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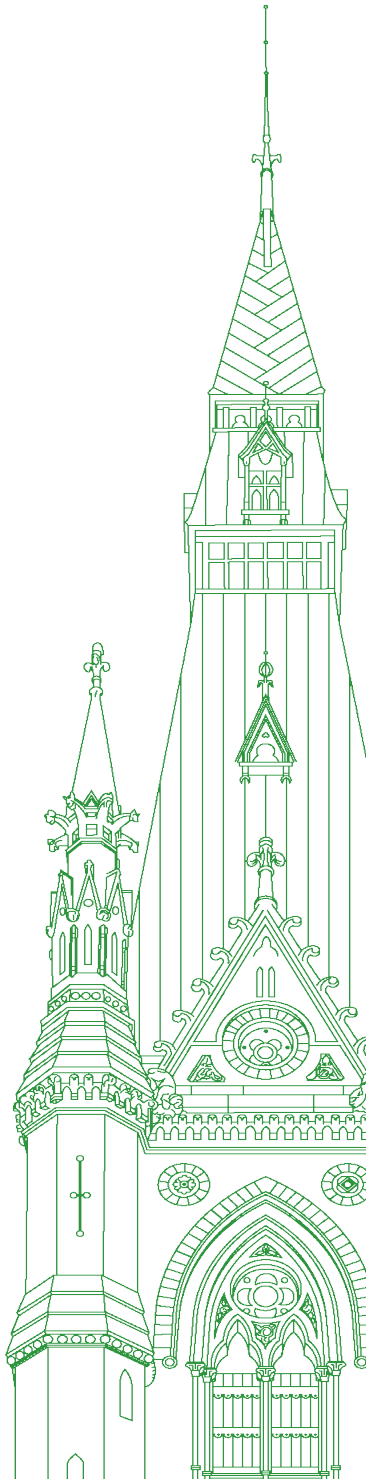

Chair: Mr. Robert Kitchen

Standing Committee on Government Operations and Estimates

Wednesday, May 5, 2021

● (1550)

[*English*]

The Chair (Mr. Robert Kitchen (Souris—Moose Mountain, CPC)): I call this meeting to order.

It is 1:50 by my time in Saskatchewan, so it would be 3:50 in Ontario, and we will now start the meeting.

I welcome you all to the 29th meeting of the House of Commons Standing Committee on Government Operations and Estimates. The committee is meeting today to from the COVID-19 Vaccine Task Force as part of the committee's study of the government's response to the COVID-19 pandemic. After that, we'll consider our report on the Nuctech security equipment contract.

I would like to take this opportunity to remind all participants at this meeting that taking screen shots or taking photos of your screen is not permitted.

To ensure an orderly meeting, I would like to outline a few rules to follow.

Interpretation in this video conference will work very much like at a regular committee meeting. You have a choice at the bottom of your screen of either the floor, English or French. If you are speaking, please wait until I recognize you by name. When you are ready to speak, you can click on the microphone icon to activate your mike. When you are not speaking, your mike should be on mute.

To raise a point of order during the meeting, committee members should ensure that their microphone is unmuted and say, “Point of order,” to get the chair's attention.

The clerk and the analysts are participating in the meeting virtually today. If you need to speak with them during the meeting, please email them through the committee email addresses. The clerk can also be reached on his mobile phone.

For those people who are participating in the committee room, please note that masks are required unless seated and when physical distancing is not possible.

I will now invite the witnesses to make their opening statements.

Ms. Langley, please, you have the floor.

Dr. Joanne Langley (Co-Chair, COVID-19 Vaccine Task Force): Thank you, Mr. Chair.

Good afternoon. I'm honoured to be speaking with you today as one of the co-chairs of the COVID-19 vaccine task force. I know that I speak for my colleague, Mark Lievonen, and all members of the task force when I say that we've been very privileged to be able to serve in this way during this pandemic.

We were also honoured to speak with your colleagues on the Standing Committee on Industry, Science and Technology on February 18, and I also presented at the Standing Committee on Health on February 26.

I'll start off by speaking briefly about our work on vaccines before turning the floor over to my co-chair, Mark, who will talk about the work we've been doing on biomanufacturing.

The task force includes 10 external-to-government members and four ex-officio members who are senior public servants. We are from various fields, including immunology, vaccinology, vaccine development, biomanufacturing and commercialization. We all serve as volunteers, of course. Our overarching mission is to provide the best scientific advice, based on available evidence, to government, with the goal of securing safe and effective COVID-19 vaccines for Canadians as quickly as possible. This has been our overarching mission.

While each of us has taken on a substantial commitment to serve the government in this way, we do not make decisions. This is the purview of ministers, notably the Minister of Health, the Minister of Innovation, Science and Industry to whom we report and send our advice, and the Minister of Public Services and Procurement.

Overall, the task force recommended a portfolio approach to procure vaccines, balancing different technology platforms to increase our chances of securing a safe and effective vaccine, and to mitigate the risk of some candidates not making it through to commercialization or the risk of supply chain disruptions—which we anticipated from the very beginning—which might result in production or delivery delays.

When we started our work in June of last year, we felt, after a review of all the evidence, that the international vaccine candidates were significantly more advanced in their development and that they presented the most viable option for meeting this overarching goal of getting safe and effective vaccines into Canada as quickly as possible. This is reflected in Canada's procurement strategy.

We were also impressed with several of the domestic vaccine candidates being developed and were able to recommend different options for support, 10 of which have been announced by the government.

Currently, the government has entered into advanced purchase agreements with seven firms. Of these vaccine candidates, four have received authorization from Health Canada for use in Canada, and three are currently in use.

I'll now turn the floor over to Mark, who will speak about our work related to biomanufacturing advice.

● (1555)

Mr. Mark Lievonen (Co-Chair, COVID-19 Vaccine Task Force): Thank you, Joanne.

Let me start by echoing the remarks of my co-chair. It is indeed a pleasure to be with you this afternoon.

When the joint vaccine task force started looking at biomanufacturing, we undertook that work by forming a joint biomanufacturing subcommittee consisting of members from both the vaccine task force and the therapeutics task force. The subcommittee was tasked with providing advice to the government in three different areas. Number one was to assess biomanufacturing projects proposed to the government under the strategic innovation fund, or SIF. So far, four of these projects have been announced, along with the NRC's Royalmount facility. Number two was to develop an overall strategy to increase Canada's biomanufacturing capability. Number three was to advise the government on other biomanufacturing matters related to securing COVID vaccines and therapeutics, including efforts to attract international vaccine candidates to manufacture some of their vaccines in Canada. So far, one of these projects has been announced.

The joint biomanufacturing subcommittee believes that strengthening Canada's biomanufacturing capacity is a key element of our COVID-19 response. This includes mobilizing and finding innovative uses for existing capacity, procuring needed equipment and inputs, expanding the existing capacity in a strategic and coordinated manner, putting in place the needed biologics capacity to meet Canada's longer-term needs, and pursuing international partnerships for longer-term sustainability of the sector.

In closing, I would say that it's truly been a privilege for us on the vaccine task force to apply our knowledge and experience to serve Canadians. We would be happy to answer any questions you might have related to the work of the vaccine task force.

Thank you.

The Chair: Thank you, Dr. Langley and Mr. Lievonen.

We will now start our first round of six minutes with Mr. Paul-Hus.

[*Translation*]

Mr. Pierre Paul-Hus (Charlesbourg—Haute-Saint-Charles, CPC): Thank you, Mr. Chair.

Good morning to our witnesses.

Ms. Langley, we know that your group does not release minutes of its meetings and that the conflict of interest log was last updated in October 2020.

Has your group met since October?

[*English*]

Dr. Joanne Langley: Yes. The vaccine task force has met on an ongoing basis and has had meetings since October.

[*Translation*]

Mr. Pierre Paul-Hus: What did you talk about?

[*English*]

Dr. Joanne Langley: Our original overarching mission is still our main task, which is safe and effective vaccines for Canadians. The way in which we execute that mission changes over time. As you know, new concerns have arisen over time. That happens with every public health immunization program. Thinking longer-term than 2021, we have been involved in that kind of planning and in recommendations to government about how we will protect Canadians as the pandemic continues, in whatever trajectory it takes.

[*Translation*]

Mr. Pierre Paul-Hus: The European Union appears ready to consider the Sputnik V and Sinopharm vaccines.

Are these vaccines on your list of candidates for consideration?

Have these companies approached you, or have you approached them?

● (1600)

[*English*]

Dr. Joanne Langley: The original portfolio had seven candidates in it. When we came up with those, we looked at all of the vaccines we were aware of and distilled it down to those. On an ongoing basis, we are open to new scientific evidence about the efficacy of vaccines. When those companies come to meet with us, that is usually, or I guess always, under a confidential business approach where we can't disclose what the information is.

Mr. Scott-Douglas may be able to speak to that better.

Mr. Roger Scott-Douglas (Secretary, COVID-19 Vaccine Task Force): I might just add very briefly, Chair, that neither Sputnik nor Sinopharm have come before the committee. The seven advance purchase agreements do include two adenovirus platforms, so the committee feels it's in good shape with a diversified platform.

[*Translation*]

Mr. Pierre Paul-Hus: Thank you.

Why didn't your group issue a report in the midst of the crisis, as the U.K. vaccine task force did?

[*English*]

Dr. Joanne Langley: Is that directed to me?

Mr. Pierre Paul-Hus: Yes.

Dr. Joanne Langley: Okay, thank you.

Our mandate is to advise ministers, and we have been doing that since late last spring and early summer. That has continued to be the case. Because it's advice to ministers, my understanding—not as a public servant—is that that is not in the public realm.

[*Translation*]

Mr. Pierre Paul-Hus: All right.

For the first time, Canada will start receiving vaccines from Pfizer's U.S. plant instead of from the plant in Belgium. As we know, the vaccines currently arrive by air.

Did you recommend that Canada take steps to source as much as possible from the U.S. side rather than the European side?

[*English*]

Dr. Joanne Langley: The considerations we worked with in regard to the procurement team was always with regard to security of supply. That varied over time. The specifics of that would be very dependent on the particular supply problems at any point. Again, I would ask Mr. Scott-Douglas to fill in.

[*Translation*]

Mr. Pierre Paul-Hus: I will clarify my question, Ms. Langley.

Initially, did you ask the government to look at the U.S. side first, since Pfizer produces vaccines a few hundred miles from Canada?

Was that the first option your committee proposed to the government, or was that not possible because you knew the Americans had already taken control?

How did things unfold, at that time?

[*English*]

Dr. Joanne Langley: We were very aware of some of the concerns about vaccine nationalism that arose from the beginning of the pandemic, so that would have played into our recommendations, the ultimate decision being, of course, from the government.

Mr. Roger Scott-Douglas: I would very briefly add that the Defence Production Act and the restrictions it was putting on some of the exports from America biomanufacturing producers were known to us. As Joanne said, the early negotiations had always been to ensure the highest probability that we would get access in Canada, and the Pfizer negotiations were initially with Europe for that reason.

The Chair: Thank you, Mr. Paul-Hus.

We'll now go to Mr. Weiler for six minutes.

Mr. Patrick Weiler (West Vancouver—Sunshine Coast—Sea to Sky Country, Lib.): Thank you, Mr. Chair.

I'd like to start by thanking Dr. Langley, Mr. Lievonen and Mr. Scott-Douglas for joining our committee meeting today and for their incredible service to our country by volunteering to be part of this critically important vaccine task force. We really appreciate the work you've been doing over the course of the last year plus, and going forward.

Dr. Langley, what are the factors that the vaccine task force utilized to help the government decide on which vaccine suppliers to pursue?

● (1605)

Dr. Joanne Langley: We looked at the domains of technical merit, scientific merit and the supply chain.

In terms of scientific merit, there were subclassifications. We kind of had a rubric with all of those three domains. Some of the vaccine platforms that arose during the COVID pandemic were very novel. We wanted to know all of the background evidence that would support platforms like them. We looked at the ones that used platforms we were aware of and the safety and efficacy with similar platforms for other vaccines.

In terms of technical merit, we looked at the companies' proposals for clinical development and for good manufacturing practice in the whole process before you can first inject an investigational product into a human.

Then lastly, there's the whole process for scale-up and delivery. For that, I would turn to my colleague Mark Lievonen to describe our rubric.

Mr. Mark Lievonen: I think you summarized it well, Joanne.

There are a number of factors that come into consideration in some of the earlier points that were raised: a manufacturer's credibility and their ability to supply and comply with challenges with supply chains. Vaccines are extremely difficult to make, even the routine vaccines. With one that was so new, it was inevitable there would be some supply chain issues along the way. We took all of that into consideration in formulating our advice and providing it to the ministers.

Mr. Patrick Weiler: Thank you very much for that.

Touching on something that Ms. Langley brought up earlier in her introduction, did you discuss the possibility of producing more of these vaccines in Canada?

Could you speak a little bit more to the challenges we have with that?

Mr. Mark Lievonen: Mr. Chair, I could take that question.

Yes, we looked at it. As Joanne said, we were looking to provide advice on securing safe and efficacious vaccines for Canadians as soon as possible. We looked at domestic and international candidates, and we took all of that into consideration. It became fairly clear early on that the fastest vaccines for Canadians were going to be the international candidates. While we provided support for SIFPs, strategic investment fund proposals, to encourage and support the Canadian industry, it was fairly clear to us early on that the leading candidates would be the international ones. That, of course, turned out to be the case.

Mr. Patrick Weiler: There is one thing I'd like to know a little bit more about. What was the research and data that went into choosing the seven vaccine candidates and the approved vaccines that were decided upon?

In your opinion, is there sufficient data to make informed decisions to move ahead with those seven vaccines and vaccine candidates given all of the potential different ones that were investigated?

Mr. Mark Lievonen: If you look at the task that was given to us—and we all certainly embraced it—you see that it was quite monumental. Here we were to provide advice on securing vaccines that did not exist yet. They were not licensed; they were still in the clinical trial stage. We reviewed a lot of companies and a lot of vaccine candidates. I think there were over 200 that we had some data on. We whittled that list down, as a task force, into those that we thought were of primary interest. We invited a number of those companies in to present to us and we had a back and forth....

As Joanne said in her opening comments, the capabilities of the people on this task force, I would say, are second to none in the world. When we engaged in debate and discussion with the companies, we were able to get, as best we could, to the heart of the data.

If you look back, you'll see that we recommended procuring vaccines before they were actually licensed in Canada. As for the seven vaccines that we recommended, none of them had even been approved and none had finished clinical trials. If we look at where we are now the, we see that the first four vaccines were all vaccines that we recommended. So far, it's four for four.

● (1610)

Mr. Patrick Weiler: That's a pretty good record to have.

Mr. Lievonen, you mentioned one thing earlier that leads to my next question.

What role did the task force have in advising where we might have promising therapeutics? I know that we have one of the world's leading COVID therapies that's been developed and now being manufactured out of Canada.

Mr. Mark Lievonen: We are the vaccine task force. There's also a therapeutics task force, and they were charged with looking at that and coming up with a therapeutic strategy. Where the two overlapped in terms of biomanufacturing, we formed a joint biomanufacturing subcommittee, which I chaired. Joanne was on it, as were the two co-chairs of the therapeutics task force and various other members of the vaccine and therapeutics task forces.

We came together in the biomanufacturing area and on recommendations for biomanufacturing for both vaccines and therapeutics because of the similarities among them.

The Chair: Thank you, Doctor Lievonen.

We'll now go to Ms. Vignola for six minutes.

[*Translation*]

Mrs. Julie Vignola (Beauport—Limoilou, BQ): Thank you very much.

I welcome our three witnesses and thank them for being here.

Ms. Langley, in the newspapers over the last few months, we have seen that Canada is the only country in the G7, but not in the G20 or the world, that drew from the COVAX bank.

Is this the case?

[*English*]

Dr. Joanne Langley: The vaccine task force looked at the recommendations for our involvement in COVAX—the facility to improve vaccine access around the world—to which Canada has committed quite a lot of funding.

On your question about whether we are the only country, I wouldn't be the expert on that. We have made recommendations—

[*Translation*]

Mrs. Julie Vignola: I'm talking about G7 countries.

[*English*]

Dr. Joanne Langley: Sorry?

[*Translation*]

Mrs. Julie Vignola: Canada is the only G7 country to do this, but not the only country in the world.

[*English*]

Dr. Joanne Langley: In the G7. I believe you are correct that that is the case.

Roger, am I correct with that?

Mr. Roger Scott-Douglas: In the G7, I think is correct.

There are two streams in the COVAX. One is for self-financing, which we were a part of. We've also contributed for other countries that are unable to pay for their own vaccines. Canada has been a major contributor there. We didn't draw from that pool; we drew from the self-financing pool.

[*Translation*]

Mrs. Julie Vignola: Thank you.

The Minister of Public Services and Procurement said that if Canada gets too many doses, it will redistribute some to disadvantaged countries that may not be able to afford a first dose. Indeed, the numbers show that Canada has far more doses than are needed per capita, at least if you include doses that have been ordered.

Why are we dipping into the COVAX bank if we already know we are likely to redistribute doses to other countries?

[*English*]

Dr. Joanne Langley: The strategy during a pandemic is to go into these decisions knowing that you're at risk, that some, or even all, of the vaccine platforms might not pan out. The reason for procuring, or recommending to procure, different platforms is that any one, or two, or maybe even three of those platforms, when they move into clinical trials, might not be safe, or they might not be effective. Therefore, we recommended really over-procurement, knowing that maybe only one would work, in which case we would have enough for every Canadian to be vaccinated adequately.

From the very beginning, there was always discussion that given that we were potentially in a situation of having too many vaccines, we would want to use those for the benefit of others. That was always part of the thinking, but it was difficult to say that back in June, because we had no idea that we would be in a situation where so many have succeeded.

[*Translation*]

Mrs. Julie Vignola: Thank you.

Medicago is building its factory on d'Estimauville Avenue, which is near my office. This plant is expected to open in 2024 at the latest. It could even be earlier, but that depends on the 56 million doses potentially ordered by the Canadian government.

Why are these 56 million doses potential, not confirmed?

● (1615)

[*English*]

Dr. Joanne Langley: The final authorization is when it's approved by Health Canada. All of the procurements have in them a clause that if the vaccine is never approved, we would not be using it for Canadians.

Mr. Roger Scott-Douglas: Chair, I might just add briefly to Joanne's point that the Government of Canada has signed an advance purchase agreement with Medicago, so there's a commitment to doing it if it does get the Health Canada approval that Joanne talked about.

[*Translation*]

Mrs. Julie Vignola: Thank you.

Currently, reform is being implemented at PMPRB.

In your opinion, what impact will this reform have on future production capabilities and Canada's desire to have pharmaceuticals come into the country to participate in the research movement?

[*English*]

Dr. Joanne Langley: I'm not sure what the CMB is. I want to be sure we understand that.

It might be better for Mark to answer that.

Mr. Mark Lievonen: I'd be happy to, but could you restate the beginning of the question for me, please? It might have been lost in translation. I'm not sure.

[*Translation*]

Mrs. Julie Vignola: I'm sorry, I don't know the acronym in English, but in French it's the Conseil d'examen du prix des médicaments brevetés, or CEPMB [Patented Medicine Prices Review Board, or PMPRB]. What will be the impact of the PMPRB reform?

[*English*]

Mr. Mark Lievonen: As to the Patented Medicine Prices Review Board, yes, there is, as I understand it, ongoing review of that. Dealing with PMPRB, the pricing issues and so on was not part of the work of the vaccine task force; that did not enter into our discussions.

In terms of the advice that we gave and the negotiations between the government and the individual companies, any issues related to pricing and any authorizations under PMPRB would have been part of discussions between those two groups.

The Chair: Thank you, Doctor and Ms. Vignola.

We'll now go to Mr. Green for six minutes.

Mr. Matthew Green (Hamilton Centre, NDP): Thank you.

I want to pick up on the idea of patents. We've heard that the Biden administration has finally come on board. It looks like they're going to be supporting a TRIPS waiver, a waiver on patents internationally. I'm wondering what considerations your advisory group had on the possibility of patent waivers. How did you account for that in your potential planning in terms of market availability and supply curves?

Mr. Mark Lievonen: I could take that question.

I'll go back to some earlier comments. When we looked at securing safe and efficacious vaccines for Canadians as soon as possible, it became clear that sourcing international potential candidates was going to be the quickest way. We very much looked at domestic candidates and, as was mentioned earlier, having some of those international companies make some agreements with Canada.

If you look at the worldwide vaccine business, generally speaking, and it's the case with COVID vaccines as well, the drug substance and the bulk manufacturing are easier to scale up—not easier in terms of capability, but in terms of quantity. The shortfall is often in fill and finish, filling and packaging, so the bulk drug substance gets made, but there's a bottleneck in filling and packaging. So we did have discussions, and the Government of Canada had discussions, with companies to try to get them to establish fill-and-finish agreements here in Canada, and one has been announced.

In terms of doing a technology transfer, whether there is a TRIPS agreement or not, the whole process around tech transfer and transferring that to a Canadian entity and scaling that up would be time-consuming. It certainly wouldn't have gotten us vaccines this year, and I don't think it would have gotten us vaccines next year. It is something that is being looked at in, what I might call, a more “medium-term” or “longer-term solution” for supplying Canadians with pandemic vaccines sourced here, but they weren't going to be part of the immediate response. They certainly are being very much looked at, as I said, for the intermediate to longer term.

● (1620)

Mr. Matthew Green: Were there any domestic producers that had the capability, the facilities, to manufacture the technology that had been released?

Mr. Mark Lievonen: We have vaccine manufacturing capabilities in Canada. We have Sanofi Pasteur, the former Connaught Labs, which has a significant presence in Toronto. It makes vaccines for tetanus, diphtheria and pertussis, and combines them with polio and haemophilus influenza B, and supplies Canada and exports it to the world.

Mr. Matthew Green: If I could interject, would that have been suitable? I'm glad you brought up Connaught, $500-million investment in Connaught.... We're looking at potentially $8 billion in expenditures for our vaccines in this response. Of course, I'm not interested in what the cost per unit price is at the moment, but I'm remiss to note all of the money that's being sunk into the private sector without our having any equity. We don't have any nationalized domestic production timelines on the horizon, and it feels like announcement after announcement is throwing money into the private sector.

If I understand this correctly, sir, I know that you have a past relationship with Sanofi. In your opinion, had we stayed the course with Connaught Labs, is there a scenario in mind—I know this is 2020 now and this is hindsight—where a national producer could have been ahead of the curve, given the amount of money that we've invested in the research and development of a lot of this technology?

Mr. Mark Lievonen: There would be a lot to unpack in that story. If I could come to the current one, the fact is that we are using mRNA technologies, which, quite frankly, up until the time of this pandemic, lots of time and effort had been put into, but there had not been a product commercialized, so we did not have facilities with large-scale RNA.

I think it's very fortunate for the world that BioNTech and Moderna and then BioNTech with Pfizer were able to have these facilities in place so they could pivot them. In some respects, that's really happenstance—and, as they say, happenstance for the good fortune of the world. There were not facilities sitting idly by ready to do that in the case of our existing facilities, including GSK's flu facility in Quebec. They're making vaccines against existing diseases and would not have been able to pivot quickly.

Mr. Matthew Green: You have a medium-term horizon. In your opinion, knowing the story of Connaught.... I'm remiss. If this were World War II, I would think that the government would have nationalized Stelco here in Hamilton. They would have gotten into the business of producing in a war-type effort.

In the medium term, do you think there's a horizon where we do have nationalized public production of life-saving vaccines?

Mr. Mark Lievonen: I don't know that it's nationalized. What seems to be happening in the way we have addressed this pandemic is that there's been unbelievable and unprecedented co-operation between industry, government, academia and health authorities. We have compressed what would normally be 10-plus years to develop a vaccine. Four to five years was the fastest ever for ebola and mumps...into less than a year. It's unheard of and unprecedented and it's only through that co-operation and collaboration.

Going forward, it's the investments the government is making in these private sector companies and then collaborating and partnering with them, making agreements, and putting in place contract manufacturing organizations. One would presume that those kind of agreements will be put in place. That's how we'll address the demands in the medium and the longer term.

The Chair: Thank you Mr. Lievonen and Mr. Green,

We've now finished our first round and will go to the second round of questioning, starting with Mr. McCauley for five minutes.

Mr. Kelly McCauley (Edmonton West, CPC): Thanks, Mr. Chair.

Witnesses, thanks very much.

Mr. Lievonen, you're right: We are very fortunate that those companies came up with those vaccines.

I want to focus on Providence Therapeutics, please. Obviously they've been in the news a lot. Their CEO was commenting about having to leave Canada due to lack of support.

Was this one of the potential vaccines that you examined? If so, how far along are they? Why did they not get the support that they're stating they believe they should be getting?

Mr. Mark Lievonen: We have met with Providence a couple of times. We've discussed them at a number of our meetings. They made some proposals to us. They have received $5 million of funding from NRC IRAP. They also received some funding from Next Generation.

● (1625)

Mr. Kelly McCauley: We gave Loblaws triple that to buy fridges, so $5 million is not much.

They wrote a letter to the Prime Minister stating they could start doing 50 million doses within a year if they had gotten the proper support. Do you believe that's correct?

Mr. Mark Lievonen: If I could continue, the $5 million was to help them advance phase 1 clinical trials. I understand they are in phase 1 clinical trial now. When they get results from that, that will be meaningful. The way vaccine development works, you do phase 1 clinical trials for safety.

Mr. Kelly McCauley: I am aware of that.

Mr. Mark Lievonen: The point is, I would think that if they have effective phase 1 results and move into phase 2, they can always come back for funding. The companies we funded and were looking at were in phase 3 and were licensed. If they're in phase 1 clinical—

Mr. Kelly McCauley: Where are they down the road compared with Medicago?

Mr. Mark Lievonen: Medicago, I believe is in phase 2 and about to start phase 3.

Joanne, you could correct me.

Dr. Joanne Langley: They're in phase 3 and they're building a plant.

Mr. Mark Lievonen: Providence is in phase 1.

Mr. Kelly McCauley: What is the difference in timeline? Is it two months or six months, or what's the ballpark?

Mr. Mark Lievonen: I'll defer to Joanne who's an expert in the field.

Mr. Kelly McCauley: Again, a ballpark figure is fine.

Dr. Joanne Langley: If they had product they could put into a phase 3 trial—

Mr. Kelly McCauley: I mean, how long is it between phase 1 to catch up to phase 3?

Dr. Joanne Langley: It does depend on having enough product you can use. Generally, you do need several months. You need a month after your last dose.

I think Mr. Scott-Douglas could speak to the support that was given to Providence.

Mr. Kelly McCauley: No, that's fine. I'm just curious. If they're in phase 1 right now, is it feasible to say how long it would take to get to phase 3 or are there just too many variables involved?

Dr. Joanne Langley: It is hard to say it with exactitude.

Mr. Kelly McCauley: Would it be a three months or six years type of thing? Just give me a rough ballpark figure.

Dr. Joanne Langley: If they had full support, they could potentially move to phase 2 with the 28-day results from their phase 1. That would be early. They could do phase 3, potentially, if their phase 2 went well, next fall to winter.

Mr. Kelly McCauley: Providence is saying that if they get the right support after they get phase 3, they can produce 50 million a year. Is that practical?

You mentioned Medicago would be in 2024.

Dr. Joanne Langley: That's the Quebec facility that Medicago would be running. They do have a plant in North Carolina. That's why they can commit to providing doses earlier.

Mr. Kelly McCauley: Can I ask what the committee is advising regarding the booster?

Dr. Joanne Langley: The committee has considered whether there would be a need for boosters for ongoing vaccine supply. That is not clear, I would say, as a scientific consensus.

People are preparing for several trajectories, namely, that there would be a need for ongoing yearly boosters, that the virus might attenuate and only certain populations would need to have a new vaccination, or that it could fade away. You have to prepare for every possibility, the worst-case scenario meaning ongoing vaccine supply.

Mr. Kelly McCauley: One of the witnesses mentioned four for four—which is fantastic—for the ones that you've recommended and have been approved.

Are we recommending then to start looking at procuring boosters from those four? Are we there yet? Are we waiting for more data?

Dr. Joanne Langley: That is being considered. A booster vaccine would generally be a qualitatively different vaccine. There are regulatory considerations, and we can't just make a recommendation based on the fact of the previous vaccine working. All of those aspects are being considered.

Mr. Kelly McCauley: Thank you.

The Chair: Thank you, Mr. McCauley, and Doctor.

We now go to Mr. Kusmierczyk, for five minutes.

Mr. Irek Kusmierczyk (Windsor—Tecumseh, Lib.): Thank you, Mr. Chair.

I wanted to take this opportunity just to recognize the tremendous work of Mr. Lievonen in founding the Sanofi Biogenius Challenge and helping to nurture our next generation of scientists and researchers. I can tell you that in 2013 we had the pleasure of introducing one of our students to the biogenius challenge, and she is now a doctoral researcher at the Ottawa Hospital Research Institute. I just wanted to give you a tip of the hat for your tremendous work there.

To date, we've had about 17 million vaccines delivered to provinces and territories from four authorized suppliers. Can you, Mr. Lievonen, just describe again for us this achievement for those folks who may be tuning in from outside and need a little bit of context here? Can you describe for us this achievement for Canada?

● (1630)

Mr. Mark Lievonen: First of all, thank you very much for the comments.

Sorry, can you just reiterate briefly the achievement that you...?

Mr. Irek Kusmierczyk: It's just the fact that we've been able to deliver 17 million vaccines to provinces and territories, to date, with many more on the horizon. Again, we have four authorized suppliers that have delivered vaccines to date, in such a short time frame, which is basically 12 months.

Mr. Mark Lievonen: Thank you for the question.

It is unheard of. It's unprecedented. I don't know that any of us thought it would be done that quickly. Thank goodness it has been, because other measures have been challenging.

As I said, typically a vaccine would take 10-plus years to develop. The fastest ever was four to five years, for mumps and Ebola. A year ago, I was contemplating the fact that this was upon us and that we did not have a task force, though I was getting involved in some discussions. To think that we could have something within two years would have been miraculous. That it is under a year is just unbelievable. Everything has gone right.

They've used a brand new technology that's never been tried before—RNA vaccines. It's turned out to be wonderfully successful. The viral vectors have also been successful. We have had some viral vector vaccines, and there's still the protein subunit—the more traditional vaccines—coming down the course.

The fact they've been licensed and approved, that we've gotten them into Canadians' arms, and that other countries have.... When you look at vaccines and vaccinology, as unfortunate and as devastating as COVID-19 has been, in terms of vaccinology it's been quite a year in terms of success, and it bodes very well for the future.

It's an amazing feat that we have these vaccines. As I said before, there's never been a product commercialized with RNA vaccines before. They've been working at it for 10 to 20 years, and everything has come together.

There have been no shortcuts taken in terms of the steps. There have been shortcuts taken in terms of the time to do them. A number of those steps have been done in parallel. Health Canada has worked to do rolling submissions.

It has been an incredible cooperation among companies, and we've seen some companies that are competitors working together. It really has been quite something.

Mr. Irek Kusmierczyk: You've answered part of my next question, but how is this unfortunate experience of COVID changing the landscape in Canada in terms of biomanufacturing? How do you see it shaping out?

Mr. Mark Lievonen: I think the first point I would make is that there has been awareness that we have some challenges with biomanufacturing. We weren't ready for this pandemic, and we have lagged behind. Outside of GSK's and Sanofi Pasteur's vaccine campuses, there tends to be a number of companies, but they're small-scale companies compared to other jurisdictions around the world, so now investments are going into them to scale them up.

One of the points I made is that we wanted to mobilize existing capacity. Quite frankly, it was a real learning experience to realize what is out there and to get these companies together and working together. The investments are being made, so I think it does bode well for biomanufacturing in the future.

The other point I would make is on what kind of biomanufacturing you have in place. Some of the traditional vaccines, such as tetanus and diphtheria and pertussis vaccines, are made in large-scale fermentation and so on. That's not the way of RNA vaccines. That's a different technology. To paraphrase the old Wayne Gretzky comment a little bit, this is not to skate where the puck is but to skate where the puck will be. That's kind of what we're looking at in terms of biomanufacturing.

We need to make investments now in thinking about what will it look like in five years, and that is being taken into consideration. An example is making sure that it's flexible so that you can pivot from one technology to another. All of that has been taken into consideration in our discussions with the companies, in our advice to the government and in the negotiation of contracts.

The Chair: Thank you.

We will now go to Ms. Vignola for two and a half minutes.

[*Translation*]

Mrs. Julie Vignola: Two and a half minutes is so short! I have so many questions.

We've talked about how time consuming it is to develop a vaccine. In addition to the technology, it requires significant funding, and not every company is able to put it together, because it still takes 15 to 20 years.

We are aware of this, in Quebec. In fact, we are reintroducing the Québec life sciences strategy, which aims to increase investments in horizontal research. This brings together various partners, and not just pharmaceutical giants.

Ms. Langley, is your committee looking at this strategy to examine its application in Canada?

● (1635)

[*English*]

Dr. Joanne Langley: Thank you so much for your question. Knowing that you only have two and a half minutes and that Mark's going to be able to answer with regard to biomanufacturing, I'll turn to him.

Mr. Mark Lievonen: Well, Quebec certainly is a hotbed of biomanufacturing and life sciences. There are others across the country—Toronto, Vancouver, Calgary and Edmonton, and out east in Halifax—and I think there's an opportunity here across the board to coordinate and to make sure people work together across all our reactions to the pandemic. I think that Quebec and the co-operation among those various geographic areas are paramount, and I think this will serve and drive the need to do more of that in the future.

[*Translation*]

Mrs. Julie Vignola: Thank you.

The BIOTECanada CEO, Mr. Casey, was saying that there is little production of mRNA vaccines and that Canada is completely out of the loop.

In Canada, what would it take to be on the global stage of mRNA vaccine production?

[*English*]

Mr. Mark Lievonen: First of all, a lot of the technology related to mRNA vaccines and mRNA generally has come from the Vancouver area and the University of British Columbia. There are number of companies involved with lipid nanoparticles—which are an important way of encasing the RNA—that are present, as well as other companies, so that is very much there.

On the investments that are being made, a number of them are being made in RNA/mRNA capabilities, such as Precision NanoSystems is doing in Vancouver. As we looked at some of the other investments and provided advice to some of the other contract development and manufacturing organizations, we've looked at "do they have RNA technology and will they be able to pivot in that direction?" For the investments that are being made now, RNA is included in those areas of investment.

The Chair: Thank you.

I do have a heart, Ms. Vignola. I gave you an extra 10 seconds there.

We'll now go to Mr. Green for two and half minutes.

Mr. Matthew Green: Hearing the testimony, is it safe to say, then, that viral vector technology-based vaccines are kind of done? Is the competition between the two over?

Dr. Joanne Langley: I can start with that. That's a very good question.

Viral vector vaccines do have a place, but every vector is not identical. There are a range of.... There's vesicular stomatitis, adenovirus, and there are different types of adenoviruses. I don't think we can put them all in the same bucket. They may not all have the same efficacy or safety concerns.

Therefore, at this point, I wouldn't honestly say that they are done, at all. That they—

Mr. Matthew Green: The reason I brought this up is that both the AstraZeneca and Johnson & Johnson vaccines, as I understand it, are viral vectors. We do have plans and capacity here in Canada to do that, and we now see the Biden administration waiving patents.

I'm going to go back to that question. We're watching the profits of these major pharmaceutical companies tank in the stock market today. I think it's criminal that they profited in the ways they did during this crisis anyways.

Understanding that the patents are being waived, if there's an opportunity for us to take this technology and apply it here locally and domestically in the medium term, could we do that with the existing viral vector technology that we have?

Dr. Joanne Langley: I think Roger would be best placed to answer that.

Mr. Mark Lievonen: I would be happy to speak to it.

Mr. Mark Lievonen: If I understand the question correctly.... There are investments being made in viral vector capacity here, as well, so that could be an opportunity, as well, down the road to produce them here.

However, in terms of viral vector vaccines, those may also be available for other parts of the world. As you were suggesting and Joanne was saying, the RNA vaccines are present here. We've had a role for the viral vector vaccines for sure. What that role may be in the future, it may be more available, more amenable, or more desirable for other parts of the globe. Certainly, we do have viral vector capability here in some cases, and if there were a need or a desire to—

Dr. Joanne Langley: Would you? Okay. Sure.

● (1640)

Mr. Matthew Green: Did the committee ever consider a nationalized program, or was it always just solely focused on private sector profiteering off this vaccine procurement?

Mr. Roger Scott-Douglas: Maybe, Mark, I could mention just a couple of key investments that were made in the public domain. One was in the National Research Council Royalmount facility, where construction of a whole new biologics manufacturing centre is under way.

The second is in VIDO, which is a public sector investment attached to the University of Saskatchewan, where there's been very significant investment, as well, both in manufacturing and vaccine candidates.

The Chair: Thank you.

We'll now go to Mr. Paul-Hus for five minutes.

[*Translation*]

Mr. Pierre Paul-Hus: Thank you, Mr. Chair.

I would like to continue along the same lines as my colleague Mr. Green with respect to the types of vaccines.

This week, the National Advisory Committee on Immunization made it clear that mRNA vaccines are really better for Canadians.

As a committee, will you recommend that the government not renew the agreements and contracts with AstraZeneca and Johnson and Johnson?

We know that we will need vaccine doses next year.

[*English*]

Dr. Joanne Langley: I could start with that one.

As we plan for subsequent years of the pandemic—if it does continue for subsequent years—the considerations will be a little different. The viral vector vaccines played a marvellous role in being able to be scaled up quickly and to provide disease control early in the pandemic. Whether they will be the best ones as the pandemic evolves will be, I think, a different conversation. That is certainly part of our discussions.

[*Translation*]

Mr. Pierre Paul-Hus: Our experience with the different vaccines confirmed our needs in light of the viruses and variants.

On the subject of vaccine types, back in February you said that CanSino, one of the candidate vaccines, had been considered. Yet in May, the doses were held back in China.

Did you know that? At what point did you find out?

[*English*]

Dr. Joanne Langley: The task force wasn't constituted until June, so it wasn't involved in considering anything before that time.

[*Translation*]

Mr. Pierre Paul-Hus: Since you are at Dalhousie University, I believe you were aware of the negotiations and were already working with CanSino.

[*English*]

Dr. Joanne Langley: I'm based at the Canadian Centre for Vaccinology at Dalhousie University, and we do research on vaccines early in their development and do a lot of phase 1 trials, mainly for Canadian candidates, but also for other ones. We had a collaboration with the National Research Council and CanSino to look at the clinical development of a potential vaccine for the pandemic.

[*Translation*]

Mr. Pierre Paul-Hus: I remember we talked about the CanSino file at the Standing Committee on Industry, Science and Technology a few weeks ago. As you said, your committee was not created when Innovation, Science and Economic Development Canada decided to do business with CanSino. Your committee was created later, when the government already knew that there was a problem related to CanSino.

When you were in place, after you had time to settle in, had negotiations with Pfizer and Moderna already begun, or were your recommendations what led the department to these companies?

[*English*]

Dr. Joanne Langley: I'm not sure I understand the question entirely, but I can just—

Mr. Mark Lievonen: Maybe I can jump in.

[*Translation*]

Mr. Pierre Paul-Hus: At the beginning of the pandemic, the government decided to do business with CanSino, when your committee had not yet been struck. Subsequently, it became known that there was a problem in connection with CanSino. Your committee was created in June, and its first meetings took place. By that time, the government had already begun negotiations with Pfizer and Moderna, among others.

Had your team made its recommendations before or not?

● (1645)

[*English*]

Mr. Mark Lievonen: I could answer that, Roger.

When our task force started, there were discussions with CanSino. We did discuss CanSino—and after the agreements were already in place, they were marching down the path. But early on in our discussions, we were concerned about the delay in samples coming to Canada, so we did provide some advice to the government around CanSino and what they should do in that regard.

In terms of Moderna and Pfizer, we met with them and we provided advice to the government and the task force was announced on August 5. At the same time the government announced the task force, I believe, is when they announced the agreements with Pfizer and Moderna, based on the advice of the task force.

The Chair: Thank you, Monsieur Paul-Hus.

You have five seconds.

[*Translation*]

Mr. Pierre Paul-Hus: Thank you.

[*English*]

The Chair: Thank you.

Mr. Drouin, you have five minutes.

Mr. Francis Drouin (Glengarry—Prescott—Russell, Lib.): Thank you, Mr. Chair.

I want to thank all of the witnesses for being here.

Whether it's for Dr. Langley or Mr. Lievonen, I want to go in the same vein as my colleague Mr. Paul-Hus with regard to the timing of vaccines.

We've often heard critics saying that we were one of the last countries to sign contracts with Pfizer or Moderna. Was that the case to your knowledge?

Mr. Mark Lievonen: To our knowledge we gave advice to the Government of Canada, and the Government of Canada then made agreements with those companies and announced them. I remember a particular evening when some concerns about Canada's ability or timing of our contracts were expressed. I think it was the chairman or CEO of Moderna who appeared on Canadian television to assure Canadians that the Canadian government was at the front of the line for a supply of Moderna vaccine.

Mr. Francis Drouin: Again, my colleague touched on what may happen in 2022-23. I think there's still some uncertainty about how long these vaccines will be efficient in our bodies and continue to work. As recently as three weeks ago, or almost a month ago now, the minister of PSPC announced that she had signed contracts with Pfizer, I believe for 30 million doses in 2022, 35 million in 2023 and then a 100 million option in the future.

Do you know how many countries have been signing those booster contracts with Pfizer, for instance, or with any other companies down the line for 2022, 2023, 2024 and so on?

Mr. Mark Lievonen: We don't know that.

I will make two comments. When the minister announced that, she said it was based on advice from the vaccine task force. We were involved in that advice.

Over the course of our discussions, we have met with our counterparts in the U.K., New Zealand, Australia. We've had discussions with Germany and France, and so on. It has been somewhat remarkable how there has been a similar approach, in terms of the portfolio approach. Among the companies we've been working with, there's a fair degree of overlap, so one might anticipate that they've been doing the same.

Mr. Francis Drouin: Thank you.

Pfizer has done an extremely good job at fulfilling its contract obligations, and also in surpassing its contract obligations.

I think you touched on supply chain disruptions and making sure that companies can ramp up. How do you analyze that, from a task force perspective, with regard to making sure they can now honour their commitments?

Mr. Mark Lievonen: Early on, when we were doing our rubric and we were looking at the assessment, supply chain, and the reliability of the supply chain, played a very large role. We are fortunate to have some people who have been involved in the manufacturing and the science of vaccinology, immunology, virology. A number of people have been involved with supply chain.

The vaccine business, from a manufacturing perspective, is extremely difficult in normal days. This was just exacerbating it. Frankly, we did look at the robustness of the supply chain. We had thoughts about American nationalism, so we looked at European supply chains: What were the companies that worked with these suppliers? What were the underlying supply chains like, and what were those companies like? We made qualitative judgments and assessments on that in providing our recommendations.

In many other industries, the supply chain is fairly routine. It is not with any sorts of vaccines. We've had our issues, and there have been disappointments—two-week delays. People have focused on that, and rightly so, because of the nature of COVID-19. However, in the scheme of vaccine supply chains, things have gone remarkably well.

● (1650)

Mr. Francis Drouin: I think I only have about 20 seconds. I want to take the opportunity to thank all of you for the service you've provided to Canada.

Thank you.

The Chair: Thank you very much.

We are now basically at 4:52 Ottawa time. I'd like to thank the witnesses. You committed to an hour, and we appreciate that.

Dr Langley, and Mr. Lievonen and Mr. Scott-Douglas, thank you very much for being with us today. We greatly appreciate that.

All the best.

Dr. Joanne Langley: Thank you so much. Thank you for your work.

Mr. Mark Lievonen: Thank you. It was our pleasure.

Mr. Roger Scott-Douglas: Thank you very much.

The Chair: Good-bye now.

With that said, the public portion of our meeting is now complete and we'll proceed to the in camera portion of the meeting.

When I suspend the meeting, the technical staff will end this part of the Zoom meeting. As such, members cannot remain logged into this meeting. You will have to go back and re-enter, using the passcode that was sent to you by the clerk.

I will suspend the meeting and we'll reconvene in a couple of minutes.

[*Proceedings continue in camera*]