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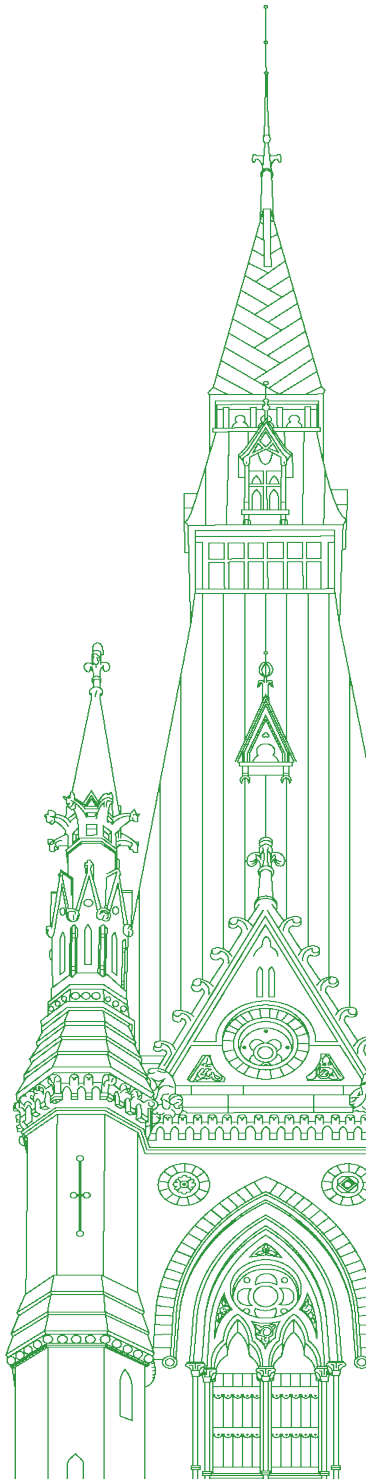

Chair: Mrs. Sherry Romanado

Standing Committee on Industry, Science and Technology

Thursday, February 25, 2021

● (1105)

[*English*]

The Chair (Mrs. Sherry Romanado (Longueuil—Charles-LeMoyne, Lib.)): I now call this meeting to order. Good morning, everyone. Welcome to meeting number 20 of the House of Commons Standing Committee on Industry, Science and Technology.

Today's meeting is taking place in a hybrid format pursuant to the House order of January 25, 2021. The proceedings will be made available via the House of Commons website. So you are aware, the webcast will only show the person speaking rather than the entirety of the committee. To ensure an orderly meeting, I'll outline the usual rules.

Members and witnesses may speak in the official language of their choice. Interpretation services are available for this meeting. You have the choice at the bottom of your screen of "floor", "English" or "French". Before speaking, please wait until I recognize you by name. If you're on video conference, please click on the microphone icon to unmute your mike. When you are not speaking, your mike should be on mute.

As a reminder, all comments by members and witnesses should be addressed through the chair. As is my normal practice, I will hold up the yellow card for when you have 30 seconds remaining and the red card for when the time for your intervention has expired.

We have a very full agenda this morning and I understand two witness groups have to leave at noon. Therefore, I'm going to ask you to please respect the time so that everyone can get a turn.

Pursuant to Standing Order 108(2) and the motion adopted by the committee on Tuesday, December 1, 2020, the committee is meeting today to study the domestic manufacturing capacity for a COVID-19 vaccine.

I now welcome our witnesses. Today, we have Dr. Mona Nemer, who is the chief science adviser; Brian Lichty, an associate professor at McMaster University; Karen Mossman, vice-president of research at McMaster University; from Precision NanoSystems, James Taylor, CEO, and Andrew Booth, chairman; from Medicago, Takashi Nagao, president and CEO, and Nicolas Petit, vice-president of commercial operations; and Dr. Gary Kobinger, of Université Laval.

Each witness will present for up to seven minutes, followed by a round of questions.

We will start with Dr. Nemer.

You have seven minutes.

Mr. Earl Dreeshen (Red Deer—Mountain View, CPC): Madam Chair, I have a point of order.

The Chair: Yes, Mr. Dreeshen.

Mr. Earl Dreeshen: I just want to know which of the witnesses would only be here for the one hour, so that we could look at our questions in that manner.

The Chair: Absolutely. Thank you.

Dr. Nemer has to leave at noon, as does Medicago.

Dr. Nemer, you have the floor for seven minutes.

Dr. Mona Nemer (Chief Science Advisor, Office of the Chief Science Advisor): Thank you very much.

[*Translation*]

Good morning.

Thank you, Madam Chair and committee members, for the opportunity to speak to you today.

Since my last appearance before this committee, in December 2017, I have fulfilled my first mandate and was subsequently reappointed for a two-year term in September 2020.

[*English*]

In the interest of time, I will not go into the details of my mandate, but as a science adviser to the Prime Minister and cabinet, I will say that the past year has been largely devoted to advice related to the COVID-19 health crisis.

Of course, the pandemic is an extremely complex situation with numerous facets. It's all the more challenging when it's due to a new virus about which we know very little, which is why in order to help inform my advice I established a multidisciplinary scientific advisory group early on. We focus on areas ranging from COVID-19 diagnostics and research needs to aerosol transmission, infection in children and long-term care settings.

Researchers were mobilized and willing to generously share their findings and advice. As a result, science has guided decision-making in real time like I have never seen before. The COVID-19 expert panel, made up of distinguished researchers and practitioners in infectious disease, disease modelling and behavioural sciences from across the country, held its first meeting on March 10. It has met since more than 40 times, and panel members also participated in several targeted task forces to which additional experts contributed. This ensured a coordinated and integrated science advice mechanism. Throughout, an impressive number of scientists and health practitioners have generously contributed their time and expertise for the service of their country.

[*Translation*]

My office also helped set up CanCOVID to stimulate COVID-19 research and partnerships. The network boasts over 3,000 members across the country and has been very successful in fostering cross-disciplinary collaboration and innovation.

In addition to domestic outreach, I have been in regular communication with my international counterparts. We share information on disease spread and containment, knowledge gaps, research activities and priorities, as well as clinical studies. This has kept us all up to date on the latest developments worldwide.

[*English*]

Early in the pandemic several clinical studies aimed at treating or preventing COVID-19 and its complications using existing drugs got under way, but the results were mostly disappointing. Attention increasingly focused on vaccine development for disease prevention.

In Canada, federal funds were allocated as early as March and April 2020 for vaccine and therapeutic developments through the Canadian Institutes of Health Research and the Department of Innovation, Science and Economic Development.

COVID-19 vaccine development, manufacturing and distribution were topics I discussed extensively with my international counterparts, including those in the U.K. and the U.S. It became evident to me that independent expert advice on vaccine development and procurement was needed, which is why I recommended the creation of the vaccine task force.

● (1110)

[*Translation*]

Made up of 11 members of Canada's vaccine research community and four ex officio members, of which I am one, the task force has been instrumental in helping to identify and prioritize vaccine candidates, support domestic vaccine development, and inform supply chain coordination.

[*English*]

I have participated in the vast majority of the task force meetings, and I have always been completely satisfied with the scientific rigour that framed their deliberations. Like so many others in Canada's scientific community, these researchers were ready and willing to step up and contribute pro bono their time and expertise to helping fight this health crisis. As a result, Canada now has a diverse portfolio of the leading effective vaccines from three different technologies. I believe that Canadians have been well served by this remarkable group.

The only downside to the amazing feat of the development of vaccines against COVID-19 is that the first of these vaccines came from outside the country. The fact that Canada has modest human vaccine production capabilities is not news; it's a problem that has existed for nearly four decades. As a scientist, I have spent most of my career in biopharmaceutical research, and sadly, I have witnessed the decline of our country's therapeutic development capacity over much of that time.

It does not have to be this way. Therapeutic development, whether vaccines or drugs, is a lengthy and complex process requiring dynamic collaboration among researchers, clinicians, government and private sector organizations. The rewards, as seen in this pandemic, are well worth the efforts.

Canada has exquisite assets to support a thriving biomanufacturing ecosystem from world-renowned scientists who continue to make critical discoveries in biomedical and pharmaceutical sciences to innovative SMEs with promising products. But taking a discovery from the lab to the community or scaling up drug and vaccine production for human use is not a trivial undertaking.

[*Translation*]

It is my hope that the health needs and science successes witnessed during this pandemic will encourage us to put in place the resources and infrastructure to take our discoveries into innovative health products manufactured in Canada for Canadians, but also for the world.

[*English*]

Building our biomanufacturing capacity will not happen overnight, but it is vital that we work towards it, and now is the time to establish the strategies and act on them.

Science gave us hope and the tools to overcome this crisis, from diagnostics to vaccines and therapeutics. We in Canada have much to offer to fight this and future health threats. I look forward to the extraordinary opportunities that lie ahead.

Thank you.

The Chair: Thank you very much.

I now invite McMaster University to present.

You have seven minutes.

Dr. Karen Mossman (Vice-President, Research, McMaster University, As an Individual): Thank you, Madam Chair.

I would like to thank all of you for inviting me and my colleague, Dr. Brian Lichty, to appear today to discuss domestic manufacturing capacity for a COVID-19 vaccine.

My name is Dr. Karen Mossman, and I am the vice-president for research at McMaster University. I'm also a professor in medicine and a virologist by training.

Very early on, my team was involved in isolating SARS-CoV-2, the agent responsible for the outbreak of COVID-19. Isolating and propagating the virus has enabled researchers across Canada and the world to better understand the virus and work on potential solutions.

[*Translation*]

Mr. Mario Simard (Jonquière, BQ): Pardon me, Madam Chair, but the interpretation has stopped.

[*English*]

The Chair: Dr. Mossman, would you double check what language you are on at the bottom of your screen? We're having some trouble with translation.

Dr. Karen Mossman: I have English selected.

The Chair: Perfect.

Mr. Simard, I'm speaking in English. Are you getting it in French? Yes. Perfect.

Please go ahead, Dr. Mossman.

Dr. Karen Mossman: At McMaster, our researchers pivoted quickly to respond to the COVID-19 pandemic with most of the research coming from the newly launched Canada's Global Nexus for Pandemics and Biological Threats. This includes working on the development of home test kits, leading a national trial for plasma transfusion, and leading a trial on anti-coronavirus therapies.

A great deal of work is being done across the university to innovate respiratory ventilators and N95 masks. Thanks to funding from CIHR and CFI, my own lab is currently studying SARS-CoV-2 pathogenesis.

This pandemic has exposed significant gaps in Canada's domestic biomanufacturing capacity. While important steps are being taken to correct this imbalance in the future, we believe action can be taken now to ensure that Canada can produce its own vaccines without the need to solely rely on international partners.

McMaster is home to the Robert E. Fitzhenry Vector Laboratory. Founded 17 years ago, this biomanufacturing facility is currently producing a made-in-Canada COVID-19 vaccine which, pending approval, will be ready for clinical trials in the spring. This second-generation vaccine candidate has been designed to provide broader anti-coronavirus immunity to aid in protection against the variants and potential future pandemic coronaviruses. The research into this vaccine candidate is Canadian, the IP is Canadian, and we hope that production will be Canadian.

Investment will be key to growing Canada's vaccine manufacturing capacity. McMaster's facility could and should play a role in Canada's biomanufacturing future. With support, the facility could be upgraded in a matter of months to produce on the order of a million doses of the vaccine per production run.

McMaster University has recently partnered with the University of Saskatchewan and VIDO-InterVac to approach pandemic preparedness from a position of strength. Together we urge the government to invest in our proposals, which build on decades of excellence in infectious disease research.

I will now pass it over to my colleague, Dr. Brian Lichty, who is the director of the Robert E. Fitzhenry Vector Laboratory. He can speak more to the work being done there.

● (1115)

Dr. Brian Lichty (Associate Professor, McMaster University, As an Individual): Thank you, Madam Chair, and members of the committee. I appreciate the opportunity to address this committee.

The Robert E. Fitzhenry vector facility is designed to produce adenoviral vectored vaccines. These will be similar to the AstraZeneca and Johnson & Johnson vaccines, and actually the CanSino and Sputnik vaccines, for example.

McMaster pioneered the genetic engineering of adenoviral vaccine vectors decades ago, and all such vaccines are essentially based on Canadian technologies that were initially developed at McMaster.

The facility was originally designed to produce vaccines for phase one/two testing, and in the past has manufactured vaccines for infectious disease and oncology clinical trials in humans as well as veterinary trials in oncology. This work has allowed McMaster to license technology to industry and recently to spin out a biotech company that now employs over 60 scientists and technical staff in Ontario.

Our team is currently manufacturing two second-generation adenoviral vectored COVID vaccines designed to provide a broader immunity against three SARS-CoV-2 proteins. This design is expected to provide immunity to vaccinees against components that are less able to change and are conserved across the arising variants and even potential pandemic coronaviral species that are present in Asian bat populations.

McMaster has also pioneered methods to administer these vaccines through inhalation using a device analogous to a puffer. This would boost immunity within the lung where it is needed most. Importantly, this route of administration allows for a much lower dose of vaccine to be effective. Our planned trial will incorporate this route of administration.

In closing, I would like to express my gratitude for the rapid response to COVID-19 from the government and all parties. A robust domestic manufacturing capacity for vaccines is pivotal for Canada not only to ensure Canadians have timely access to lifesaving vaccines, but also from an IP, innovation and national security point of view. We have a great foundation for domestic manufacturing capacity in Canada and we see a path forward to creating a dynamic ecosystem.

McMaster has initiated conversations with NRC about the new Royalmount facility, and we see a tremendous opportunity for small academic facilities like ourselves to position ourselves better as feeder facilities for these larger biomanufacturing centres. This would allow the future Canadian ecosystem to be nimble and better poised to develop and test new technologies. Decisions made in the near future will determine whether this capacity will meet the needs of future pandemics, or if we will continue to rely on our international partners.

I look forward to your questions.

● (1120)

The Chair: Thank you very much.

I now turn to Precision NanoSystems.

You have seven minutes.

Mr. Andrew Booth (Chairman, Precision NanoSystems): Thank you, Madam Chair.

I'll begin by acknowledging that I am speaking on the traditional territory of the Squamish Nation, right here in Squamish, British Columbia.

As chairman of Vancouver-based Precision NanoSystems, I welcome the opportunity to update the honourable members on the contributions Precision and the broader domestic biotech industry have made to keep Canadians safe during the pandemic.

We're proud that our work is unlocking the potential of Canadian science and innovation. The domestic biotech and life sciences sectors are leading the development of some of the world's most innovative treatments for rare disease, infectious disease and cancer. This life-saving work is being done by the world-leading talent we have here in Canada.

Canadian biotech and life sciences companies will play a vital role in rebuilding the economy post-COVID-19 by creating IP-intensive, knowledge-based jobs and attracting the brightest talents from around the world. Our industry allows Canadian students and young aspiring scientists to realize their potential here in Canada.

Canadian innovators are very strong. Many of the innovations that are now allowing us to prevent and treat COVID-19 come from Canadian companies. As we enter this critical period of economic recovery, we must support the homegrown Canadian firms to scale and develop the technologies and solutions to solve current and future health challenges.

Investing in domestic biomanufacturing capacity is certainly part of the solution. This is an area in which the government and industry can work together to support domestic firms in developing their technologies for the benefit of all Canadians and, frankly speaking, for the entire world.

We are pleased to see the government begin to chart the long-term vision of domestic biomanufacturing in partnership with the private sector. By making these investments, we will create high-value, sustainable economic activity and build the capabilities and competences to be prepared for the future.

The question is not whether another pandemic will descend on the world. The question is when it is going to happen, and we need to be prepared for it. We need to be strategic in our planning, because the decisions we make today will save lives in the future.

My colleague James Taylor will further expand on this. I thank all the honourable members for the opportunity to address you today.

Dr. James Taylor (Chief Executive Officer, Precision NanoSystems): Good morning, Madam Chair.

Thank you to the committee for inviting me to speak about this important and very timely topic.

I understand that you've been fortunate to hear from many of my colleagues about the tremendous efforts currently being done collaboratively in Canada by government, academia and industry to provide solutions today and better prepare us for all future pandemics. I hope my testimony today offers additional insight.

Precision NanoSystems' mission is to accelerate the creation of transformative medicines that significantly impact human well-being. We work with the world's leading pharmaceutical companies to create the drugs of the future, namely, genetic medicines: the delivery of RNA and DNA to cells to treat disease.

As therapeutics, genetic medicines treat disease at its fundamental molecular root cause and, as vaccines, they are used to teach the immune system to protect us from a given pathogen. We are proud to provide manufacturing technologies, drug technologies and services to enable genetic medicines to be developed to prevent and treat diseases, including cancer, rare diseases, infectious diseases and many more indications of high unmet medical needs.

We founded Precision NanoSystems 10 years ago as a spinoff from the University of British Columbia, with the goal of enabling the promise of genetic medicines. We now support hundreds of the world's leading biopharmaceutical companies to create these transformative medicines. We are proud to have built a highly talented and rapidly growing team of over 120 and to have played an important role in training a diversified workforce in Canada and institutionalizing Canada's strong life science commitment to its citizens.

COVID-19 has been devastating for individuals and the world. We should anticipate future pandemics and epidemics and prepare accordingly. We believe it is essential for Canada to secure and invest in a variety of vaccine technologies, including RNA vaccines, viral-based vaccines, protein subunit vaccines and others. This is prudent for many reasons. Notably, the world has seen RNA medicines' disruptive capabilities and how they could rapidly be developed and deployed against COVID-19, illustrating the power of genetic medicines. We see similar medical disruptions by genetic medicines across all major disease classes.

Genetic medicines really represent a unique opportunity for Canada. They represent one of the fastest-growing areas of pharmaceuticals, and Canada is a leader in many aspects of these technologies. Here in Vancouver, for example, is a world-leading centre for technologies that deliver RNA and DNA, with an expanding ecosystem consisting of local innovators and branches of large multinationals.

Precision NanoSystems provides game-changing solutions for drugs being developed in areas of high unmet medical needs, such as cancer, rare diseases and infectious diseases. We are proud to have collaborated with or provided solutions to companies, academic institutions and not-for-profit agencies in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Nova Scotia and Prince Edward Island.

To solve major challenges like COVID-19, we believe that strong partnerships are required between the public and private sectors. With the Government of Canada's support, we have embarked on two key initiatives: the development of a differentiated COVID-19 vaccine and the opening of a biomanufacturing centre to create domestic production capacity.

Our COVID-19 vaccine program aims to develop a self-amplifying RNA vaccine, which, if successful, can potentially be dosed 20 to100 times lower than the messenger RNA vaccines currently authorized today under emergency use. By its nature, this will reduce manufacturing bottlenecks, as less material is needed per dose, allowing more people to access vaccines in a shorter time. Also, the smaller dose may decrease adverse effects. We aim to enter an adaptive phase one/two clinical trial by this summer and to be completed by the end of this year.

Our genetic medicine biomanufacturing centre will be a state-of-the-art facility for developing and manufacturing genetic therapeutics and vaccines. The biomanufacturing centre will support PNI's COVID-19 vaccine program, as well as PNI's large and growing client programs in other areas of high unmet medical need.

Successful completion of this facility will produce some of the world's most innovative genetic medicines right here in Canada. We are fostering local technology development, job creation and talent development and rebuilding our ability to respond domestically to future pandemics. Leveraging our existing relationships and pipeline of programs, the biomanufacturing centre will be a state-of-the-art, commercially viable facility for the most innovative genetic medicines produced here in Canada for years.

Lastly, I would like to recognize and thank the government employees who have worked with us recently and over the years. Our team has interacted with many individuals who have worked tirelessly and with the utmost commitment to enable these and other important projects.

Thank you. I'm available to answer any questions you may have.

● (1125)

The Chair: Thank you very much.

I now invite Medicago to present.

You have up to seven minutes.

Mr. Takashi Nagao (President and Chief Executive Officer, Medicago Inc.): Thank you very much, Madam Chair, and members of the committee.

I will be speaking English.

On behalf of Medicago, I would like to thank you for inviting us to present at this hearing.

Medicago is a Canadian biopharmaceutical company with a mission to improve health outcomes of people by using our innovative plant-based protein expression technologies for rapid response to the emerging global health threats, such as one that we are facing today with COVID-19.

We are proud to be contributing to the fight against COVID-19 by developing a made-in-Canada vaccine candidate, which is currently in development in the phase two/three program. We are a proud Canadian company, headquartered in Quebec City, making a significant contribution to jobs and investment in the national economy.

Let me spend a moment to introduce our technology and its uniqueness. Our vaccines are so-called virus-like particles, or VLPs, which mimic the shape and appearance of the virus without being pathogenic. Because of this feature, it induces a very strong and broad protection through the immune system when it's introduced. Also, our plant-based production capability is extremely versatile and positioned to support rapid response to the situation we are facing.

With our capability and platform, we can receive the genetic sequence information of the virus, which is applied to express the VLP vaccine candidate for rapid development. That would be suitable to the situation like the pandemic we are facing.

We are currently assessing the immune response of our current program against the Wuhan strain and against emerging new variants. We are contemplating developing a new vaccine against the emerging new variants as well.

During the current COVID-19 pandemic, Medicago has reallocated nearly all of its resources to developing a vaccine candidate and variants and has also tried to accelerate our path to increase Canada's domestic vaccine manufacturing capabilities. The COVID-19 pandemic has highlighted the critical need for domestic manufacturing of vaccines and other products to ensure that Canada is prepared to protect its citizens from emerging infectious disease. Medicago is proud to provide domestic solutions—

● (1130)

[*Translation*]

Mr. Sébastien Lemire (Abitibi—Témiscamingue, BQ): Pardon me, Madam Chair, but it might be a good idea to ask the witness to bring his mike closer to his mouth to improve the sound quality for the interpreter.

Thank you.

[*English*]

The Chair: Mr. Nagao, could you lift your microphone a little higher, so that it's closer to your mouth?

Mr. Takashi Nagao: Is this better?

The Chair: Thank you very much.

Mr. Takashi Nagao: Medicago is proud to provide a domestic solution to respond to the pandemic, which will require support from the government at multiple levels.

We have seen other jurisdictions, such as the U.S., U.K. and Germany, investing in local companies to provide domestic capacity in their countries. The Government of Canada has kindly supported our efforts at Medicago in the development and production of COVID-19 vaccines. It will ensure availability of a Canadian-made vaccine to the population and provide much-needed domestic manufacturing capacity for vaccines, antibodies and other immunotherapies.

In addition, Canada's advance purchase order of our vaccine has allowed us to reserve supplies for Canada, and it provides the security needed for us to pivot resources from other programs and focus on COVID-19 vaccine development and production.

As we look at the critical factors involved in preparing for the pandemic, it may be useful to structure our response according to the three major axes: time, economics and competencies. Pandemic response requires long-term planning given that many years of efforts are needed. Private-public partnership provides strong synergies. While Canada needs to secure technology and domestic production capabilities, industry requires long-term sustainability to encourage significant private investment.

Competencies are also critical to ensure the domestic response, from the early research to the critical development, production and distribution. The government approach to investment should be focused on strengthening each link of this value chain with strong, long-term planning and commitment.

Last, I'd like to take this opportunity to thank the government leaders and partners who made this investment possible, the Government of Canada, specifically the Public Health Agency of Canada; Industry, Science and Economic Development Canada, Public Services and Procurement Canada, and the Government of Quebec. We are very grateful for your support and look forward to continuing to work with government partners to protect Canadians from the current COVID-19 outbreak and future public emergencies.

I'd be happy to entertain any questions. Thank you very much.

The Chair: Thank you.

We will now go to Dr. Kobinger.

You have seven minutes.

Dr. Gary Kobinger (Professor, Université Laval, As an Individual): Thank you, Madam Chair.

My name is Gary Kobinger. I'm a professor in infectious diseases at Université Laval and former chief of the special pathogen program at the national lab in Winnipeg. My expertise sits on the development of diagnostic tests, vaccines and therapeutics against emerging and re-emerging pathogens as well as outbreak responses on the ground in Africa, Southeast Asia and the Middle East.

From 2003 to 2005 I contributed to the development of the first mice model of SARS and one of the first reports on the ferret and macaque models. In parallel, I communicated some of the first reports on the stability of SARS in the environment and opportunity for contactless transmission from droplets. I'm here today to share my expertise and perspective on these subjects as applied to SARS-CoV-2, the causative agent of COVID.

As a scientist and as a Canadian, I have seen unfold the emergence and spread of SARS-CoV-2 worldwide within a few months. I have witnessed, like most of us, many extraordinary achievements and some missed opportunities. I'm here to highlight some of these successes and missed opportunities, because they are where we can learn and focus our efforts to improve our response in order to save lives tomorrow, next month and in the years to come.

In six to 12 months we will look behind, and surely we will be able to say that we made it through okay. We could have done better, as we can always improve. All things considered, we did make it through okay. But make no mistake: Not all of us will make it through at all. For the families and friends of the ones who will die, it will mean dramatic losses of loved ones, changing families and friendships forever. For the most vulnerable, it will be even more dramatic. The numbers will be higher. These are the people we must protect first.

Canada and the provinces and territories have done great with regard to diagnostic services. We must acknowledge the contribution and leadership of PHAC, including Dr. Theresa Tam and Dr. Matt Gilmour, who worked countless hours on decentralizing the diagnostic of COVID to provinces, which in turn expanded to hospitals. We saw the sharing of PPE within and between provinces and territories when PPE became more difficult to find than precious stones. We saw protective vaccines being developed within timelines never seen before in the history of vaccination, and unexpected alliances between big pharma and academia, such as Oxford and AstraZeneca, and big pharma and not-for-profits, such as Merck and IAVI.

We also saw missed opportunities. Currently, the reality is that over one year into this epidemic, only about 6% of the world population has limited access to vaccinations. Most countries, including Canada, delayed too long before imposing travel restrictions to delay the growing seeding of COVID spread throughout the country. More dramatically, the usage of masks at the population level was delayed for months while hard data strongly indicated their benefit in reducing spread, reducing exposure doses, and protecting from infection and severe disease and death. Even in March 2020, some within the federal government were aware of such data and were warned that the first major mistake in emergency response is to not adapt to rapidly growing science to protect policies and politics rather than public health.

Canada was well advised to sign multiple contracts with major pharma above the number of doses required. Unfortunately, it failed to act timely from January to February in 2020 and develop and implement strategies to build vaccine development and manufacturing within Canadian borders. This did not come up in January and February but months later, in July and beyond. As with masks, how many lives could have been saved through a more prompt reaction? We will be able to calculate soon. Each life lost will be one too many.

We were at least three teams with experience in bringing experimental vaccines against infectious diseases to the clinic in Canada. One finally received federal funding in late August 2020 to initiate their clinical development. This was Medicago. The others are also present here with my Ontario colleague.

Canada's solution now is largely sitting with the NRC. The NRC is managing the vaccine task force and managing funding to six promising vaccines. The NRC itself has never brought a human vaccine to licensure, to my knowledge. A federal department, the NRC, with approval from another federal department, Health Canada, is proposing to produce vaccines for the country's citizens—a model that exists only in authoritarian regimes or in communist countries. It's a ticking bomb that may well blow unless some other unexplained strategy is deployed.

● (1135)

My group, with a vaccine strategy that we have shown works against Zika and recently MERS, which is another coronavirus, with a COVID vaccine ready to progress through the clinic since mid-February 2020, a vaccine that showed protection levels similar to a commercial mRNA vaccine in animals, that vaccine received $1 million, and we are very thankful. Despite the great data in preclinical studies, there was nothing more—zero.

Now, let's be serious. Nobody on this planet can bring a vaccine through any clinical study in humans with $1 million, so we can ask whether this $1 million was well spent considering the lack of follow-up support. How many more like this in Canada also used funding and then were left behind? How far could my group and others be today if we had had early support like in the U.K., the U.S. or other countries?

I'm here to answer your questions with my best effort. Right now I will say this. Variants are emerging and the next pandemic is lurking upon us. This is not a fear argument; it is just a simple truth, and we must do better and invest for tomorrow and the future, because we can and so we must.

With my own hands I have decontaminated and prepared for burial the bodies of fathers and children, mothers and babies, all deceased from the Ebola virus disease in places without many resources.

We are very lucky here in Canada with all our resources. We can work together irrespective of gender, race, political party affiliation or religious belief. We are so very lucky to live in this amazing and wonderful country where we can recognize our gaps, where we can do better and hand in hand meet the most daunting challenges with the most innovative solutions.

Thank you.

● (1140)

The Chair: Thank you very much.

We'll now go to our round of questions. Again, please respect the time, as we're going to try to get at least one tour in before our two witnesses have to leave.

We will start with MP Dreeshen.

You have the floor for six minutes.

Mr. Earl Dreeshen: Thank you very much, Madam Chair.

Because of the fact that we're going to lose a couple of the really important witnesses here, I'm going to try to change my questions somewhat so that maybe we can get some answers later, as they could send these answers to the chair.

Dr. Nemer, you mentioned how behavioural scientists were part of the mix as far as advisers are concerned. Behavioural scientists basically look at how people are going to respond to things such as lockdowns and so on, whereas it's the mental health people who I think are really important in this issue. As the last speaker just mentioned, we have lost so much faith, and we have seen so many drastic things happening in the last number of months that I think, really, we have to be concerned about it.

We talk about international counterparts. Last week we were at 38th, and we are now 58th as far as vaccine deployment is concerned, yet we continually hear how things are just going very well. Well, they aren't going very well.

The other aspect that comes into the science discussion is, why are we not fast-tracking vaccines that have already been approved in the United Kingdom or the U.S. We talk about having to wait for Health Canada to do their due diligence. We speak about how this is an international dilemma. How are we going to manage that?

Dr. Mona Nemer: Thank you very much.

Madam Chair, I expect that you want me to answer, but I just want to mention that I have rearranged my schedule, and I'll be able to be with you until 12:30, an additional 30 minutes.

In terms of mental health and our behavioural scientists, we had biomedical and clinical scientists as well who were very aware and concerned about the mental health issues from the get-go. The reality is the management of this entire pandemic was an exercise in risk management between infection, between mental health, between keeping people at home, etc.

Mr. Earl Dreeshen: On that particular point, what information, advice or studies did you or your office provide the government to suggest that quarantining travellers in a hotel would be the safest option available rather than the system that we had before whereby travellers quarantined at home under supervision?

Dr. Mona Nemer: When government asks us for evidence, they don't ask us for policy options, so we provide the science. In this case, it would be the science around the transmission of the disease, how long the virus stays in you, how long people can be contagious and so on.

The policy options and the decisions are entirely up to the government.

Mr. Earl Dreeshen: I agree that is the key issue right here. We have a difference between natural science and political science. Of course, no one who is a scientist is going to say that there's a 100% chance, and then, of course, that's when the political scientists jump in to say, “Hey, we'll maybe be able to deal with this in this particular way.”

I want to come back to another issue, recommendation 3 of your special task force on long-term care. The report said, “Ensure sufficient resources required to safely care for residents within LTC homes”, including personal protective equipment and testing for long-term care staff and residents. I think we've seen how difficult and frustrating this has been. I know no one who hasn't seen somebody pass away or had issues where mental health has really caused them such grief.

What response did you get from the government on the recommendations for long-term care? Did you speak to the government at all about the report?

Dr. Mona Nemer: Madam Chair, our report on long-term care was, like other recommendations, sent to the government officials both on the political side and the bureaucratic side, but it was also made available to everyone on our website.

The situation of long-term care is one that distresses me a great deal. I think it distresses all Canadians. Unfortunately, in this particular instance we had to rely on the provinces really to implement those measures in the long-term care homes, or in the cases where there was private care, there had to be discussions between the operators and the provinces I understand as well.

To the question as to whether we could have done better in the second wave knowing what we knew about the virus, I think, yes, we could have done much better. We had the tools to do it with the testing, and we didn't have any shortages of PPE as well.

● (1145)

Mr. Earl Dreeshen: Of course, with that recommendation 3, that was what you were trying to tell the federal government. They have been laying this at the feet of the provinces, as I understand.

In the short time I have, on the international acknowledgement of vaccines, what is the reason that we are holding them up at this point in time when they've been accepted in other parts of the world?

Dr. Mona Nemer: Again, we have a regulator, and I'm actually quite proud that, unlike other countries, we don't interfere with the regulators as they do their jobs. My understanding, and this is a question best posed—

The Chair: Would you quickly just finish that thought, Dr. Nemer, and then we'll go to the next questioner.

Dr. Mona Nemer: It's a question best asked of Health Canada, but my understanding is it's not only the vaccine itself; it's also where it's produced that needs to be qualified. The vaccines that we're getting are not coming from the same place as those going to the U.S. and the U.K., among others.

The Chair: Thank you very much, Dr. Nemer.

We will now go to MP Jowhari.

You have the floor for six minutes.

Mr. Majid Jowhari (Richmond Hill, Lib.): Thank you, Madam Chair, and thank you to all the witnesses.

Madam Chair, I'll be sharing my time with MP Ehsassi, and I ask you to keep the time. I'm going to try to stick to my three minutes.

Let me start with Madam Nemer.

In your opening remarks you talked about the focus over the last year being on advice on COVID-19. You specifically talk about the number of initiatives that you've spearheaded, starting with the multidisciplinary advisory group that has met over 40 times since March 10. You talked about the formation of the CanCOVID network, with over 3,000 members, and you touched on international partnerships you had a lot of conversations with and your recommendation for the formation of the vaccine task force. I want to focus my question on the latter two.

Specifically, can you talk about the role that you played and how involved you are? You continue to be on the vaccine task force. Specifically on the international partnerships, is there one international partner that stood out the most, that you had the most collaboration with?

Thank you.

Dr. Mona Nemer: Thank you very much.

I recommended the creation of the vaccine task force because very early on it was clear that a lot of vaccine development was under way. Actually, at some point, there were over 200 vaccines at different stages of development. There was no data on any vaccine development, certainly not things about their efficacy in human and even animal models until the summer. From my conversations with my counterparts internationally, it was clear that we were going to be running into a situation of shortages—the entire globe wants these vaccines—and it was unclear which ones were going to work. Even those countries that could produce vaccines didn't know which platforms would be available.

It was very important that we start putting in place a group that could give independent advice. Otherwise the government would have to basically rely on the private sector and others basically lobbying to get funds and lobbying to sell their products. I thought that maybe this was a situation where the scientific advice would be very helpful to the country.

I was very involved with the task force. As I said, I went to all the meetings, especially the ones where they studied and we had actually the scientists from the companies and from Canadian labs as well. We signed confidentiality agreements to be able to look at those data and make informed decisions.

I would say the countries that have similar vaccine task forces were the U.K. and—a little bit differently, perhaps—the U.S. with their Operation Warp Speed. Australia also had a vaccine task force. Eventually France also put in place a vaccine task force, as did other countries as well.

I think it was the right thing to do and the right model.

● (1150)

Mr. Majid Jowhari: Thank you.

I yield the rest of my time to MP Ehsassi.

Mr. Ali Ehsassi (Willowdale, Lib.): Thank you, MP Jowhari.

I will follow up with a question for Dr. Nemer.

Speaking of the similarities in approaches, would you agree with me that the portfolio approach that Canada adopted was very similar to the approach that was adopted by the U.S., the U.K., Australia, New Zealand and France?

Dr. Mona Nemer: The portfolio approach adopted by Canada, which aimed basically to de-risk in case of all these unknowns, ended up being very similar to those of these countries, in the sense that we bet on different technologies, and we saw that. Nobody could predict that mRNA would work. I was the first to be skeptical of it, although I did my Ph.D. in RNA synthesis. Thanks to the nanoparticles, however, and all these developments coming together, it's been just incredible.

We didn't know whether we would be able to have vaccines for SARS-CoV-2 at all, whether adenovirus would work, whether protein subunits would work, which companies were going to be successful. Companies well established in vaccines, like Merck, have actually not been the first out the door, and small, innovative companies and others beat them to the home run.

Mr. Ali Ehsassi: You did state in your opening remarks that we aggressively moved forward and that, as early as March and April, we had invested in vaccine development and the development of therapeutics. However, you did say, and I quote, that these are “not trivial undertakings”.

Could you explain to us what those timelines are in terms of developing these things and elaborate on that particular point for the benefit of our members?

Dr. Mona Nemer: Perhaps to be very succinct, historically, if one developed a vaccine or a therapeutic within 10 years, it was a great thing to happen. Developing a vaccine in the space of a year, and not only developing it but actually mass producing it to the stage that you can vaccinate at the level that we are seeing right now, is unprecedented.

The Chair: Thank you very much. I'm sorry, but you're out of time.

[*Translation*]

Mr. Lemire, we now go to you for six minutes.

Mr. Sébastien Lemire: Thank you, Madam Chair.

Again, thank you to the interpreters for their hard work today.

My question is for Dr. Kobinger.

As we fight against COVID-19 and think about the future, it is incumbent upon countries, now more than ever, to better prepare for the spread of a virus. As you pointed out, the next pandemic is lurking upon us.

Would you say Canada's model for fulfilling its role and meeting its objectives was effective or was it more of a missed opportunity, to use your words?

Given your experience, describe for us, if you would, what a successful model looks like.

Dr. Gary Kobinger: Thank you for your question.

We can always do better. In Canada's response to a public health crisis, an important area for improvement is the lack of independence and political neutrality of advisory committees across the country.

Dr. Nemer has done a fantastic job when it comes to networking and collaboration. She was able to move mountains with the science behind her. Nevertheless, the work is directly tied to the government. That's clear from the statement that was read, which was approved by the government in advance. There's nothing wrong with that. It's just that the independence that helps encourage the sharing of scientific breakthroughs is lacking. The political dimension prevents the advisory committees from simply making recommendations and communicating them clearly to the public; the government in power decides which of the recommended policies to put forward, public health or otherwise.

● (1155)

Mr. Sébastien Lemire: Dr. Nemer just said that Canada's approach or efforts were comparable to Great Britain's. What are your thoughts on that?

Dr. Gary Kobinger: There are a number of similarities and differences. Great Britain opted to deploy all its efforts from the outset. In mid-February, it held a meeting in Geneva and invited a handful of international representatives, including myself. From the get-go, Great Britain decided to provide maximum support to three initiatives, one being the AstraZeneca vaccine, which is in production and has been approved in more than 50 countries to date. The vaccine is a real success story, and I think part of that success is attributable to the development model: an academic lab with high-tech facilities and equipment and a major pharmaceutical company joining forces backed by the British government. That's where our approach and Great Britain's diverge.

Mr. Sébastien Lemire: Since we have Mr. Nagao here from Medicago, I'd like to ask him a question.

All the focus is on Canada's capacity to produce vaccines. Is Medicago's model and technology the answer to our mass production needs since Canada lacks scientific infrastructure?

[*English*]

Mr. Takashi Nagao: We believe that local production capability for Canada is very important. When we get into situations with dose allocations, I anticipate that having local production capability in Canada is going to be important for the people in Canada.

I also will make a point that as a company based in Canada that also operates globally, we have a production facility and employees based in the U.S., and the current shareholders are actually in Asian and European countries. Also, the virus has no national boundary. In a way, this is a global business and we have to make sure that we are not handicapped by vaccine nationalism as we try to run the business.

[*Translation*]

Mr. Sébastien Lemire: I would point out that the federal government's $173-million investment in Medicago seems to have come late in the game. How much did the delay in receiving federal funding affect your research? Because the Canadian government's support was so late in coming, did you miss out on establishing yourself as a global leader in COVID-19 vaccines?

[*English*]

Mr. Takashi Nagao: The question is the relationship of the government funding and its timing versus the program that we have in place. First of all, I'm very thankful to the Government of Canada and its agencies, as well as the Quebec government, for their support for what we're doing at Medicago. We make up risk investment and we rely on the current shareholders and other constituencies for funding. Certainly we would like to welcome government support in a synergistic manner, but we have been trying to make our progress in the program—

[*Translation*]

Mr. Sébastien Lemire: Had the federal government given you funding back in March—

[*English*]

Mr. Takashi Nagao: —regardless of funding.

[*Translation*]

Mr. Sébastien Lemire: Had you received funding from the federal government when the pandemic began, could you have produced a vaccine quickly? If so, would the government be distributing doses of Medicago's vaccine to Canadians on a mass scale right now?

[*English*]

Mr. Takashi Nagao: My answer to your question is that there are two elements. We have to make a clean-cut movement and we also have to have the production ready. We all make what I call an at-risk investment, so—

The Chair: Unfortunately, you're out of time, so could you wrap it up very quickly, in five seconds or less.

Mr. Takashi Nagao: Any expeditious support from the government would be welcome.

● (1200)

The Chair: Thank you very much.

Our next round of questions goes to MP Garrison.

You have the floor for six minutes.

Mr. Randall Garrison (Esquimalt—Saanich—Sooke, NDP): Thank you very much, Madam Chair.

I am very pleased to be on the industry committee, and I want to thank the witnesses for being here today.

I want to take a moment at the beginning to acknowledge the efforts of the Canadian scientific and research community in diving in to try to find a solution to the COVID pandemic, and to also acknowledge the efforts of Canadian-based biopharmaceutical companies.

I heard today some good suggestions of where to go forward.

My concern is that we need to know a bit more about what happened to advice given in the past so that we don't find ourselves, six months from now, looking back again and saying, my God, why didn't we do better?

I am going to ask Madam Nemer a question and I'll try to make it as clear as I can.

We're one year into the pandemic and we find ourselves without the capacity to produce vaccine in Canada, and without the right to produce vaccines in Canada that we have contracted for. My question is a simple one. Was the government advised that it would be critical to the health of Canadians to acquire the right to produce vaccines in Canada and to establish those production facilities? If that advice was given to the government, when was that advice given?

Dr. Mona Nemer: Madam Chair, if I may, before answering the question, I would like to clarify something.

My good colleague, Gary Kobinger, suggested that perhaps I was not the author of the text that I read and that it was vetted by government. I want to assure everyone that I wrote it with my staff. It has not been seen by anybody in government, not the political side and not any of the ranking civil servants, so it is entirely mine and I have been completely free throughout this pandemic to express myself.

To the question that is being asked of me, the answer is yes. The advice was provided about the importance of biomanufacturing in the country. In the early summer when I appeared in front of the health committee, I did mention it publicly. I said that we are playing catch-up and that we need to be able to produce vaccines in the country.

I think I'll just stop there.

Mr. Randall Garrison: Can you then tell us whether you received any direct response from the government about that advice, or did you see any evidence that the government had taken that advice?

Dr. Mona Nemer: The government doesn't get back to me, saying, “Yes, we are going to implement your advice,” or not. Sometimes things happen, other times things don't happen. That's the name of the game for science advisers. Of course, it's always better when we see our advice being implemented.

As I said, catching up doesn't happen overnight. I think that from what we've heard from the other witnesses, it's evident that actions are being taken and I hope that we will accelerate these actions in the months to come.

Mr. Randall Garrison: Did you, as the chief science adviser, or did the vaccine task force feel that they had the ability to ask the government to respond directly to your recommendation? Did you feel that you had that power to do so, or did the vaccine task force feel they had the power to ask for that accountability from the government, on your advice?

Dr. Mona Nemer: I think that I have never asked the government where things are happening. At times I saw where things were happening.

My counterparts in other countries do not ask government for accountability on their advice. I knew that was the kind of job that I signed up for.

Mr. Randall Garrison: Thank you, Dr. Nemer.

I do think that indicates the problem with independence of your office and a lack of independence in the very attitude that is being expressed.

I want to go to Professor Kobinger, who was part of the vaccine task force and had concerns about the transparency surrounding that task force.

It seems to me there are two potential problems when a task force isn't transparent. One is the very narrow and direct conflict of interest of those who were involved with it. The second is the attitudinal conflict. In a group like the task force that had many people involved in the pharmaceutical industry, there's a danger that people weren't thinking about solutions other than those they were already involved in.

I'd like to hear Professor Kobinger on that point.

● (1205)

Dr. Gary Kobinger: Thank you so much.

This is a question that comes up more often to me, which highlights the lack of transparency. Otherwise, people would know a lot of answers to many questions.

I myself am still learning of some apparent conflicts of interest of the task force members. Again, this past Monday I learned that some members had stock in one of the big pharmas that was discussed and disclosed it as not a conflict of interest.

I think one major issue is that there was no independent review of the conflicts of interest that were declared. This committee started in July—the first meeting was the first week of July—and was not known publicly until several weeks after that. The members were not known until several weeks after that. Then the conflicts of interest were not known until several....

I'm just going to take one second. I want to apologize to Dr. Nemer. I did not mean to accuse her of not writing the text and everything. She has very good staff.

Thank you.

The Chair: Thank you very much.

That's the end of the first tour.

Before I go to the next round of questions, Mr. Booth, I see you had your hand up. Are you having some technical difficulties?

Mr. Andrew Booth: No, I just had a comment regarding one of the questions. If we're moving on, that's fine.

The Chair: We will start the second round of questions.

I understand that Medicago has another meeting, so they have to leave.

I want to thank you very much for being with us today. We wish you a good rest of the afternoon.

Mr. Takashi Nagao: Thank you very much.

The Chair: We'll now start round two of questions with MP Baldinelli.

You have the floor for five minutes.

Mr. Tony Baldinelli (Niagara Falls, CPC): Thank you, Madam Chair.

Thank you to all of the witnesses for appearing today.

I'd like to begin my line of questioning with Dr. Nemer, following up on my NDP colleague's questioning.

Dr. Nemer, as a member of the task force—I guess you're an ex-officio member—are you involved in overseeing decisions made? Do you provide advice? Are you involved in the recommendations that are made?

Dr. Mona Nemer: I am involved in the sense that I participate in the meeting. I'm an active participant and I ask questions. I provide independent advice as well, in addition to the one that is part of the vaccine task force recommendations.

Mr. Tony Baldinelli: Thank you.

I'll go back again to how my colleague was asking the question earlier in regard to timelines.

My concern is that we lost about three months in the whole process of securing vaccines. The government announced the deal with CanSino Biologics in May. Three days after the Prime Minister made his announcement on that, China began the process of backing out of that agreement. We did not find that out publicly until July. The task force did not meet until June and then the government announced its procurement of these vaccines in August.

From your standpoint, who was involved in the decision to engage CanSino Biologics?

Dr. Mona Nemer: Thank you for the opportunity to clarify on CanSino. There's a narrative out there about us recommending that we go with CanSino. I want to clarify the collaboration between NRC and CanSino was a research agreement. At no point that we're aware of was there any decision or discussion about preferentially procuring the CanSino vaccine to Canadians or having it as our preferred option. At that stage, it was a collaboration to carry out early phases—phases one and two clinical trials—in Canada. That was completely separate from the vaccine task force studies of international and domestic vaccines.

The timelines of the vaccine task force were somewhat comparable to what happened in the U.K. We started looking at memberships, vetting participants and everything around the month of April or May. In terms of the official announcement, that's another matter. The U.K. vaccine task force was announced in the month of May, so the timelines are comparable, I would say.

● (1210)

Mr. Tony Baldinelli: To your point, the recommendation of the task force for the Moderna and Pfizer vaccines would have been made when?

Dr. Mona Nemer: I don't remember exactly, but I think it was probably around the end of June when we had the scientists from Moderna and Pfizer present their results. It would be around that timeline. I can certainly send the specific dates of when they were studied later, if you wish.

Mr. Tony Baldinelli: Then again, we did not secure these vaccines until August, with an announcement. To my point, that wasted three months, which is the unfortunate part.

In January, Pfizer announced with its partner BioNTech that it was developing a booster shot to protect against the COVID variants. Just last week at the health committee, Dr. Roman Szumski mentioned that the current contracts that are in place do not reference the need for boosters and that those would be new conversations we would enter into with the suppliers.

Given this, is it important that we begin to engage now with firms, particularly these Canadian firms here today, including universities, to begin that process?

Dr. Mona Nemer: It is my hope that the coming vaccines would be made in Canada.

Whether we're going to be needing booster shots has not been determined yet. There are studies that suggest it's not only the neutralizing antibodies that are important for the response, but there may be other non-neutralizing ones that are quite effective against the variants. We need more science to determine this. We may need the COVID vaccines for years to come, and I sure hope we'll be able to make them in Canada.

Mr. Tony Baldinelli: Thank you.

Thank you, Madam Chair.

The Chair: Thank you very much.

Our next round of questions goes to MP Lambropoulos.

You have the floor for five minutes.

Ms. Emmanuella Lambropoulos (Saint-Laurent, Lib.): Thank you, Madam Chair.

I'd like to begin by thanking all our witnesses for taking the time to be here with us today to answer our questions, and for all their contributions to helping us get to the other side of the COVID-19 pandemic, at least this phase we're in right now.

Dr. Nemer, thank you for being here and for everything you've done so far.

I know you had expressed concern with delaying the second dose of the COVID-19 vaccine, as you believe it could perhaps create or cause variants to occur or to appear. Do you still hold the same views, and have you recommended to the Government of Canada that it interfere with the provinces, such as the Province of Quebec, for example, where they are not necessarily following guidelines that have been offered by the pharmaceutical companies?

Dr. Mona Nemer: I have been in regular contact with my counterpart in Quebec, Rémi Quirion, as well as the chief public health officers, and I've had direct conversations with them based on the science.

As was mentioned, in terms of the question about the first and second doses, I think there was never a question that the second dose would not be given. It was the delay.

We're seeing some studies coming out of Israel where they have vaccinated a large part of their population with the Pfizer vaccine. We have to be careful. It's not the same with all vaccines. The adenovirus phase and the RNA are very different. The studies show a partial response of between 50% and 70% with the Pfizer vaccine. The second dose is far more effective.

Until we have proper clinical trials carried out using acceptable standards of consent that have gone through ethics boards, I think we should stick with the clinical studies that were carried out.

Ms. Emmanuella Lambropoulos: Thank you.

Recent studies in Europe or in the United States, I believe, have shown that a single dose for people who have already tested positive for COVID-19 may be sufficient against the virus. Do you plan a bit more research on this so you can perhaps recommend to the Government of Canada that one may be enough for those who have already tested positive for COVID-19 to help the process move a little more quickly?

● (1215)

Dr. Mona Nemer: That's, of course, very interesting because the first dose of the vaccine in people who have been infected is the equivalent of the second dose in people who have never seen the virus. It is something that I actually looked into early on and had discussions about with modellers in Canada and in the U.S. as well. Because of the low rate of infection in Canada, it was deemed that such an approach, other than in settings like long-term care where we know who was infected and who wasn't, is actually quite cumbersome and not very efficient, given that less than 5% of the population has been infected in Canada.

Ms. Emmanuella Lambropoulos: Thank you very much.

My final question would go to pretty much anybody who would like to answer it.

How do you think the Government of Canada can better support science research, and how can we better help it to materialize so that it benefits Canadians in circumstances such as the one we're living in right now?

Dr. Gary Kobinger: I would say that something that is missing and that would help tremendously is a follow-up on all the projects that are receiving funding. This would mean that the ones that are doing very well could get more support and the ones that are a bit delayed could be deprioritized. This was missing from the beginning, and it would be a strong improvement, from my perspective.

Thank you.

Ms. Emmanuella Lambropoulos: Mr. Booth, I see your hand up.

Mr. Andrew Booth: Yes, I'd love to make a quick comment on that.

I think, importantly, that it's what are the investments that we're making now in order to have the capabilities to respond to pandemics in the future? I think a great question by MP Lemire was about this. If the government had acted a bit more quickly, would we have domestic manufacturing capacity for these vaccines or therapeutics? I think the answer is no. These investments take years, if not decades, to make in order to ramp up the capabilities, in order to be able to have manufacturing capabilities for biologics, for vaccines, here in Canada. We have not made those kinds of investments over decades in order to have these capabilities. I think that's important to think about. As Dr. Nemer said, the innovation that has come out of Canada that enables these types of things has been remarkable, and we need to keep investing in that.

Ms. Emmanuella Lambropoulos: Thank you very much.

The Chair: Thank you very much.

[*Translation*]

We now go to Mr. Simard for two and a half minutes.

Mr. Mario Simard: Thank you, Madam Chair.

I have a question for Mr. Kobinger.

I listened to your opening remarks carefully. You were right to point out that the government's mistakes and failings had deadly consequences. As lawmakers, we must not forget that once the pandemic is behind us and it's time to dissect it all.

You said Canada's solution now relies on the NRC, a model that is not in place anywhere else in the world. From the research I've done, England and Germany seem to have the best models, which are based on co-development.

What's the best model to achieve results quickly, in the short term? In the long term, lessons may emerge in terms of how things were handled.

I'd like to hear your comments on that.

Dr. Gary Kobinger: It's an important question, so thank you.

One model that comes to mind is a partnership between industry, which is already well-equipped to overcome a number of challenges and push ahead with vaccine production, and any academic, government or other institution with the capacity to come up with new technologies. That's a model that would produce faster results.

Nevertheless, other models do exist, such as Brazil's *Instituto Butantan*. The way that model works, a non-profit organization is responsible for vaccine development and manufacturing. The funding comes from government institutions insofar as they purchase the vaccines produced by the institute. However, the institute is totally independent of the government. The model is in place in other countries as well, not just Brazil.

Everyone knows I'm outspoken. What I said was not meant as a criticism of the NRC. I was simply pointing out that the model was not one I had seen elsewhere, other than the countries I mentioned. When a federal government produces vaccine doses for its citizens, it will, of course, have numerous challenges to overcome.

● (1220)

Mr. Mario Simard: I totally understand what you're saying.

Briefly, could you tell us what could be done—

The Chair: Sorry, but your time is up. You may get a chance to ask your question during the next round.

[*English*]

Our next round of questions goes to MP Garrison.

You have the floor for two and a half minutes.

Mr. Randall Garrison: Thank you, Madam Chair.

I want to go back to something that Madam Nemer said, which was that she sure hoped that domestic production would be available.

Have you or the task force advised the government that creating that domestic production capacity is critical to the future health of Canada? Have you suggested that measures be taken to make sure that we have that domestic capacity?

Dr. Mona Nemer: The short answer is yes. Advice has been given on this.

I understand that the industry, science, and innovation ministry is launching consultation on the biomanufacturing strategy for Canada.

Mr. Randall Garrison: Thank you very much.

Although consultation is always a good idea, in this emergency, I'm a little bit worried that we're only consulting at this point.

As a former member of the board of a firefighting service, I like the firefighting analogy. In the situation we're in now it seems odd to me that we know we're going to need further capacity. We know we need to build a fire hall even if we don't know exactly where the fire is going to be. I'm concerned that we're not already launched on that path.

I want to direct this to our McMaster representatives.

I think what I heard from you today is that with an investment by the federal government we could be much farther down the path of being ready for either variants or another kind of pandemic that comes at us.

Dr. Mossman.

Dr. Karen Mossman: Thanks very much for that.

What we've been really focusing on at McMaster, and this is in collaboration with colleagues across the country, is really pulling together all of the current expertise that we have, the investments that have been made, and really bringing everyone together. That's why we called it Global Nexus, so that we have social scientists talking to policy-makers, talking to infectious disease experts, and talking to supply management. This way we not only learn from this pandemic but also ensure that we are using the resources and can identify what new resources we need to collectively make sure we are prepared for the inevitable next pandemic.

Mr. Randall Garrison: I believe I am out of time.

Thank you very much.

The Chair: Thank you very much, MP Garrison.

[*Translation*]

We will now begin another round.

Mr. Généreux, we go to you for five minutes.

Mr. Bernard Généreux (Montmagny—L'Islet—Kamouraska—Rivière-du-Loup, CPC): Thank you, Madam Chair.

Thanks to the witnesses for being here today.

Ms. Nemer, I'd like to start with you.

In the summer, when the COVID-19 Vaccine Task Force was making recommendations to the government, what were you projecting or forecasting? At this point in the pandemic, where were you predicting we would be, in other words, in late February or early March? Did you expect that Canada would rank 58th in the world for vaccine doses administered per capita, or did you think it would be higher on the list?

Dr. Mona Nemer: To be perfectly frank, I didn't even think we would have vaccines in January 2021. That was the most optimistic scenario. The fact that we do have them is absolutely wonderful.

The first vaccines that became available were based on a new platform and a fairly complex production process. As I said, scaling up mass production is not just a matter of adding a bit more water to a bigger boiler, so it was to be expected that we would encounter shortages and hiccups along the way.

We may not be where we'd hoped at this point, but as you know, this is a marathon. What matters is not where you start, but where you finish. I have no doubt that the pace and scale of vaccination will pick up significantly in the coming months. I sincerely hope so, anyway.

● (1225)

Mr. Bernard Généreux: Had we made different decisions, would we have gotten different results? Had we decided to produce vaccines here, as England did, would we have a Canadian-made vaccine right now?

Dr. Mona Nemer: As far as I know, the most advanced Canadian vaccine is Medicago's. It's too bad the company representatives aren't here anymore. As you know, Medicago hasn't completed its phase three trials, so the vaccine still can't be produced in Canada. The company received support to develop a vaccine in Canada, but it will be years before doses are produced in Canada.

Yes, starting work on vaccine production is crucial, but a vaccine isn't going to be ready in a few months. It takes a long time to build the ecosystem necessary for domestic production. I'm not saying we should wait, far from it, but I think this is where we would have been anyways.

Mr. Bernard Généreux: Mr. Kobinger, I gather that you were on the task force but stepped down because you felt it lacked transparency. Is that correct?

Dr. Gary Kobinger: Yes, that's correct. In particular, there were conflicts of interest.

Mr. Bernard Généreux: You failed to mention earlier that members of the task force also owned shares in the drug companies whose vaccines were selected. Correct me if I'm wrong, but that means that members of the task force were in a potential conflict of interest.

Dr. Gary Kobinger: That's my understanding as well.

Mr. Bernard Généreux: Is that why you resigned from the task force in protest?

Dr. Gary Kobinger: It wasn't necessarily in protest of that. Mostly, I didn't want to be associated with a group that had what I would call underlying problems.

Mr. Bernard Généreux: What underlying problems did you identify with the task force?

Dr. Gary Kobinger: The lack of transparency was one.

As I said, the task force was formed and became public knowledge somewhat by accident. After that, the members did not want to be identified publicly on a website. Some seemed to be under the impression that, because they were volunteering their time, nothing else mattered. That's not how it worked on any advisory committee I've ever been on. Not only do members have to volunteer their time, but they also have to disclose any conflict of interest. Anyone can have a conflict of interest, but there has to be someone, ideally an independent committee, that determines whether members can still participate despite their conflict of interest because it will not influence their judgment. When members' names are made public, everything is clear and transparent.

Mr. Bernard Généreux: I have to tell you that there are people who lose their jobs for a lot less than that.

Some countries made the decision to produce a vaccine themselves. We saw near-totalitarian regimes adopt very different models. Russia, for instance, is manufacturing and selling its Sputnik V vaccine to people around the world. It was never discussed in Canada. Now there is talk of buying vaccines manufactured in India.

I heard that some of those vaccines will not be approved or will no longer be approved in South Africa and even France now. I believe they're trying to get rid of the doses they have left.

What is your take on that?

The Chair: Mr. Généreux, you're out of time.

Mr. Ehsassi, you may go ahead.

[*English*]

You have five minutes.

Mr. Ali Ehsassi: Thank you, Madam Chair.

I will return to Dr. Nemer.

Dr. Nemer, thank you for putting everything in context for us today. You rightly pointed out that we shouldn't be as concerned with the starting line as the end line of vaccination in this country. You also confirmed that, in your professional opinion, every Canadian who would like to be vaccinated will be vaccinated by the end of September.

Could you tell us what the basis for your optimism is?

Dr. Mona Nemer: The basis for my optimism is that we're seeing the issues of scale-up being worked out with the mRNA vaccine supplies that we have purchased. We have also purchased other vaccines, notably two that are adenovirus based: AstraZeneca and Johnson & Johnson, whose results are excellent and, as has been mentioned, have been approved in other countries, at least in the case of AstraZeneca. Johnson & Johnson is being studied both in Canada and the U.S. for approval. Adenovirus is a much easier production and easier to scale up. We shouldn't expect a lot of hiccups there. There will be additional doses. Last but not least is the Novavax, which is the protein subunit that has also shown great results. The production should be easier.

We should be getting three additional vaccines in the coming months for Canada. Already, based only on the RNA vaccines, we have enough doses to vaccinate people who want to be vaccinated by September. That's the basis of my optimism.

I do have to mention, though, that we do need to have logistics in place to achieve all this.

● (1230)

Mr. Ali Ehsassi: Thank you.

Now you've set the record straight in terms of supplies of vaccines, but there are also the logistics and the administration of those vaccines. Yesterday the residents of Ontario learned that their province is behind the other provinces in rolling out vaccinations. I take note of the fact that two weeks ago you publicly expressed concerns about how the provinces had essentially stockpiled rapid testing and that they were gathering dust.

Do you have the same concerns with respect to the rollout? How do we know that all the provinces, including Ontario, are ready to administer at an expeditious pace?

Dr. Mona Nemer: I'm not privy to the logistical details in the provinces.

I will say that in terms of the difference between the rapid tests and the vaccines, with the rapid test there was a reluctance to use existing tests that did not require other supplies than the tests themselves. In the case of vaccines, of course you have to set up the places where people can be vaccinated. There's the entire logistics for people to arrive to receive the vaccine, the vaccines to be available and so on, and also the needles. We heard a lot about all these things.

I think that when the different jurisdictions provide the details of their logistics is when we're able to tell whether things are going to go well or not. I don't have any other insight into it.

Mr. Ali Ehsassi: Given all the information we've obtained, in the event a province such as Ontario falls behind the other provinces and other jurisdictions, what would you recommend the federal government do to make sure the rollout happens as quickly as possible in places such as Ontario?

Dr. Mona Nemer: I think vaccinations for Canadians are a national issue. I think it's really important that we all help each other. If provinces need support, depending on what, if it's health care workers or data systems or other things, I think we should be able to provide this help and support. I think we showed in the past with PPE and so on that we're able to help each other.

Mr. Ali Ehsassi: Thank you.

The Chair: Thank you very much.

That ends our second round. Before we start our third round, I'd like to thank Dr. Nemer.

Dr. Nemer, thank you for being with us and for extending your time with us today. Your testimony has been very helpful. Thank you so much for what you're doing to assist us in this pandemic.

With that, I'll start the third round. We should be able to get through the third round so everyone can get a slot.

We will start with MP Dreeshen for five minutes.

Mr. Earl Dreeshen: Thank you very much, Madam Chair.

Of course, I just heard this story that the starting line doesn't matter much. It does matter. With the $30 billion of debt each month we are going through right now, job losses, businesses going under, the starting line does matter. I think that's one of the reasons we're 58th in the world, instead of where we normally would be, which is probably in the top 10. That's where Canada has been in the past.

We also know we can't ramp up development of our own Canadian vaccines in time. We should have been aggressively procuring vaccines last spring. There has to be a reason we're so far down the line. Can someone explain to me why the government seems to be so comforted that they've made all these deals to procure hundreds of millions of doses by next year? If we need these many for a future date, why aren't we relying on our own new domestic supply to produce them? If it looks as though we can produce a bunch in the next little while, why are we continuing to talk so comfortingly about that?

I have a final question before I give the floor to Mr. Baldinelli. What is the shelf life of each of these vaccines we have, and perhaps only those that we are producing or looking to be produced here in Canada?

I'm not sure who would like to jump in on that, but could there be a little discussion on those things?

● (1235)

The Chair: Witnesses, please just jump in.

Dr. Gary Kobinger: I fully agree with you. The start line does matter, because the faster and sooner we go, the faster we get to the end.

I somewhat disagree that it takes years and years. We have seen great innovation and great realization across the world. In Canada, I think we can do the same. I think that colleagues all across Canada are up to the task.

I fully agree with you.

Mr. Andrew Booth: I agree that the start line matters, as does how quickly you get up to speed. The finish line, of course, also matters, but the combination of changes of behaviour, availability of rapid diagnostics, availability of therapeutics and availability of vaccines are all very important tools. We need to use all of them. It's not one or the other; we need a combination of all those tools together.

I would say that in Canada the approval of these vaccines and the therapeutics absolutely has to happen more quickly, and not only the federal approval, and also the use of them in being drawn down by the provinces. We have antibody-based therapeutics approved by Health Canada that are not being deployed and not being used by the provinces. I know that the therapeutics task force also has opinions on that. They believe that they are being underutilized and that they definitely need to be rolled out as quickly as possible.

Concerning the shelf life of these vaccines, they're very stable, although I'll pass it over to James, who's more of a technical expert on that subject.

Dr. James Taylor: Thank you very much.

The stability is not, I think, going to be the limiting factor. Using up supply will be the limiting factor for these vaccines at this point in time.

Mr. Earl Dreeshen: Thank you very much.

I'll yield the rest of my time to Mr. Baldinelli.

Mr. Tony Baldinelli: Thank you, Chair.

I'd like to go to the witnesses from McMaster University and quickly ask a question.

As we know, some of the variants of COVID-19 have drastically reduced the effectiveness of some of the vaccines. Is McMaster playing a role in researching this, and could it produce booster vaccines as we move into the future?

Dr. Brian Lichty: I'll take that one.

The answer is yes, we're working on this. As was pointed out earlier, neutralizing antibodies are very important, but they are what the variants are likely to escape. We and others are designing vaccines that induce cellular immunity against more highly conserved portions of the virus. It remains to be seen whether that leads to a level of protection that at least keeps people out of the hospital or prevents or reduces extensive spread.

We're addressing these questions right now in animal models at our facility. Boosting existing vaccines or treating people with pre-existing immunity is the goal of our clinical trial.

The Chair: Thank you very much.

Our next round of questions goes to MP Erskine-Smith.

You have the floor for five minutes.

Mr. Nathaniel Erskine-Smith (Beaches—East York, Lib.): Thanks very much.

Mr. Kobinger, I want to take time with you, because you have said today that you speak directly. You have been critical in some ways, but you have a great expertise.

I read an article recently in the National Post. It's a common talking point that I've heard at times from constituents who are quite frustrated in relation to CanSino, that it distracted from other efforts. We heard from the Public Health Agency of Canada that the investments in Medicago and in the Saskatchewan facility actually predated the work with CanSino.

I'm wondering what your thoughts are. Do you think it was a distraction or was it one among many efforts? Was it a worthwhile effort at the time?

● (1240)

Dr. Gary Kobinger: Thank you for the question.

I think what's a bit alarming right now is the different narratives about CanSino and how it really came to be a project. We just heard from Dr. Nemer that it was a research project. I would challenge that. The first written recommendation I saw from the task force was about CanSino. I remember it vividly, because my first reflex was to think that we had not discussed CanSino, as we had the other one, wherein we had an exchange with the company.

I didn't know where this recommendation came from. Honestly, it was in writing to the government and then this same recommendation was turned around 180 degrees—to not recommending the CanSino—after the doses couldn't be obtained.

I don't know. Was this CanSino issue a distraction? I think so. Was it scientifically sound? I don't think so at all.

Canada, by the way, was the only western country to identify that vaccine as a possible candidate.

Mr. Nathaniel Erskine-Smith: On that point, maybe criticism is warranted in relation to pursuing it at all, but when I read the history, the suggestion is that we put all our eggs in one basket and that because we invested in this we weren't cutting deals with other companies or investing in other companies.

Is that a fair assessment?

Dr. Gary Kobinger: No, I don't think that.

I think that the federal government can do more than one thing at a time. Actually, this is why I believe that signing contracts with big pharma was the right thing to do, and at the same time to prioritize innovation and production of vaccine within our borders was also a priority—

Mr. Nathaniel Erskine-Smith: Pause on that, because I completely agree with that.

The other frustration I have with this National Post article, as I was going back and forth, is with those concerns about the lack of progress in some ways here in Canada. It held out the prospect of Providence as a real solution.

I think we're right to invest for the medium term in Providence and mRNA here in Canada, but credibly, you're the expert. If we'd invested in Providence, is there any likelihood that vaccine would have been online to help Canadians in the course of the pandemic in the short term?

Dr. Gary Kobinger: I don't know enough about their capacity honestly, but I do believe that at least two platforms, maybe three, in Canada could have been online by now, if there would have been the right amount of support behind them.

Mr. Nathaniel Erskine-Smith: Is one of those AstraZeneca? When I look at the could have, should have, would have, at what could have happened with the benefit of hindsight, but I am an entire novice, I look at a deal cut with the U.K. at the end of April in terms of an investment into partnership with Oxford and AstraZeneca....

Is that something you think could have been pursued more seriously in partnership with the NRC or otherwise?

Dr. Gary Kobinger: Yes, maybe as one additional, but I think the colleagues from McMaster have a very good capacity there, and I think with support from the beginning, they could have done miracles honestly. Others in Canada could have, as well, which are the other two I have in mind.

Mr. Nathaniel Erskine-Smith: We are where we are now, and clearly the portfolio approach in the short term, and the build-out of domestic capacity in the medium term has been the overwhelming recommendation. We heard it from the co-chairs of the vaccine task force when they attended.

What recommendations would you have for this committee on a go-forward basis? It's not to criticize what's come before, but what recommendations should we be making to government to make sure we are putting ourselves on the firmest footing going forward?

Dr. Gary Kobinger: As I said, I think there should be an advisory board that is independent of the government, irrespective of which government. Of course, we are in this discussion and we sense there is a little bit of partisanship at play. I guess it's normal in your line of work, but I think Canadians also expect that people will work together to find solutions.

Mr. Nathaniel Erskine-Smith: I appreciate that.

I would just note that some commentators say that the U.K. task force did a much better job in some ways. However, I would note that there is a very strong connection between the chair of that task force and one of the government ministers in the U.K. There are the same concerns that were raised initially and yet they did a very good job. So, some of these concerns don't actually preclude a task force from doing an excellent job in the end.

Thanks for your time.

Dr. Gary Kobinger: Thank you.

● (1245)

The Chair: Thank you very much.

[*Translation*]

We now go to Mr. Lemire for two and a half minutes.

Mr. Sébastien Lemire: Thank you, Madam Chair.

My question is for Mr. Kobinger.

When you were answering my fellow member M. Généreux's questions, you brought up conflicts of interest. Can you tell us a bit more about how the task force handles conflicts of interest, and would you say the process is satisfactory?

I'd especially like to hear about mechanisms you think could be put in place to ensure the task force's transparency vis-à-vis its members and elected officials.

Dr. Gary Kobinger: I guess it's a matter of opinion. I think the members of an advisory committee should have to disclose any conflicts of interest, which should then be scrutinized by an independent committee. We all have connections here and there and everywhere, so we all have conflicts of interest to some extent, even if they just relate to our kids. What's important is the process to address those conflicts of interest.

As I mentioned, the fact that the task force members would not publicly disclose their conflicts of interest on the pretense that they were volunteering their time was a big problem for me. The fact that they claimed not to have any conflict of interest when they were shareholders in the pharmaceutical companies was also a big problem for me.

How do you solve that problem? By being transparent and, by extension, accountable. As you can clearly see from the meeting minutes, I suggested having a member of the media at every meeting or, at the very least, recording the meetings. I even suggested letting any Canadian call in to listen to the meeting. The idea wasn't to let them participate; otherwise it would never end. It was simply to add a layer of transparency. That's paramount, especially when you're dealing with vaccination.

Mr. Sébastien Lemire: As a solution, you're suggesting some sort of protocol or practice to make the activities and discussions of the task force public.

Should the minutes of the task force's meetings be available to the public?

Dr. Gary Kobinger: Absolutely.

Mr. Sébastien Lemire: Thank you, Madam Chair.

[*English*]

The Chair: Our next round of questions goes to MP Garrison.

You have the floor for two and half minutes.

Mr. Randall Garrison: Thank you very much, Madam Chair.

I'm always concerned when senior public servants like Madam Nemer don't have sufficient time to spend with parliamentary committees. I have more things I would like to discuss that involve her. It always seems poor form to do so after the person has left the meeting.

We have a well-known problem in the public in people becoming tired of the epidemic and therefore not behaving as their best selves or as best citizens. I think we have another problem and I would call that COVID complacency. We are now starting to hear, “Well, we're doing our best.” For me, that's very cold comfort for people in my riding who are still continuing to lose loved ones. I have a very tourism-dependent riding. It's very cold comfort to those employed in the tourism industry who are losing their jobs and losing their small businesses because we haven't made enough progress against COVID.

The question that I will ask is a question I would have asked Madam Nemer, had she still been here.

The task force advised the government on contracts with the major companies like Pfizer. In those contracts, I'm afraid we don't have the assurances that if there's a third wave or it requires a change of vaccines.... Those contracts, as we've seen with the EU, only specify best efforts from the companies. They're not actually contracts to provide certain amounts of vaccine by a certain date.

Maybe Professor Kobinger knows a bit more about this. I am concerned. Without being an alarmist, I'm concerned that things could still go very wrong here in terms of vaccine deliveries.

Professor Kobinger, can you comment on the issue of contracts and whether they are contracts for delivery?

Dr. Gary Kobinger: Thank you for asking.

Maybe that highlights another issue. The issue is that these contracts are confidential. Nobody has access to them. It's an issue that is not only on the vaccine side, but also all the pharmaceutical industry that is dealing with provinces independently.

I think it highlights another thing. As long as we Canadians don't produce more of those tools—drugs and vaccines—we are in the little seat in these negotiations.

Thank you.

Mr. Andrew Booth: In the case of therapeutics, I've been familiar with Eli Lilly, which has produced an antibody-based therapeutic for the treatment of COVID-19 that has been used hundreds of thousands of times in the U.S. They are distributing it on an as-needed basis and globally to Germany, France, Israel and other locations.

When there's a supply problem, there will be some sort of "on an as-needed basis" in terms of allocating distribution.

● (1250)

The Chair: Thank you very much.

That's the end of the time.

MP Garrison, just in terms of transparency, I did mention at the beginning of this meeting what time Dr. Nemer had to leave. You had two rounds of questions in advance of this one. If you had a question specifically for her, you could have asked it then.

Mr. Randall Garrison: With respect, Madam Chair, the committee meeting was scheduled for a full two hours. My concern is that the chief science officer needed to be available for that full time, not whether I had opportunities to question her in various rounds.

The Chair: The invite was sent—

Mr. Randall Garrison: The government and all the public servants must be accountable to Parliament.

The Chair: MP Garrison, we're now going to the next round of questions. Thank you.

The next round goes to the Conservative Party. My apologies, I do not have a name of who is next on the list.

It's MP Généreux.

[*Translation*]

You have the floor for five minutes.

Mr. Bernard Généreux: Thank you, Madam Chair.

Mr. Kobinger, I definitely want to come back to the CanSino story. I heard the chief science advisor, who advises the Prime Minister, say something earlier, whereas you said the opposite.

To the best of your recollection, when did the task force approve CanSino and when was that approval withdrawn?

My colleague asked a question that you seem to have answered differently.

Dr. Gary Kobinger: I was trying to find the dates in my calendar, but I don't have the right one.

However, I can tell you that the public announcement had already been made before the task force held its first six-hour meeting, which was supposed to focus on conflicts of interest. The deal had already been settled.

Mr. Bernard Généreux: Was it around June 22?

Dr. Gary Kobinger: No. The announcement was made before the first meeting, which took place in late June or early July. As I recall, the first recommendation that referred to CanSino was made in July or August. The recommendation was subsequently withdrawn, possibly in August.

Someone must have an email somewhere about this matter. I should be able to find an email of this nature myself if I dig deep enough.

Mr. Bernard Généreux: If you get hold of the email, we would greatly appreciate it if you could pass it on to our committee.

This all started in late February or early March last year. Canada currently ranks 58th in the world in terms of vaccinations. We can pat ourselves on the back and say that we're very good and that we've done our job well. However, in reality, a developed country like Canada is in 58th place. Let's not forget either that Canada went to COVAX to get vaccines. It's as if we gave money to a food bank and then went to get food there the following week.

What are your thoughts on this? How do you feel about everything that has happened, from the beginning of all the talks and the negotiation of the agreements right up until today?

Dr. Gary Kobinger: We're reaping what we've sown. I know that what I'm saying sounds like criticism.

Mr. Bernard Généreux: That's fine. You have the right to be critical.

Dr. Gary Kobinger: I've tried to point out all the successes and the fantastic agreements that have been reached. That said, if you want to make things better for next time, you must know where to focus your efforts.

You must acknowledge that opportunities were missed and that CanSino was a scientific boondoggle at all levels, in my opinion, and even a conflict of interest for a co-chair of the task force.

You said that Canada ranks 58th. That's unfortunate, and we shouldn't be there. What I find even more unfortunate is that there's a disconnect between what we're seeing on the ground and what we're hearing. According to Ms. Nemer, everything is fine, everything is resolved and everything is all right. That's why I said that her remarks seemed to have been reviewed by the government. The president of the National Research Council of Canada made the same remarks on Monday when he appeared before the Standing Committee on Health. However, we aren't seeing this situation on the ground. People don't have access to vaccines. People are dying from COVID-19. In Quebec, 16 health care workers have died from it and there have been 33,000 infections. These 16 deaths could have been prevented.

You must acknowledge this and address the situation for next time, so that more people don't die when they could have been saved.

● (1255)

Mr. Bernard Généreux: I want to come back to the agreement with CanSino. It was cancelled around August. You said earlier that we can walk and chew gum at the same time. That's what Canada has done by signing agreements with several countries.

I'm not calling into question all the work done, the good will and good faith of all the people who have worked on the issue since the beginning, or all their efforts. However, we must learn some lessons as we analyze the process from beginning to end, including where we are today. In your opinion, what do we need to address to avoid a repeat of what we never want to see happen again?

Dr. Gary Kobinger: You certainly need to address the coordination and the way that the advisory boards operate. You must also ensure that the boards are independent from the government of the day, regardless of the party in power. You need a better structure and greater coordination when you decide to invest, especially when you know that future generations will end up with the bills. You must invest for the future and follow up in real time.

Mr. Bernard Généreux: Thank you, Mr. Kobinger.

The Chair: Thank you.

[*English*]

Our next round of questions goes to MP Jaczek.

You have the floor for five minutes.

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

Thank you to all of the witnesses for their testimony today and, in fact, for their enthusiasm for what Canada has to offer the world in terms of vaccine production and therapeutics.

I'd like to quote from a previous witness, however, and some of you may know him. Professor Attaran at our meeting on February 16 said that Canada "is simply the least scientifically competent country I've ever come across."

Dr. Mossman, could you please, as an academic, tell me what you think of the scientific competence here in Canada?

Dr. Karen Mossman: I would disagree. I would think that we are incredibly competent across the country. We have experts at all of our universities and, in many ways and in many aspects, Canadian scientists lead.

I think what we're seeing here is that ability to bring everyone together and to integrate all of that knowledge in a way that's really focused on the task at hand. That is something which I think is a good outcome of the pandemic. We have learned to be much more open, much more transparent and much more collaborative. I would argue that we do have some of the top researchers and capabilities in the country.

Dr. James Taylor: Could I add to that point, please?

Ms. Helena Jaczek: It is my time, Mr. Taylor.

I'd like to follow up on the issue of collaboration with you, Dr. Mossman, and potentially with you, Mr. Taylor.

I was most interested in hearing what you had to say.

Dr. Nemer told us that, in her view or to her knowledge, there were some 200 vaccines under potential development in Canada, so the task force had a mammoth task, presumably, to filter through all these and look at clinical data and so on.

Would you not see collaboration between proponents, academia and manufacturing facilities as a way forward, and could you elaborate on how that might be operationalized?

Dr. Karen Mossman: This is exactly what we are proposing with Canada's Global Nexus, to bring together not just academics but industry, public health and government organizations to do exactly that so that we are working and leveraging all of the knowledge and infrastructure in a really systematic and collaborative way. That is exactly what Canada's Global Nexus is all about.

Ms. Helena Jaczek: Mr. Taylor, would you like to comment, since you are so enthusiastic?

Dr. James Taylor: Yes, I would like to comment. I think the questions around Canadian scientific abilities are not correct.

First, I'll give some examples. For example, the leading antibody therapeutic was developed here in Canada. The leading technologies for the delivery of the RNA vaccines were developed here in Canada. Canada has tremendous scientific abilities.

I think this panel is very helpful for understanding what we could have done better or what happened, but I think also we could be looking at what unique opportunities have arisen out of this crisis.

In times of crisis, interesting things happen. We've seen technologies like the ones we're involved in, others in Canada and other good companies, institutions and academics around RNA vaccines or other vaccine technologies. We should be thinking hard about how we capitalize on this opportunity, in addition to trying to get through the current major challenge we have, and really build the Canada we want for the future around these new abilities.

● (1300)

Ms. Helena Jaczek: Thank you.

I believe I have a little time left. I'd like to turn to Dr. Kobinger.

I read the conflict of interest protocol for the vaccine task force. To me, at least from what I see on paper, it is very robust. I'm wondering if you could explain the particular breach that you feel has been made with those conflict of interest guidelines. As an example, at the start of each meeting, co-chairs ask members to declare any conflicts with the agenda items, and they are asked to recuse themselves. Was that enacted in the time that you were on the task force?

Dr. Gary Kobinger: I believe it was. That being said, I was surprised and somehow alarmed, honestly, to discover conflict of interest that I didn't remember hearing during these meetings publicly, including for example, from one of the members that was.... The institution was receiving millions of dollars, and the claim was that she was not in conflict of interest because it was not her receiving the money in her pocket, but the process, I think, was in place.

Thank you.

The Chair: Thank you very much.

That brings us to the end of the third round.

I'd like to thank all of the witnesses and our MPs today for excellent questions and excellent testimony. This has been very helpful for us.

With that, I will bid you adieu and thank you for your time today.

Before we adjourn, I want to remind the members of Parliament to please get their witness lists for the aerospace industry study to the clerk preferably by end of day tomorrow so that we can start inviting folks and make sure that the headsets that they require have time to get to them. Please send your lists to the clerk in priority order preferably. It doesn't need to be a complete list. If you have additional witnesses you'd like to include after, feel free to send those along.

Again, thank you to the clerk, to our analysts and to everyone in the room that makes everything that we do possible.

[*Translation*]

I want to sincerely thank the interpreters for their work.

[*English*]

With that, this meeting is adjourned.