, the reason you open schools is that children have to go to school. It's a fundamental right of children to have an education. If we deprive a whole generation of children of six months or a year of education, we're going to be paying the public health price for that for years to come.

There is no nice solution. Dr. Fisman and Dr. Attaran talk about doing more testing and contact tracing, something which, by the way, has never been done to control a respiratory virus. It may work well on a spreadsheet; the real world is more complicated. I hope they're right. I hope they're right and that works, but the real world is a rather more complicated place.

I was just going to say what I'm really worried about is that when they try the strategy and the disease resurges in the fall and the strategy fails, as I believe it almost certainly will, we can't go back into this kind of lockdown because we will do more long-term damage to our public health than COVID-19 could ever do.

• (1905)

The Chair: Thank you, Mr. Thériault.

We go now to Mr. Davies.

Mr. Don Davies: Thank you.

Dr. Schabas, you wanted a chance to explain, so I'm going to put a few things to you. After SARS, you wrote, "In the unlikely event of another SARS outbreak in Canada, public health officials should quarantine no one." Now, our current pandemic is a SARS outbreak. The virus is SARS-CoV-2. We fought it mainly with lockdown and quarantine. My first question is, are you standing by your extraordinary statement that we should quarantine no one?

Before I get to that, I want to contrast that. In 1990, when you were Ontario's chief medical officer, you classified HIV as a virulent disease, which is the worst category of characterization, and you recommended that we forcibly confine people with HIV who may have had sex with someone else, even if they used a condom and even if they disclosed that to their partner.

My final piece, before I let you answer, is that you said that we should treat this more like the 1957 flu, but the fatality rate in the 1957 flu was about 0.1%, which is about one-twelfth that of COVID-19.

Throwing all those together, can you help me understand your point of view?

Dr. Richard Schabas: I'll try to remember all of them.

First of all, let me start with the SARS 1 and the quarantine. I was talking about SARS 1. SARS 1 was a disease that was not transmissible asymptotically and was not even transmissible in its early symptomatic stage, so quarantine made zero sense with SARS 1, and my hope was that it wouldn't happen again.

Yes, we've used it widely in SARS 2. Whether it's really been very effective, or whether it's a useful tactic, because as I've said before, you can maybe flatten the curve.... In fact, I'm quite impressed by our ability to implement quarantine, and I think it probably has to some degree flattened the curve, but the question is ultimately to what end? The virus isn't going anywhere, and unless the measures you're using to flatten the curve are somehow sustainable in the long term, I'm not sure they really get us anywhere.

On the third question, as related to HIV, yes, I had recommended it. I didn't do it. It wasn't up to me. I had recommended to the minister that it be classified in the same category as diseases like tuberculosis, syphilis, gonorrhoea and hepatitis B. It was a classification that would give a judge the authority to incarcerate someone who was deliberately spreading the disease. That was the context of it. It actually never happened, and that's not quarantine. Please understand that quarantine is when you lock someone up who you think is incubating the disease.

Case isolation, which is a totally different thing, is that when you know somebody has the disease, you take steps to isolate them. I'm not recommending that we do this for HIV. That's a different context. That's what we do, in fact, when people have COVID or we have good reason to believe they have COVID. We isolate them. That's not quarantine. Quarantine is when you lock them up when you think you're incubating them.... The term "quarantine" itself derives from the 40 days of Lent. That's a medieval strategy and, by and large, I think it belongs back in the Middle Ages.

• (1910)

The Chair: Thank you.

Mr. Don Davies: I have a point of privilege to raise before we adjourn, Mr. Chair.

I would like to move a motion that this committee inquire into reports that a witness appearing before the health committee, Dr. Amir Attaran, may have been threatened, punished, intimidated or otherwise harmed by the Public Health Agency of Canada, Statistics Canada or the federal government in some other form, because of testimony he has given at the health committee, and to determine if a prima facie issue of privilege has been raised and, if so, report such findings to the Speaker of the House.

Mr. Chair, I'm quoting from Bosc and Gagnon, which says this:

...the intimidation of a committee witness has also been found to be a prima facie breach of privilege. In 1992, a witness who had testified before a subcommit-

tee was advised by a Crown corporation employee that the issue of her testimony was being referred to the corporation's legal department. The witness informed a Member, who raised a question of privilege in the House. The matter was found by Speaker Fraser to be prima facie contempt and was referred by the House to the Standing Committee on House Management for consideration.

In its report, the committee said this:

The protection of witnesses is a fundamental aspect of the privilege that extends to parliamentary proceedings and those persons who participate in them. It is well-established in the Parliament of Canada, as in the British Parliament, that witnesses before committees share the same privileges of freedom of speech as do Members. Witnesses before parliamentary committees are therefore automatically extended the same immunities from civil or criminal proceedings as Members for anything that they say before a committee. The protection of witnesses extends to threats made against them or intimidation with respect to their presentations before any parliamentary committee.

Mr. Chair, I could go on. There are many more. I move that there has been a violation of my privileges as a member of this committee, and I would ask that you act on the motion that I have moved.

The Chair: Mr. Davies, you're in a point of order. You can't make a motion on a point of order.

As far as the question of privilege goes, as I mentioned earlier, I believe that's out of scope for our authority to conduct these video conference meetings. We are restricted to solely receiving evidence relating to the government's response to COVID-19, and we are also allowed to make motions regarding the invitation of witnesses.

Certainly, as I've mentioned before, I will take the matter under advisement. I will look for a legal opinion from the clerk and from the legal clerk as well, and we can take this up at another time. I'll take that under advisement and—

Ms. Sonia Sidhu: Mr. Chair, I would like to raise a point of order.

There were comments made in testimony today that I believe break parliamentary language. It was deeply disrespectful to call Canada's public servant untruthful. That comment should be removed from the committee record.

The Chair: Thank you for that point of order.

Certainly, we are bound by the rules of Parliament in our conduct here. I would certainly urge all participants, going forward, to be prudent in their language.

Thank you, everybody. I'd like to—

Mr. Matt Jeneroux: Mr. Chair, this is to Mr. Davies' point of order.

The Chair: Go ahead.

Mr. Matt Jeneroux: I'm reading the motion adopted by the House of Commons in the sitting on Tuesday, March 24, 2020. Section (i) states the following:

...if committee is not satisfied with how the government is exercising its powers under the Act, it may adopt a motion during a meeting by videoconference or teleconference to report this to the House by depositing a report with the Clerk of the House which shall be deemed to have been duly presented to the House on that day;

I would point to you, Mr. Chair, and also the clerk, to reference that point when coming back and addressing Mr. Davies' question of privilege.

Mr. Don Davies: If I might, Mr. Chair—

The Chair: I'm sorry, I—

Mr. Don Davies: —I want to be very clear that I am not raising a point of order. I am raising an issue of privilege.

I can further quote that it says in the—

The Chair: Just hold on, Mr. Davies.

Thank you, Mr. Jeneroux, for your contribution.

I believe you did start your remarks, Mr. Davies, on a point of order. You then went into a question of privilege. It's kind of beside the point. I will take under advisement your motion. We will get back to you once I have a ruling from the law clerk.

● (1915)

Mr. Don Davies: Mr. Chair, with respect, it's very important that you....

You're misunderstanding my point. Earlier I raised a point of order. I am now raising a question of privilege. That's what I did in my second intervention. You clearly have the power, in fact you have the duty, to receive my question of privilege as it's raised in committee, because this is where I have to raise that.

I'm happy for you to go back and reflect on it, but I want to be very clear that I am raising a question of privilege and I am asking for your consideration of the motion that I have moved.

The Chair: Thank you, Mr. Davies. As I said, I will take the matter under advisement. We will get back to the committee in due course.

Mr. Don Davies: Thank you.

The Chair: Thank you, everybody.

Thank you to our witnesses. It's been a lively and robust discussion. Thank you for sharing so much of your time with us and for putting up with our technical issues.

Thank you to the House staff and the technical people for being with us to work through those issues and thank you to the members for all the great questions.

Have a good day, all, and thank you.

The meeting is adjourned.

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