IN THE MATTER OF A HEARING BEFORE THE HEARING TRIBUNAL OF THE ALBERTA COLLEGE AND ASSOCIATION OF CHIROPRACTORS ("ACAC") into the conduct of Dr. Curtis Wall, a Regulated Member of ACAC, pursuant to the Health Professions Act, R.S.A.2000, c. P-14

DISCIPLINARY HEARING

VOLUME 7

VIA VIDEOCONFERENCE

Edmonton, Alberta

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Proceedings taken via Videoconference for The Alberta College and Association of Chiropractors, Edmonton, Alberta

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January 28, 2022 Morning Session

HEARING TRIBUNAL

[redacted] Tribunal Chair

[redacted] Internal Legal Counsel

Dr. [redacted] ACAC Registered Member

Dr. [redacted] ACAC Registered Member

[redacted] Public Member

[redacted] ACAC Hearings Director

ALBERTA COLLEGE AND ASSOCIATION OF CHIROPRACTORS

[redacted] ACAC Legal Counsel

FOR DR. CURTIS WALL

J.S.M. Kitchen Legal Counsel

[redacted] CSR(A) Official Court Reporter

(PROCEEDINGS COMMENCED AT 9:18 AM)

THE CHAIR: Good morning, everybody. This is a continuation of the Hearing Tribunal for Dr. Wall, and we are back in session today, and I believe we left off on November 20th with witness testimony with Mr. Kitchen's witnesses. So that's the point at which we will pick up again.

I believe the transcript indicates that there's a Dr. Bridle that will be testifying today; is that correct, Mr. Kitchen?

MR. KITCHEN: Correct.

THE CHAIR: Okay, just a quick housekeeping item, I'd ask everybody to mute your cell phones. And good morning, Mr. [redacted] as well. Perhaps we'll start with you, if you have any comments you wish to make.

Discussion

MR. [redacted] Yes, thank you, Mr. Chair. Before we hear Dr. Bridle's evidence, I'd like to make some comments to you and your colleagues regarding process and scheduling matters. This isn't a preliminary application in the true sense, but to the extent you feel comfortable, my client will be asking for some advice and direction, for lack of a better phrase, I've advised him of my intention to raise these matters before the beginning of the hearing -- or

Dr. Bridle's evidence, and I understand he'll have a response.

Specifically the Complaints Director has asked me to make comments regarding the scheduling of the closing argument phase of the hearing and next steps, and this arises from Ms. [redacted] recent emails and Doodle poll to everyone, attempting to secure April 4 as the date for closing submissions. And the comments I'm making this morning also arise from the Complaints Director's ongoing and very serious concerns about the length of the hearing and the costs that continue to be incurred, and, as you know, I previously raised this with the Tribunal when we were objecting to Mr. Schaefer being called as a fourth expert witness.

My client was very, very supportive of proceeding on April 4 with closing submissions, given the considerable amount of time that has been spent on this hearing and I think our understanding that perhaps most people were available that day.

And by way of background, and recognizing the difficulties that can sometimes occur in terms of scheduling hearing dates and scheduling witnesses, my client remains concerned about the significant number of witnesses that Dr. Wall has called in terms of the lay witnesses and the expert witnesses. As you know, we've taken the position that the lay witnesses really

can't offer anything in terms of this hearing; it's about Dr. Wall's conduct and his regulator, and we've also indicated that we felt four experts was repetitious and was unnecessary.

The Complaints Director's concerns also arise from the number of days that have been scheduled for the hearing to receive Dr. Wall's evidence, and, in some cases, days where we haven't been able to utilize the full day, and that, in turn, has made the hearing that much longer.

So this leads me to my primary point today, and that is that the Complaints Director, again, is very strongly of the view that closing submissions should only need one day. They are a summary of the parties' positions and evidence, and scheduling closing submissions for one day should be more than sufficient, and, more specifically, April 4 should be sufficient in terms of the amount of time necessary to prepare. There's a lot of time coming now -- or that will occur between now and April 4.

So, again, my client is prepared to proceed with closing arguments on April 4, would like that to occur. I know Mr. Kitchen disagrees with that, but the -- and he has some comments he'll make, but the Complaints Director is asking for, again for lack of a better phrase, some advice and direction from the Tribunal

about how we're going to proceed and whether we can proceed on April 4, all with a view to maximizing the efficiency of the hearing.

I understand again that Mr. Kitchen has some comments in response.

THE CHAIR: Thank you, Mr. [redacted]

Mr. Kitchen?

MR. KITCHEN: Thank you. I have several comments.

We've heard a few times about the costs, and that's not relevant. I'm sure it is for the Complaints Director obviously but not for this hearing, not for the Tribunal. Quite frankly, if he doesn't like his costs, there's a way to remedy that, right? We don't have to keep going on this. Nobody is set in stone: Thou shalt, must continue this hearing. So I don't understand why we keep hearing that.

It's expensive to prosecute members of a regulatory body when those members put up a legitimate legal defence. Of course it is; that should come as no surprise.

So I say that because that can't be considered as a relevant component here. I mean, we could go down the road on how much Dr. Wall has suffered financially through all of this, you know, how much his family has suffered. He's had to hire legal counsel, right?

Enormous resources have been spent on his side. I haven't mentioned that because it's not relevant.

So a considerable amount of time, yeah, of course, of course it does, yes. This is a significant, significant issue, right? This is a scientific issue, it's a professional conduct issue, it's a matter of truth, it's a matter of integrity and professional regulation, and it's going to take some time. We haven't been at it for 20 days. It's not unusual for trials in the court to go for 20 or 40 days. My friend knows that. I think we've been at it for six or seven days. My friend took three days with his witnesses. I tried to utilize time as best I could. That's why I tried to fit in Mr. [redacted] and then, of course, we weren't able to continue that. I had witnesses standing by while we went through all of the Complaints Director's witnesses. I had no issue with that.

So again, it's not -- it's almost as if my friend's trying to say that Dr. Wall is doing a filibuster; that's not what's going on, okay? I didn't call 16 of his patients; he could have, he didn't. You know, I could call expert witness after expert witness after expert witness, and I could go, you know, go through all the more and -- arguments about why each witness should be allowed in, because there is no rule of court that applies here that caps the witnesses, but

I haven't done that. I've brought in four relevant witnesses, expert witnesses, and we're getting through them as fast as we can.

There is an enormous amount of evidence though, nonetheless, as you've seen. That evidence has to be synthesized, and it has to be discussed in closing argument. I'm not going to read to you line by line what Dr. [redacted] said or what Dr. Bridle says today out of the transcripts, but I'm going to have to go through the evidence, because the evidence is what matters. This case is about following the evidence to where it leads.

So -- and I've reviewed the evidence obviously for today, and there's a large amount of it, and we're not done yet, and part of the reason I submit there's a lot of evidence is because Dr. Wall's right, he's scientifically right, he's professionally right. That's why there's so much evidence to show that. I'm not going to ask this Tribunal, at the end of all this, to rule in his favour on a scant amount of evidence; I'm going to ask them to rule on his favour on a large amount of evidence. So I'm going to have to go through that evidence, and I'm not going to take four days to do it, but I'm not going to take 4 minutes to do it either.

And then I have to get into the legal argument,

which is complex, it's long, and this Tribunal deserves and Dr. Wall deserves for the Tribunal to hear a full explanation of how statutory human rights works, of how the Canadian Charter of Human Rights works, of how it applies to the College, of how Section 1 works, of how it's possible to justify these rights infringements. I have to go through a long list of rights infringements, because I have to establish that; it's Dr. Wall's burden.

This is not something that's going to be done in a couple hours. It's going to legitimately take me several hours to go through this, and then, of course, you may have questions, and we may have delays, like we had this morning, we started 20 minutes late. It's patently unreasonable to say we're going to get through it in one day.

Now, I understand that, you know, the Complaints Director is not a lawyer; I get that, I get that. But I think my friend, because my learned friend, because he is so reasonable, I think he can agree with me, that we're not going to get through a closing argument in five or six hours, which is typically what we have in one day. I could be the entire day before I get through mine, and then he deserves an opportunity to respond, and he might have a lot to respond to. Then I, of course, have an opportunity to rebut, and then we

have questions.

So it's not unreasonable, in any sense, to say there's got to be two days, and it's not unreasonable to say it's got to be two days in a row. We've broken up the evidence; that's fine. It's not ideal, but that's fine. But closing argument needs to be two days, two consecutive days in a row. And it's not fair to my friend, to be quite frank, if I go the whole day, and then he has to wait four weeks before he gets to respond to it because we've split it up.

The last thing I'll say is this: My client and I were available for days in February and March. It just so happens that the only day when everybody else was available is April 4th, and there's no option for April 5th, notwithstanding the fact that I have a trial I have to travel to for April 6th. I would have been willing to do April 4th and 5th if it had've been available. If we had've done those two days in a row, I would have done that, because we might only need a day-and-a-half, we might get through on the 5th, and then I could travel that evening. I don't like that, but I would have been willing to do that, but that option wasn't even presented --

THE CHAIR: Mr. Kitchen --

MR. KITCHEN: -- for whatever reason --

THE CHAIR: -- I'm --

MR. KITCHEN: Go ahead.
THE CHAIR: -- committed to another hearing with another college on the 5th.
MR. KITCHEN: No, and there we go. Now we know -- yeah, I understand that. So I don't -- but I don't know why it was always ever presented to Dr. Wall for only one day. I've made my position clear. I've explained to Ms. [redacted] that the defence requires two days. So I don't know why it was only presented as one day; it should have been presented as two days, because that's our position.

So I can see why my friend is asking for direction here, because right now, as it is, we have a problem, because the Hearings Director is looking for one day when the defence has made it very clear there needs to be two days, which is perfectly reasonable, and he has a right to full answer in defence.

So I'm going to keep my calendar as open as I possibly can. I'm open all through May, I'm open almost all of June, I'm open all of July, so is my client. As soon as -- the soonest that everybody else can get two consecutive days, I'm going to be there, unless it happens to fall on the one or two days in May or June or July that I don't have available. So Dr. Wall is obviously not trying to delay this, okay?

I'll remind you that the initial delay was the

College's -- I won't say fault -- it was due to the College, okay? Dr. Wall filed his expert reports in April 2021, almost a year ago now, and we were gearing up, ready to go, and the College had to say, No, we're not ready.

And so here we are, you know, over a year later, after all this happened. That's not on Dr. Wall. He's keen to see this go through, he's ready to see it go through, but he has a right to full answer in the defence, and he's going to assert that, and he's going to require two days for closing argument. Those are my submissions.

THE CHAIR: I think before we caucus to consider a response, I will say that I can't speak for the two regulated members on the Panel, but I can speak for myself, and I think I can -- it's probably the same situation for [redacted] -- we're under significant demands these days. I'm booking 10 to 15 days a month for hearings, so it's difficult to find these periods of time. I know everybody has demands on their calendar.

We all just had a month off at -- some weeks off at Christmas, but fair enough, Mr. Kitchen, we will -- the Hearing Tribunal will caucus with counsel, and we'll take a -- and I hate to start doing this, but we'll take as short a break as possible, we'll be back in 10 minutes. If not, we'll let [redacted] know, and she

can advise everybody, and then hopefully we can move forward. So if you could -- thank you, [redacted]

(ADJOURNMENT)

THE CHAIR: Well, the Hearing Tribunal and our counsel have considered the information we were presented with. I think our conclusion is that expecting to conclude final arguments and deliberations on the same day is probably not realistic. We also need time, and we also do not want a break following closing arguments until we're able to meet and deliberate on this matter. So I think it's realistic to ask for two days and to find two days that are consecutive. I'm not going to ask people to look at calenders now. Perhaps we can do that over lunch or at the end of the day.

I think we should get back on track and get this witness in, but I will say that the Hearing Tribunal has confirmed that they would be willing to meet on April 3rd. We're meeting on Saturday, tomorrow, so if Sunday, April 3rd, is an option, that could be two days in a row. Otherwise, Ms. [redacted] will be back in the position of asking people if they could -- perhaps there's been changes to people's calenders, but, anyway, try and find two consecutive days.

It is a big -- I appreciate Mr. Kitchen's comments, there is a lot of evidence to cover, there's

also some complex legal arguments to be made, and I'm sure Mr. [redacted] will have significant submissions to make as well, so we will try to find two days. I'm not going to cancel April 4th at the moment until we've found an option, but we will ask [redacted] to focus on doing that as soon as possible.

I understand that there's costs. These hearings are not cheap. That's the cost of doing justice, and that will be -- potentially it could be part and parcel of any final decision on this, but, in any event, we do not want to be in a position of telling either party, the College or Dr. Wall, how to present their final arguments. So we will look for two days. Hopefully everybody will be able to find something in their calendar that works without us incurring a further undue delay.

On that note, Mr. [redacted]

MR. [redacted] Yeah, Mr. Chair, I just had two comments, and I don't want to belabour this, I, unfortunately, am out of town for that weekend, so the 3rd would not work for me, and my second thought was I would suggest that we simply ask Ms. [redacted] to send out a Doodle poll as soon as possible, that we not try not to compare schedules. I find that sometimes gets a little cumbersome, as everybody's flipping back and forth. Perhaps we could ask her to send out a Doodle

poll, you know, quite quickly with a two-day block.

The other comment I wanted to make was to my friend, Mr. Kitchen, and it might assist him in terms of Dr. Bridle, I've spoken with my client, and in terms of the qualification process and your questions, Mr. Kitchen, for Dr. Bridle; my client is prepared, subject to hearing from you in terms of, you know, the basis on which you're tendering your expert, my client is prepared to accept him as an expert witness without you having to go through, in any kind of detail, his qualifications, making again the same -- or submitting the same caveats we have before, that these issues are, you know, compliance issues and not scientific masking issues.

I don't know if that will assist you, Mr. Kitchen, or if you want to go through, I'll call it, a typical qualification process, but it might save you some time. I anticipate your -- the basis on which you're going to be tendering your expert witness is going to be, you know, fairly similar to what you've done before, and I -- if we can save some time that way, we're prepared to do that. I'll leave that with you.

MR. KITCHEN: Well, thank you, I appreciate that. I think that is probably an approach that I'll take for Dr. [redacted] tomorrow, and I will send you a proposed qualification today so that, you know, you

have notice about it tomorrow, and you can let me know if there's any issues.

Today I am going to run through qualification with Dr. Bridle, even though I don't anticipate a lot of objections, and it will be similar to what I've asked with Dr. Dang, but it's slightly different, and so I am going to establish the record for that.

THE CHAIR: Okay, well, thank you both. It's 8 minutes to 10, let's just take a quick break, and then we can plow through until lunch. We'll start at 10:00 with Dr. Bridle, okay?

MR. KITCHEN: Ms. [redacted] could you just -- because I haven't been able to communicate with Dr. Bridle. Could you just let him know that we're going to start at 10 so he has a heads-up?

MS. [redacted] Yes, I can do that for you.

MR. KITCHEN: Okay, thank you.

THE CHAIR: Thank you. And then, just to confirm, April 3rd is off the table.

(ADJOURNMENT)

THE CHAIR: We're back in session. Just two very quick items before I turn the floor over to Mr. Kitchen. I wanted to ask, Mr. Kitchen, do you have any documents that you plan to share with -- today or table?

MR. KITCHEN: No. Dr. Bridle's report and

his cv are part of the record, so you should have access to them.

THE CHAIR: Okay.

MR. KITCHEN: Please let us know if you don't, and that's all I intend. So I mean that could change if my friend brings something in, and then I need to bring something in in -- I don't anticipate that, but certainly for my direct, no documents.

THE CHAIR: Okay. And I just would like to tell people that during our first break to discuss your opening comments, one option we did look at very briefly and discarded was the option of having written closing arguments, and we decided that that was not an attractive option for this case, but we did -- we were trying to look at all options, and that was one that was brought up.

So with that note, I'll ask Mr. Kitchen to call your witness, and we can continue.

MR. KITCHEN: Sure, Ms. [redacted] if you could bring him in, and then we'll -- and then, [redacted] if you can swear him in.

(DISCUSSION OFF THE RECORD)

DR. BYRAM BRIDLE, Sworn, Examined by Mr. Kitchen

(Qualification)

Q MR. KITCHEN: So, Dr. Bridle, just to make sure that you know where we're going, I'm going to be

asking you what we call qualification questions, and then I'm going to be offering to the Tribunal the qualification I'm going to qualify you as, they'll make a ruling on that, my friend will have a chance to give some comments, and then I'll get into questioning you on substance, but this shouldn't take too long.

So to start with, Dr. Bridle, are you a doctor because you have a Ph.D.?

A Yes, that is correct.

Q What's your Ph.D. in?

A It's -- okay, so my training is -- well, I guess is to -- for -- to have a full understanding, I have a -- first, I obtained a Bachelor of Science degree in biomedical sciences, then a Masters of Science degree in immunology, and then a Ph.D. in immunology, and then I did a six-year post-doctoral fellowship to become certified as a viral immunologist, and I now hold, in a faculty position, as an associate professor of viral immunology at the University of Guelph.

Q Thank you. Your Ph.D., when did you get that and from what university?

A So it was from the University of Guelph, and I guess I would refer everybody to my cv, I -- it's been so long, I can't even recall the exact date.

Q That's okay. Are you a professor now currently?

A Yes, I'm an associate professor.

So just so everybody understands what that entails, the initial appointment for people for academics in a university setting is as an assistant professor. And then if we have progressed satisfactorily in our development as a faculty member, we then undergo usually about within, on average, about six years -- no, sorry, five, five to six years after being appointed as an assistant professor, we have to be -- we undergo a very rigorous review process where our performance is assessed independently by at least three world-renowned experts in the field.

And if our progress is deemed to have been satisfactory, then typically what happens is we are awarded tenure and promoted to the position of assistant professor.

And then the final stage would be full professorship, and that usually is about eight years later with a similar process involved.

So right now I am an associate professor of viral immunology.

Q Thank you. Have you received any awards or recognitions within the last two years?

A Yes. So you want to just limit it to the last two specifically --

Q Yes.

A -- or last --

Q Otherwise, we'd be here for a while.
A Okay. So, yes, so I've won several teaching awards. So one of the awards that I received was the equivalent of teacher-of-the-year within my college. It's the most -- like it's a prestigious award that's awarded within -- for, you know, the college that I -- for the college -- among the colleges that I'm involved in teaching in.

And what that entails is -- entails -- so I'm involved specifically with training or teaching veterinary students and -- in the field of immunology, general immunology. And so what happens is that, just like an M.D. program, it's a four-year -- it's four years of classes, four-year program.

And so for that award, what happens is all of the students in the second, third, and fourth year of the program vote on who they felt the top -- who the top professor is in that program. So that's one of the awards that I won recently.

Also what happens at the end of every academic year, the -- these professional students then vote on who they felt the top professor was for that given academic year, but I received that recognition, and that's -- so we get voted in basically as an honourary class president for that class.

I also recently received a research award for

outstanding research.

And I'm just trying to think, I think those are probably key highlights, you know, to highlight my -- yeah, the fact that I have been objectively assessed in terms of my teaching ability and research ability and have been recognized in those ways as being above average.

Q Thank you. Just give me one second, my phone was off, but my answering machine is on; I'm just going to turn it off.

THE CHAIR: I'll just mention, Mr. Kitchen, for everybody, Dr. Bridle's cv and other related information is in Folder E, and it's package number 5.

MR. KITCHEN: Yes, thank you.

Q MR. KITCHEN: Dr. Bridle, have you -- are you currently performing or overseeing research projects?

A Yes, a large number. So I'm known as what's called a research-intensive faculty member. So as faculty members at any university across Canada, our work is divided into three areas, and we all have -- we dealt [sic] on to have unique what we call distributions of effort.

So our work is divided among, again, three areas of focus, one is research, one is teaching, and one is

service. And so in my case, my distribution of effort is divided as such: 65 percent devoted to research, 25 percent devoted to teaching, and 15 percent devoted to service.

And just so there's some perspective with that, the sort of average dedication to research, like for the average faculty member across Canada, would be more in the range of 40 percent. So, therefore, I'm considered a research-intensive faculty member, and so that's an emphasis. And as such, I do have a fairly extensive research program and research team that I manage.

And so right now, active within my lab, there's sort of three areas of research that I'm focusing on. I do a lot of basic fundamental viral immunology research in which we look at the post-immune response to viruses and, you know, how we protect ourselves from viruses following infection.

And then the -- and then there's two more translational/applied areas of research. One is -- in both cases, they're using what we call immunotherapy, and the most common immunotherapy that I do research on are vaccines. And -- and for two purposes: So one arm of this program is focused on trying -- developing vaccines for the prevention of infectious diseases, and then the other one is for developing immunotherapies

for the treatment of cancers. Similar technologies can potentially apply to both, certainly scientific, the principles are fairly -- you know, overlap between the two. So I have those three areas of research is my emphasis right now.

And I guess I also, for full disclosure, just because it's probably most relevant to what's being discussed today, I did receive two grants to support my research program, infectious diseases, one from the Ontario Government and one from the Federal Government, and those are a specifically to conduct pre-clinical research in the area of SARS-Coronavirus-2 vaccines.

Q Thank you, you've answered some other questions I have.

And forgive me if this is not the right way to ask this, but are you currently a reviewer or an editor of any academic journals?

A I recently served as the guest editor for a special issue of a journal for -- and the journal is known as Vaccines, and that issue is now complete.

I do serve -- I'm active as a reviewer for many scientific journals, so that's a regular part of my job, and that comes under the service component that I was talking about. So that service component not only involves service to my institution, but it involves service to the -- well, to the public, but especially service to the larger scientific community.

And part of that is I serve as a reviewer on multiple grant review panels, including grant review panels for the Federal Government, and our -- that's our primary source of academic funding in Canada for medical research. So that organization is known as C-I-H-R for short or the Canadian Institutes of Health Research.

For that, I have served on multiple committees, including one that looks at grants that are being applied for in an area of cancer research, but probably my most -- definitely my most substantial contributions to that grant review agency has been serving on their virology and viral pathogenesis panel. In fact, I am currently serving a three-year term, invited term, as a reviewer.

And I guess, not that I usually like to tout, you know, things like accolades and awards, but, again, I understand that it's important to also -- you're trying to make considerations in this case about my potential to serve as an expert witness, so I'd have to point out that I have received three consecutive citations from -- and so I guess I forgot to mention this when you were asking about awards, because this is within the last two years -- and my service on the virology/viral pathogenesis panel, in which we determined which Canadian research -- researchers get

funding in that area. I have received three citations -- consecutive citations from CHR as being one of their most elite reviewers, which is an award given after the -- end of review competition, the chairs of the review panels, and the CHR staff that attended those panels identify the top 15 percent of reviewers for that particular review cycle across all of their panels, and then those top 15 percent receive these citations and try to set that standard for what the other reviewers should try and achieve in terms of the quality of the reviews that they provide.

And so as part of my job as well, yes, I routinely provide reviews, it can be to any scientific journal, and I do it for a large number of scientific journals. There's no limitation on that. Any scientific journal, if they feel that a faculty member anywhere in the world possesses expertise relevant to what that paper is about, then they can contact us and ask us if we would like to review. That's done on a voluntary basis; we're not required to do it, but it's done on a voluntary basis. And that is the foundation, the underpinning of how we establish the most rigorous scientific data.

So the top scientific data in the world of science is what we refer to as peer-reviewed scientific publications, and so those are -- that's scientific

data that has been compiled into what we call a manuscript, and that manuscript goes to what we call peer reviewers, that would be somebody like myself, who -- and we can have no conflict of interest, no connection with the authors of that paper. So that's important to make sure it's fully objective. And then -- in many phases, it's not even disclosed who the -- now with a lot of journals, not even disclosed who the authors are, to ensure that there can be no biases.

And then we give our feedback, either we recommend that the paper be rejected because the science is not of a sufficient quality, or we can recommend that it be accepted with different amounts of revision required to try and increase the quality of the science. And so, ultimately, if accepted, that means that -- so what we're talking about when we're talking about peer-reviewed scientific literature, that's the process that's followed. And so, yes, I participate in that and have done so for a large number of journals, and I do it on a regular basis and have throughout the duration of my independent academic career.

Q Thank you. When you do your research, you obviously do a lot of it, do you sometimes work with other scientists?

A Yes. Yes, my research team is highly collaborative.

So, again, if anybody would like to refer to my cv, you'll find that -- so the way authorship works in -- certainly in the area that I work in and so the academic realm, there is typically -- and it varies from research area to research area, there's sort of different conventions in the authorship of what typically happens. When you're looking at these papers, you'll often see a large number of names listed, and so those are all the people who contributed in some way to the sciences in that manuscript.

And the names that are at the beginning -- so this is the case for sure with all of my citations, the way it works, all the names at the beginning are typically the trainees that did most of the hands-on laboratory work, and then the names that are in the latter half of the authorship are what we call the senior authors. They're the ones that got the funding for the research, that often design the research project, and they oversee the management of the trainees that are working on that and provide feedback and troubleshooting, et cetera.

So -- and so when you're looking at sort of the level of collaborative-ness, you want to know who the senior authors are. And one of the -- and immediate ways to identify that is -- I mean, so, obviously, when I'm publishing something, my trainees are readily

identifiable typically because they're going to be from my institution. Although with that said, I have many trainees actually who have collaborated with mine from other institutions.

But so when you look at that latter part of the list, when you see people, especially from other institutions -- and I mean if there are any other faculty members as senior scientists, those are collaborators, official collaborators.

And so, yes, I've collaborated extensively. There's no way I could go through all of them, but I collaborate with researchers from around the world. I guess I can give you an example. So, for example, with a recent publication that we had on SARS-Coronavirus-2 vaccines, for example, that was a strategic collaboration with the National Microbiology Laboratory, which is part of the Public Health Agency of Canada, where they conducted part of our research. There were three separate research groups at the University of Guelph where -- that we came together strategically to do this work. So that's one type of example. So, yes, so I've collaborated with scientists in the Government and lots of scientists from other academic institutions, including others around the world.

So, yeah, my research team is highly

collaborative, so every one of my publications represents some type of formal scientific collaboration.

Q Thank you. Have you published any peer-reviewed articles or any other type of publications in the last two years either on your own or collaboratively with others?

A Yes. So I'm actually quite proud of that fact honestly, and this is why: So just to understand the setting, what happens is because of the lockdowns related to COVID-19 policy, a lot of research programs had to shut down and for substantial periods of time. And, indeed, my research was declared nonessential, and so the worst shutdown that we were facing originally was a -- it turned out to be six months of interruption to research, really nonessential research.

However, again, like I mentioned because I do -- because -- so this problem of COVID-19, specifically SARS-Coronavirus-2, the virus that causes COVID-19, because that's in my area of expertise and so many of the -- so much of the research and research tools that I work with were applicable, my group pivoted very rapidly to focus on COVID research, and like I said, we were successful in getting grants available to pursue that.

So we have continued our cancer research, we've

continued our basic virology research throughout this, but those two aspects have -- you know, we have experienced substantial interruptions to those components and -- but we focused our efforts on infectious diseases on the SARS-Coronavirus-2.

And so as a consequence, in fact, the last two years, remarkably despite that -- those, you know, impediments to research, the last two years have actually been my most productive in terms of publications. I -- again, you'd have to look at my cv to get the exact number. I -- what I can tell you, yeah, well -- oh, yeah, so, actually, I do have a fairly accurately grasp. We actually have so many papers that are currently under review that have been submitted that, you know --

What I can say for sure is that by the end -- by Christmas of last year, over the last two years, I had published 29 paper -- 29 peer-reviewed, scientific papers in scientific journals that are indexed in all the common databases and -- so 29 publications. And since then, I have had two or three more published. I have had two more accepted, and I have two or three more that are currently under review.

So, yeah, so it's been quite productive, and so the reality is -- so, for example, my institution, again, that has garnered attention because the average

publication record for faculty, in fact, dropped off substantially, to the point -- in fact, I should point out -- we actually normally have a performance review every two years, and because of this impact, our actual -- first performance review was supposed to occur very early on during the declared pandemic but was cancelled because of this impact at that time. And then we were supposed to have our last review very recently because this has been going on for two years now, and that's been cancelled.

So the next time we're going to have a review actually is going to have been -- at this point, it's going to have been a six-year gap, and that is to recognize the fact that it was unfair to evaluate the performance of faculty members who had had such massive interruptions to their research programs and their ability to be productive.

So, in fact, you can't expect the review committees to review six years of progress from every faculty member, so what's happening -- so, in fact, it's just been assumed that everybody -- at my institution, that everybody has performed reasonably well, because it actually gets linked to pay bonuses at the end of that two-year period, and so everybody will get the same pay bonus. And then when we have our next review, which will have been a six-year gap, it will --

we'll be starting from scratch again in terms of a review.

So, yeah, that's where I'm at with the publication record that I am particularly proud of, that my research team has been so incredibly productive throughout all of this, so that's kudos to them.

Q Thank you. And just to clarify some of those publications have been related to SARS-CoV-2 and/or COVID-19?

A Yes, that's true, yes, we have several peer-reviewed publications dealing with SARS-Coronavirus-2.

Q Have you been an expert witness in legal proceedings before today?

A I have. So, yeah, to disclose my involvement with those, I was in one that was ultimately not heard -- I was -- I -- so -- and the first one that I was involved with related to Corona -- SARS-Coronavirus-2. I served as an expert witness, was involved with various aspects of that case for many months leading up to it. I was cross-examined for 5 hours and 15 minutes for that case, but, ultimately, that case was thrown out. So I'm not a legal expert, but my understanding, therefore, is that I was not officially qualified as an expert in that case because the case ultimately was not heard, and my understanding is that's a requirement to be considered qualified, but I served as an expert

witness in that case.

I have -- I've served in an unofficial capacity for hearings that were run like court hearings for -- the most recent one was for a physician in Ottawa, an ear, nose, and throat specialist, who was -- and this was due to the vaccine mandates and whether or not they're privileged to serve into hospitals in Ottawa should be taken away because of not accepting, you know, the two jabs in that case, but that was not an official court proceeding, but it was run by lawyers.

And then I was also involved in a court case dealing with vaccine mandates that were -- that was -- this was for hospital workers in Toronto, and now that one is more complicated honestly. Again, I don't have the legal expertise, but it was my understanding and the understanding of the legal team that had recruited me to provide expert evidence to the people hearing the case that I had to qualify as an expert.

What I can tell you is that the -- one of the two experts on the -- serving on the other side, they were -- one was dismissed before the court hearing, their expert report, and then the other one was dismissed during the court hearing. Mine was discussed, and the lawyers accepted my expertise, and my report, my understanding was, had been admitted into court. There was a court hearing. My report was

discussed.

But then in the final report, what confused everybody is a -- the ruling ultimately was -- left only my report on the table, because the other two had been removed, and so, ultimately, the ruling was based on wording that the lawyers had used to, I guess, develop their case and not on the expert evidence. So the expert evidence ultimately was not considered in the ruling.

So, again -- so I was left with I had been told, on one hand, that I was qualified as an expert in that case, and then on the other hand, I was told that maybe not because the expert evidence, ultimately, was not considered. So that's just for full disclosure.

Because one of the things that I've got -- that I -- that was brought up is anytime I -- I didn't know from the first case, and I know it has to be disclosed, and I didn't want to get in trouble, so I disclosed that I was qualified as an expert witness in that -- the first case, and then I was accused of lying, but I just didn't know because I'm not a legal expert, and so that's been clarified.

So that's why, for your full disclosure, I want you to know what's happened. So in that last case, whether or not I was officially qualified, I'm actually uncertain of, but certainly my -- in both cases, nobody

disputed my -- the ability to serve as an expert. And in the last one, my expert report was actively discussed in court. That's for full disclosure.

Q Thank you. Now, Dr. Bridle, do you know Dr. Curtis Wall personally?

A I don't know him at all, no, and I -- so all I know is the name, and, in fact, I still know very little about him.

Q Do you have any financial interest in the outcome of this case?

A No.

Q Do you understand your duty to provide this Tribunal with your expert knowledge and opinions in an objective and neutral manner?

A Yes, yeah, and that's -- as a scientist, that's what I am expected to practice on a regular basis as I mentioned, otherwise, the entire peer-review process will be compromised, and I will endeavour to do that today as well.

Q Thank you.

MR. KITCHEN: Well, those are my qualification questions. Chair, I want to have Dr. Bridle qualified as the following -- I can read this a couple times -- but I want him to be qualified as an expert in the area of viral immunology and, in particular, SARS-CoV-2, COVID-19, and the efficacy of

masking, physical distancing, and other restrictions intended to prevent the transmission of SARS-CoV-2.

THE CHAIR: Mr. [redacted]

MR. [redacted] Mr. Kitchen, I'm going to ask you to read that back, I got part of it or most of it, but I just need to hear all of it again, if you could do that.

MR. KITCHEN: Yeah, no problem. I'd like to have Dr. Bridle qualified as an expert in the area of viral immunology and, in particular, SARS-CoV-2, COVID-19, and the efficacy of masking, physical distancing, and other restrictions intended to prevent the transmission of SARS-CoV-2.

MR. [redacted] Thank you, Mr. Kitchen.

Mr. Kitchen, I don't want to -- I may have a question or two for Dr. Bridle at this point, but can you clarify what other restrictions you're referring to? I don't want to be too difficult here, but that's a little bit open-ended; I just wonder if you can comment on that.

MR. KITCHEN: Sure. I'm going to ask Dr. -- what I anticipate asking Dr. Bridle specifically about specific other restrictions, right. I've identified masking and physical distance as specific restrictions, right? But the reality is, and I -- you know, I think we often hear this from the public health people is

that, Look, it's a whole, right? You can't talk about these things very well isolated; they need to be talked about as a whole. That's one reason I have that in there is I'm going to have generalized questions, and Dr. Bridle's going to have generalized answers, I anticipate, about COVID restrictions globally or generally. That's one.

And two, I'm following along the same lines that you established with Dr. [redacted] which I didn't take issue with; you know, you had the catch-all other measures. You know, I figured that was appropriate, so I didn't object, and so I'm following along in the same vein so that we don't get into issues of, well, you know, you can only talk about masking or physical distancing. That doesn't really make any sense. It wouldn't make any sense for Dr. [redacted] it wouldn't make any sense for Dr. Dang, it wouldn't make any sense for Dr. Bridle, so that's why I'm putting that in there; not because I'm going to go to specific other restrictions, but because I want to talk about them generally.

MR. [redacted] Okay, thank you for that. I just have a couple of quick question for Dr. Bridle.

Mr. [redacted] Cross-examines the Witness (Qualification)

Q MR. [redacted] Good morning, Dr. Bridle. I wonder if you can answer a couple of quick things for me. You had a discussion with Mr. Kitchen about the

fact that you have your Ph.D., I think you're a viral immunologist. Is it correct that you're not a medical doctor then? I just want to be clear about that.

A Yes, that is correct. I do not hold an M.D. degree, nor a D.V.M. or any type of medical -- professional medical degree. I'm not a professional --

Q And similar to that --

A -- (INDISCERNIBLE) --

Q -- are you now a member of a regulated profession under, you know, the Ontario regulated Health Professions Act or something similar?

A No.

Q So you're not a member of a regulatory college like the College of Chiropractors of Alberta, for example, if you were in Alberta?

A That is correct.

Q Have you ever been a member of a regulatory college?

A No.

Q I think you touched on this with Mr. Kitchen, but have you advised any public health bodies concerning COVID-19; have you been asked to consult with them?

A Yes. So I have -- so, for example, I've had numerous interactions with the National Advisory Committee on Immunization, lots of back-and-forth emails, so, yeah, so that's a great question.

So I focus on research. I tend to focus more on

the pre-clinical side, feeding into the translational research arm. I have had some of my research go into clinical -- human clinical trials, but that gets passed off to those who work on the clinical research side.

So the type of research that I do helps inform public policy --

Q Yeah, I --

A -- public health policies but --

Q I think I --

MR. KITCHEN: Mr. [redacted] you need to let my witness finish.

MR. [redacted] Yeah, sorry, sorry.

Q MR. [redacted] I just wanted to -- I didn't want you to go down a certain road. I was more interested in whether you, for example, worked with the Ontario Chief Medical Officer of Health or anything along those lines.

MR. KITCHEN: And he'll --

A No, I haven't worked directly -- sorry.

MR. KITCHEN: Obviously, he's going to answer that question, but, Dr. Bridle, you are permitted to finish your answer to my friend's two questions ago.

A Okay, sure, yes. Yeah, so when it comes to public health, the type of research that I do and the science that I publish is what is used to inform public health

policy. So things like, for example, we've heard a lot about the epidemiological modelling, so what -- so -- and what happens is when these epidemiological models are made, there's a lot of assumptions that are plugged into those.

And so, for example, the type of research that I do would be important in terms of what kind of data gets plugged into these models when it comes to assumptions like naturally acquired immunity, for example, or vaccine-related efficacy, right, these assumptions that dictate how some of the measures right now are performing, and that then influences the output, which is when we're trying to predict what cases and severe outcomes like hospitalizations and intensive care unit admissions, for example, I get into, just so that the -- everybody has an understanding of sort of where I stand on that spectrum. So my data feeds into that, you know, basic science aspect that informs then these models and how they're run.

But to directly answer your question, Mr. [redacted] I have not worked directly with the medical -- with Ontario's Medical Officer of Health. With that said, I have provided letters to them, you know, with my input, but I have not been formally recruited by them to discuss, you know, scientific matters.

MR. [redacted] Thank you, Dr. Bridle, those are all my questions.

Mr. Kitchen, I don't have any concerns with the manner in which you're tendering this witness. I think you've told me you wanted to have a little flexibility in terms of the other restrictions phrased, and I'll object if I need to, but I don't anticipate I would have to do that.

MR. KITCHEN: Thank you. Well, Mr. Chair, it's over to you then to let us know if you accept that qualification. I can read it again --

THE CHAIR: Yeah, no, that's okay. I think we all got it. Do we need to caucus, Mr. [redacted]

MR. KITCHEN: You're muted.

MR. [redacted] My apologies, I had a little bubble over my mute button. Yeah, maybe we should just take a very brief minute.

THE CHAIR: Okay.

MR. [redacted] Yeah.

THE CHAIR: Thank you.

MR. [redacted] Thank you.

(ADJOURNMENT)

Ruling (Qualification)

THE CHAIR: We're back in session, and, Mr. Kitchen, the Hearing Tribunal has no objection to your qualifying this witness as an expert in his stated

field.

MR. KITCHEN: Thank you. Well, then I propose we continue on with questioning, and then if we need to take a break, then I'm sure somebody will put their hand up.

DR. BYRAM BRIDLE, Previously sworn, examined by Mr. Kitchen

Q MR. KITCHEN: Dr. Bridle, you can hear us, right?

A Yes, I can.

Q Excellent, all right, well, I'm going to jump right in.

First, I want to start with a few basic questions, I know you touched on this in the qualification, but just to clarify, what is the virus that causes the disease of COVID-19?

A Yeah, so just to be clear, the virus in question here is known as the Severe Acute Respiratory Syndrome-Coronavirus-2. It's specifically been given that designation 2, because about 18, 19 years ago, there was an outbreak, including in Canada, of the original Severe Acute Respiratory Coronavirus, which is now either just called SARS-CoV or sometimes now referred to as SARS-CoV-1.

So this is dealing with the Severe Acute Respiratory Syndrome-Coronavirus-2, which was first identified and that information made public in the year

2019 now, late in the year 2019, and this is where we get this term "COVID-19" from. So what COVID-19 is, that's the Coronavirus disease, and then the 19 part refers to that was initially identified in 2019.

And, again, yeah, to differentiate -- and this is an important distinction for people to make -- SARS-Coronavirus-2 is the virus. COVID-19 is the disease. Being infected with the virus doesn't equate with having a disease. To have a disease, one must have signs for -- and/or symptoms of illness. So there's a clinical part to that diagnosis. So, again, one can be infected with the virus but not necessarily have disease, and, in fact, scientific literature right now shows that there's a much larger than previously anticipated and still unknown proportion of the population that has been or can be infected with SARS-Coronavirus-2 and not get COVID-19, the disease.

And so a way to kind of make sure that everybody understands that properly, we are all, all of us right now, I can guarantee, are infected, infected with all kinds of microorganisms, including lots of viruses. We think -- we hear a lot about our microbiome, and we often think about the bacteria that coat the outside and inside of our linings specifically, like the mucosal membranes throughout our body or gut, our respiratory tract, reproductive tracts, et cetera, and

then, of, of course, our skin.

But part of that microbiome is also what we know as the virome, so we actually have probably more viruses in and on our body than we actually do bacteria, and, interestingly, a lot of those viruses are actually -- have infected the bacteria that are in or on our body, and these are known as bacteriophage.

So I mean this just highlights that we can be infected with an agent but not have disease, and so that's the distinction here. SARS-CoV-2 is the virus that, in some people, can cause the disease known as COVID-19.

Q Thank you. Now, when it comes to the virus and the disease and everything that's been going on in the last two years, what would you say is the most important difference or some of the most important differences between scientists such as yourself and public health doctors such as Dr. [redacted]

A Yeah, so I can't comment specifically on Dr. [redacted] but I can provide some generic feedback, because, again -- so, for example, individuals like myself, again, so we train -- we train medical professionals. In my specific case, I've chosen to work with the University of Guelph. I've been offered a position at the University of Ottawa where I would have been teaching students in the M.D. program, but because I felt I

could do more sophisticated research at the University of Guelph, because there's more animal models available and the type of research I do, I teach students in the doctor veterinary program.

However with that said, I've also had many of my undergraduate and graduate students that I've trained and mentored have gone to medical school as well.

And so as a consequence because of this teaching, I'm routinely involved with communicating, for example, I've chaired for many years our department's seminar series committee, and so through that, I host other scientists through my collaborative network. I've been in contact with all kinds of faculty members who teach in these types of programs.

So what's important to note is when one has an advanced degree, so, for example, a Master -- so that would be like a Master's degree and especially a Ph.D., a Ph.D. takes it to a far greater extreme. What one is being educated in in that area is a very deep understanding of a particular area of expertise. So in my case, I have spent years studying in incredible detail the areas of virology and immunology, and although not relevant to today, but also cancer biology.

And so the key difference, what people have to understand -- and, again, this -- I mean no offence by

this in any way, but it's just to encourage understanding -- is if somebody holds an M.D., and the same would be for a D.V.M., any of these professional medical degrees, what you have to understand is when it comes to the medical doctorate programs, these are undergraduate programs -- they're undergraduate professional programs, right? So people when they get these degrees, they are declared professionals, but they are undergraduate degrees. So that is why, for example, if you see somebody who holds a graduate degree, the graduate degree will always, even if it's a Masters degree, it will always be listed after the undergraduate medical degree, and that's to recognize the fact that one is training at the undergraduate level, whereas the other one is more in-depth training at a graduate level. So literally -- so that's what you'll typically see. So if I were to list my credentials, I would be required to list my Bachelors of Science first, my Masters of Science second, and my Ph.D. last, and what we usually do is we just simply list the Ph.D. because it essentially trumps the others. So that's why you'll typically see -- not people won't list the Bachelors or Masters, and I don't like to do that because, you know, it's not about trying to garner, you know, praise from others, it's simply to recognize that, you know, ultimately we have

achieved -- we have -- we've got a Ph.D.

So that's why you see -- so the order in which degrees are listed actually is important in the scientific and medical community to recognize these distinctions, and so at the -- so, in other words, individuals like myself, who have deep expertise in immunology and virology, so I would teach in these programs in those areas that are under my expertise and try and get as much of that expertise conveyed to the people who are earning these undergraduate medical degrees.

One of the universal concerns actually -- so when I start my teaching -- and I mention this because it's important to understand the full scope of your question -- I -- so I -- one of the things I take pride in, as far as I know to date within the D.V.M. program, doctor veterinary medicine program that I teach, as far as we know to date, it involves the most extensive training in immunology in North America. I can't say for sure, because I don't know what every medical college in North America, what their programs entail, but so far, and has been recognized by my administration, we haven't seen one that's more intensive.

And by that I mean, we teach -- I have 30 lecture slots with my students to talk about -- you know, to

lecture them about immunology. Included with that is we have what we call independent learning sessions, where they also do some learning on their own about immunology. We also have -- I've incorporated what I call interactive learning sessions where we use a technology called iClickers, where I can put up questions and have the students then provide their feedback so I can gauge how well they are or are not understanding concepts, plus we have review sessions where they can openly ask me any questions that they want.

And then the other thing that we have is I run -- the class, because it's large, gets split into two, so I run two laboratories split across two halves of the class, so four laboratory sessions in total. So each student gets six hours of laboratory exposure to immunology, so hands-on learning.

So I just say that to put in perspective, because in Canada, in the M.D. program, the average M.D. program in Canada provides in the ballpark of ten lectures, only lectures and none of these other aspects, no laboratory, you know, hands-on learning, ten lectures on average in the first year of the M.D. program and less than that for virology.

So on the extreme end would be McMaster University. I have had several of my students go to

McMaster University and of course to collaborate -- I mean, I did my post-doctoral fellowship there, so I -- and I collaborate and still collaborate with people from McMaster, so I know this very well. They're on the extreme low end in Canada actually with five lectures in immunology in the first year of the program.

So I say that because when it comes to things like immunology and virology, therefore, if it's just an M.D., then somebody who just holds an M.D. and who has not taken advanced training in these areas would have only the most superficial understanding of these areas of science. And at an extreme, it is possible to get into these programs without completing an undergraduate program. I'd like to point that out because their undergraduate immunology training, for example, the University of Guelph involves about 35 lectures in immunology, so -- but those tend to be in third and fourth year. People can get admitted into medical -- and they're not often prerequisites as well. So even an undergraduate student with a Bachelor of Science degree who has taken an undergraduate immunology course, for example, from the University of Guelph would have a much more comprehensive understanding of immunology and virology than the average person at the point of completing their medical doctorate.

Q Thank you. Okay, now I've got some questions about your report. In Section 3 of your report, and just for those following along, that's page 2 of 18. So in Section 3, Dr. Bridle, you refer to the SARS-CoV-2 virus --

A Sorry, Mr. Kitchen, may I just ask a question; am I allowed to bring up my report to refer to it?

Q Yes, yes, you are.

A Okay, I'm going to be looking -- I'm going to bring it up on my -- I have a second screen here and that is what I'm looking at. So, sorry, which page?

Q So I'm on page 2 and 3 of 18 pages, and this is Section 3, where you say: (as read)

> SARS-CoV-2 is not a problem of pandemic proportions.

A Okay, just let me get there, page 2. Yes, okay, I'm there.

Q You discuss infection fatality rates in this. Well, let's start here: Could you just briefly explain for us, so we know, what is the infection fatality rate?

A Okay, yeah, so what -- infection fatality rate, what that tells you is if you have a population and you can confirm that an infection has occurred and how that -- and I want to point out how that is determined, what method is used is important, because if techniques are used improperly, one might be erroneously identified as

being infected. But so what infection fatality rate is supposed to be is if somebody is genuinely infected, it gives you an indication of what the chances are that that is going to be fatal for that individual.

So the best way to understand it is, again, because we're talking about percentages, it's best to put it, give the example of how having a population of 100 people, so if you know what -- if you have a group of people that you know for sure are infected with a pathogen, then the infection fatality rate would tell us how many, what proportion of those 100 people would be expected to die as a result of that infection.

Q Could you please describe the relative danger of SARS-CoV-2? And I say "relative" because, you know, obviously we're not working in a vacuum here. So if you could tell us the relative danger of SARS-CoV-2.

A Yes. So what I'd like to point out just before I start giving the full answer, and I'll come back to this at the end, there is -- what I want to point out is in my report -- just, again, to put it in perspective, my report was submitted I can't remember the exact date, but it was, you know, well -- it was quite some time back in 2021. So I'm going to talk about, because this has been admitted as evidence, I want to talk about what was available to me at that time, but it's important to note that things have also changed quite a

bit in the context of the Omicron variant, so I'd like to touch on that at the end.

So in terms of what I have in the report, what you'll see is that ultimately I cite a scientific paper, again, a peer-reviewed published paper that estimates -- that estimated at that time that the infection fatality rate for SARS-Coronavirus-2 was likely in the ballpark of 0.15 percent. So, again, to put that in perspective, if a hundred people were infected with SARS-Coronavirus-2, you'd expect 0.15 percent of them to die.

Now, this is important because when the pandemic was declared, many of us might recall or certainly you can look up the, you know, the headlines, it was declared -- there were concerns at the beginning, because we didn't know a lot about this virus at the very beginning, so what I'm referring to there is towards the end of 2019 when this virus was first identified, we didn't know, you know, what exactly the outcome of infection would be, and there were serious concerns that we might be looking at infection fatality rates as high as 10 percent. So that was stated by many health professionals including Anthony Fauci and many others.

Then as time progressed, and we started to realize that it was a relatively limited demographic that was

at high risk from this virus, that was rephrased, and the concerns were then that this might be in the ballpark of -- infection fatality rate might be in the ballpark of about 1 percent, and that would be serious if it was at 1 percent, definitely with 10 percent, also at 1 percent. I would argue as an expert in this area, a 1 percent infection fatality rate, that declaration of a pandemic would likely -- would be warranted at a 1 percent infection fatality rate.

But this is where it's important is what we soon realized because of the way that the testing was being done, and there'd certainly be flaws with the testing as it's been performed in Canada, what I'm referring to there are the reverse transcript-ase PCR tests or what we often refer to as just the PCR test. "PCR" meaning polymerase chain reaction test, which are -- the way we're using them, they're notorious for identifying a lot of false positives. So that's why you have to keep sort of mentioning and when I'm giving these statements that a lot of -- at its root is when you know somebody's infected.

So what we know is that there have been a lot of people who have been infected who never got sick, and so initially our estimates of infection fatality rate were based on people who actively had COVID. Now, we -- again -- so, again, we recognize now that

there -- that there -- a lot of people can be infected but for whom this is not even a pathogen. And what I mean by that is because it does not count as disease in those individuals.

For example, that's very common in children, and one of the reasons for that is children simply have physically expressed many fewer of the receptors the virus uses to grab onto our cells and infect it. So there's many children who get infected, but the infection is -- never becomes productive enough to cause disease.

And so as we've appreciated that, the way this is calculated is, like I said, you have to have -- in order to calculate infection fatality rate, you have to know the number of deaths, and you divide that by the denominator, which is the number of people who are infected. So early on in this pandemic, we -- the way this was being calculated, of course, we've always had quite accurate numbers of deaths, because that's -- I mean, you know, unfortunately, that is a very easy outcome to define and identify and document, and there's really -- there's no controversy about that outcome, that a death is black or white, either somebody's died or they have not. So we have very accurate data about deaths.

The problem is we still don't have fully accurate

data for the denominator, which is how many people have been infected. But as we have expanded the testing and looking for evidence of -- and, again, it's not even the virus but evidence that the virus is present in somebody's body by detecting portions of the genetic material that this virus would have, what we've been able to appreciate is that the denominator -- the denominators kept growing, in other words, right? We have found that more and more people have been infected.

So, for example, there's the great study that was published, actually a Canadian study, a high -- that was published in a very high-impact scientific journal, and it was a clinical trial that was being run out of British Columbia looking -- actually looking at healthy people for evidence of immunity acquired against SARS-Coronavirus-2, so, again, knowing that this was a novel virus. And what it found is that a majority of people who were not sick had evidence of having acquired, especially as time has gone on, so a year after the declaration of the pandemic, a large number of people who were unaware that they were sick with SARS-Coronavirus-2, you know, there was no sickness that they could identify, had evidence of what we call seroconversion, so the immune system having responded to the virus and produced antibodies against it.

So what this publication that I cited here did is it accounted for this ever increasing denominator, and so it corrected for the early massive overestimations of the infection fatality rate and came up with one that they felt at that time was more reasonable. And, again, I point out that this publication is from earlier in 2021, much earlier in 2021. And they estimated that the overall infection fatality rate was 0.15 percent.

So to put that into perspective for people, and this is largely agreed upon, I mean people like Dr. Fauci, for example, have publicly declared themself that, you know, the flu is often associate -- the annual flu is often associated with an infection fatality rate in the ballpark of 0.1 percent. So an infection fatality rate of 0.15 percent would be like a particularly bad flu season.

And the other thing to point out is when one looks at this publication, that's the overall infection fatality rate for the entire population. And in this case, we know that this virus is much more dangerous for a much more restricted subset of individuals, specifically the frail elderly and those who are immunosuppressed. And then we've come to identify some very key predictors of dangerous outcomes of infection: Obesity at the moment is the number one risk factor

associated with fatal outcomes, and alongside that are multiple comorbidities. So the average person who has died with SARS-Coronavirus-2 -- with the SARS-Coronavirus-2 infection has had, on average, more than three other comorbidities, meaning other illnesses, other health problems in addition to infection with the SARS-Coronavirus-2.

So why this is important is because if you were to remove those individuals from this analysis, you end up with an infection fatality rate for the rest of the population that is well below 0.1 percent, with the extreme being when you go into children. So if we go to the under 18-year-old demographic, the infection fatality rate would be well, well below 0.1 percent, and our own public health data show that, that there have been extremely few deaths. So, yeah, very few in that young demographic. So -- but this is the thing, so that's what I have in the report.

Now, what's important to note is that was dealing with data where we were dealing with the original variant and some of the variants that started to emerge, so, for example, the Alpha variant. Those variants we now know, certainly relative to the current Omicron variant -- and I think this is important because presumably I mean with this hearing happening today, I guess we're talking about the relevance of

certain COVID-19 policies as it exists today. If we ask somebody today to implement a certain policy, what's relevant is what the situation looks like today.

So the Omicron variant is far more infectious than the original variants -- actually I should restate that. It's more infectious than the original variants. The Delta variant was particularly infectious, that's when we first saw a change in the virus towards one that is more infectious and that can spread, therefore, easier, and this seems to have continued with the Omicron variant.

And this is very typical of viruses. What I'd like to highlight is -- and so this leads to what we call cases, right? Cases -- and, again, what I'd like to point out is the cases that we are identifying in our public health data are not actually cases of COVID-19; they're cases that were called -- although we often equate them to cases of COVID-19, what they are in reality is they are positive test results, again, for the presence of portions of the virus's genetic material in an individual. So people tested positive by the PCR test for -- and that provides some evidence that they may be infected with a potentially infectious form of SARS-Coronavirus-2. So that's important.

And what I'd like to point out is cases in and of themself are not dangerous. So if somebody were to

acquire any of the respiratory pathogens and develop mild to moderate signs or symptoms of illness like other common cold-causing viruses, including other types of cold-causing Coronaviruses, like Norwalk virus, like respiratory syncytial virus, and like influenza viruses as examples, they would be cases of respiratory illness. So that -- and all those cases, those viruses are highly transmissible, but in most cases do not cause -- well, I should -- I'll talk about the cold-causing viruses, in most cases do not cause severe disease.

So if we think about the common cold, highly contagious. I mean, we've all seen this, especially anybody who's been in -- volunteered in a school, worked in a school, or has children in school, and in also workplaces, schools especially, I mean, a cold will spread rampantly throughout the school population and in all the homes connected with the school. So the ability to spread rapidly is not in itself a concern if it's only causing, in most people, mild to moderate disease. The reason why I focused on cold viruses is they excluded things like respiratory syncytial virus and influenza viruses, for example, because they actually can be particularly dangerous, not only the same demographics that we're talking about with SARS-Coronavirus-2 but especially in young children,

which are quite -- actually protected because of that unique physical, you know, lack of expression of the receptor the virus uses to grab onto our cells that -- and it's not confined to SARS-Coronavirus-2, it's unique in that our very young are not susceptible in this case. But all these people are susceptible to potentially severe and fatal outcomes with influenza viruses and the young for sure with respiratory syncytial virus.

And so that -- so that's why -- so, yes, so I want people to understand Omicron is more -- because this relates to the infection fatality rate, -- it can spread easier, but it is definitely much less dangerous than any of the previous variants. That is clear. We're seeing that everywhere. I want to -- so what's important to understand this -- is because of the public health messaging, right, that's been out there, and personally as an expert -- I have contentions with this, but I'm just putting out what the public health messaging is right at the moment -- is that the vaccines being used for SARS-Coronavirus-2 have been purported to be -- I mean, originally, they purported to be very protective and protect people from infection and disease and very good at preventing transmission. That certainly has been downgraded, and I would argue that current data suggests that they are not reducing

the spread of the disease at all.

In fact, the remarkable phenomenon and of concern to me is that we're actually seeing cases occurring predominantly among the fully vaccinated, which might actually be evidence of vaccine-enhanced disease. But I raise this because in vaccinated individuals, this is the messaging, that it's supposed to be, supposed to be reducing their chances of getting infected and their chance of transmitting the virus to others. And yet in all of our school and work environments where it's almost completely people who are vaccinated, so there should be reduced transmission and they're masking, the viruses are still spreading rampantly. So this is the nature of Omicron.

But our data also show that while the cases of Omicron have skyrocketed across all of Canada, including Alberta, the most serious outcomes have steadily declined. So there's been a -- there's been, over time, a complete uncoupling of cases and the most severe outcomes. So as we've continued to have these -- and, remember, the first wave early on in the pandemic has been dwarfed by multiples -- recent waves, including the most recent with Omicron, has completely dwarfed the previous wave if you look on the graphs and the number of cases that are occurring. Yet, we have progressively gotten -- gone closer and closer to

baseline when it comes to hospitalizations and ICU admissions and deaths, and so that's clear evidence that Omicron is less dangerous.

Also biologically, I can explain why this is, and it -- there's two phenomenon that explain why Omicron now is much less dangerous than the previous variants. So -- and this goes hand-in-hand actually with the vaccines. The vaccines, unfortunately, we've delivered them into the muscle, which is called a parenteral route. That tricks the body, the immune system into thinking that there's a systemic infection, not a mucosal infection. Remember, the natural infection is through the airways. And so when the body thinks that there's a systemic infection, what it wants to do is it protects all of the key entry points into the body to protect from future systemic infections.

So when it comes to respiratory tract, the only place that these vaccines confer some protection is in the very lower airways, and that's because if a virus gets into our lower airways, there's not much physically to prevent that virus from getting into the blood, and that's because of gas exchange, right? We -- so in the alveolar space, we have blood vessels that come very, very close to the alveolar space to allow the gas exchange, oxygen to go into the blood and carbon dioxide to be released. So that also means that

if a virus gets there, there's only the ever so tiniest physical barrier to prevent it from getting into the blood. So our body produces antibodies in the lower airways.

So this is the thing -- and I say that because this is important -- the most severe outcomes of infection with SARS-Coronavirus-2 is when the virus goes down into the lungs. When it's in the upper airways, it's not particularly dangerous. When it gets dangerous is when it gets down into the lungs, and it causes a severe pneumonia, then you start getting inflammation in the lower lungs, and that can interfere with things like gas exchange, and it can cause a lot of damage to the physical architecture of the lower airways, which is where all the gas exchange has to occur.

And when it gets into those lower -- in the lower lungs, that's where the real problems are when the virus then starts entering the bloodstream, and we get what's called viraemia, and that means the virus can distribute all throughout the body using the blood, our blood, as highways of all the places -- all kinds of different places in our body. So that's where the severe outcome occurs.

And that's also why the vaccines with earlier variants were doing, you know, a somewhat decent job at

dampening the most severe aspects of the disease. But, as we've now recognized, they weren't preventing infection, and they weren't preventing transmission. And this is why they're having no impact on Omicron, the spread of Omicron, is because -- this is the other key biology you have to understand -- so if the virus doesn't go deep in the lungs, you tend not -- you're going to tend not to get severe disease. It's the difference between bronchitis and pneumonia, and many of us will know that pneumonia is -- has a much more severe prognosis than bronchitis, which is the upper airways. Pneumonia being in the lower airways.

So the interesting thing is Omicron now has accumulated a lot of mutations, a lot of mutations, and it has changed how this virus behaves. In one -- so one way it changed it is has become more infectious, but it's also become much less dangerous, because when we talk about viruses, we refer to something that's called tropism. Tropism is a scientific term that means where the virus likes to go in our body. So the original variants like to infect our upper airways and then migrate into our lower airways, and that's where they were dangerous.

The Omicron variant also infects through the nasal passages and the mouth and infects our upper airways, but it does not migrate down into the -- deeper into

the lower respiratory tract. It now has the more restrictive tropism, meaning it likes to stay in the upper airways. So this explains why the vaccines are now largely irrelevant in the context of the Omicron variant because the protection is in the lower airways and not in the upper airways. And so somebody -- and that also explains why the virus -- whether you have immunity or not is not particularly dangerous because it's restricted to the upper airways.

It also explains why everybody can equally transmit the virus, because nobody -- well, sorry, sorry, I -- that's untrue. I'm going with sort of the public messaging that's out there. So I'll tell you what the exception is to that. But it's thought right now that everybody, whether or not they have been vaccinated or not, can transmit at least the same quantity of the virus because it's in the upper respiratory tract.

But the reason why I want to point that out is I'm an immunologist and have found it profoundly frustrating that it's not recognized that our immune system actually does its job and functions naturally. The purpose of a vaccine is to simulate a natural infection, try and do the best that we can to simulate an actual infection as accurately as we can to confer immunity. As I mentioned that these -- we've made a --

you know, the vaccines going parenterally actually trick your immune system into thinking it's a systemic infection, so we're not getting proper protection of our airways.

Somebody who has been naturally infected will have mounted an immune response, and their immune response is going to be far more relevant, especially to the Omicron variant, because they've been infected the natural -- by the natural route. Our immune system when infected by the respiratory tract makes sure that it provides infector mechanisms that can protect all, all areas of the respiratory tract, upper and lower. So I want to point that out.

So we don't know a lot about natural immunity because we haven't been looking for it, but somebody who has natural immunity, we can't make any assumptions about their health status without knowing, because if somebody has natural immunity, they're actually going to be the most protected in the context of Omicron, and they're going to be the ones that spread the SARS-Coronavirus-2 to the least of anybody in Canada right now.

So I know that's a lot, but it's -- it's a lot of science, again, to understand the importance of the infection fatality rate, what it means, and why we have been seeing it declining, and why we can conclude that

the danger of SARS-Coronavirus-2 even more recently has continued to decline.

So, again, I'd just like to finish by, again, saying SARS-Coronavirus-2 with the dominant -- the variants out there right now, by far the dominant one is Omicron. It is more transmissible right now and much less dangerous right now.

And just to understand as well from the virology perspective, that's typical for a virus. Any pathogen -- so, again, you think about -- so if we think about viruses as organisms, right, if we just take that very like objective approach, and we think about this from the perspective of an organism and an organism trying to survive; it is never to an advantage to any microorganism to cause severe harm or kill its host, because if it does, it's going to render itself extinct.

So what happens over time is, arguably -- so we -- we often forget about this, as I mentioned, our bodies are loaded with viruses that causes no harm. The vast majority of viruses that we're exposed to in the world do not cause disease. That is where viruses want to get to and for the reason of survival. Because, again, like I said, if they were to infect the host and kill that host, they're rendering themself extinct.

So the natural progression for a virus is to

become -- so think about it, if you want to maximize survival, if you want to maximize the number of your kind, right, you can think about any organism, what you want to do is maximize your ability to propagate and minimize your ability to harm your host and especially not kill them. And so that's why viruses over time will naturally progress to ones that are more infectious, because the more hosts they can infect, the more they propagate, right, and the larger their numbers become, but they simultaneously become less dangerous, because if they were to kill all those hosts, they're going to render themselves extinct.

So that's what this virus is doing, has been doing. We have the evidence of this. This is the -- so this is a natural progression for this type of virus: It's reaching -- starting to approach a more ideal way to live with us by, you know, spread readily among people but not cause substantial harm to people, and it would probably -- likely continue to progress this way ideally, and so that's very important to understand.

So, again, just to highlight, being more infectious does not equal more dangerous. Again, I'd like to highlight the common cold is highly infectious, but for most people not dangerous. That seems to be where the Omicron variant is right now.

Sorry, Mr. Kitchen, it looks like you're muted.

Q Sorry, I muted, because I didn't want to cause any noise to interrupt you.

Okay, if I understand you correctly then, we have an infection fatality rate that has changed over time, so I want to ask you a couple of questions about that.

You've said it's much less dangerous now. Can you give me a rough number of what the IFR rate is now or in the last few months? And I understand that might be several decimal points, but if you could give us some idea just so we have a number.

A Well, actually I haven't seen a good, reliable peer-reviewed publication on that actually, and that's because the Omicron variant, you know, has -- it's quite recent, and, again, that would be the most relevant data. So all I can tell you is that, again, based on what I described for -- relative to the data that I highlighted -- that was highlighted in my report, which is dealing with older variants that unquestionably were more dangerous to the high-risk demographics, the Omicron is much less dangerous. So all I can say with certainty is that it would be well below the previously documented 0.15 percent, but I don't have a specific number that I could give you right now upon which I -- for which I could lean on a legitimate peer-reviewed scientific paper.

Q Let me ask you this: Is the survivability rate sort of the other side of the coin of the infectious fatality rate?
A Yes.
Q Okay, so, you know, the 99 percent --
A So sorry, could I just clarify that, Mr. Kitchen?
Q Go ahead.
A So, yeah, so, in other words, just to make sure that it's clear, yes, absolutely, infection fatality rate, I mean, so if you take the inverse of that, that's the survivability rate. So that infection fatality rate that was updated early in 2021 of 0.15 percent, the other way to put that is that 99.85 percent of those deemed to have been infected with the virus would be expected to survive, and, again, that was with the older, more dangerous variants.
Q Okay, so just to clarify, 99.85 survivability rate, that would have been the number in 2020?
A So, again, this is -- that publication was -- that I cited was in 2021. It would have taken into account data up until very early in 2021.
Q Okay, okay. So the survivability rate being 99.85 in 2020, that's gone up since 2020?
A Absolutely, yes, in the context of the Omicron variant. So like I said, so in terms of that data, yeah. What I've looking at, in particular, is the public health

data. And so, again, there -- so anybody can go to public health websites to see this for themself. But, for example, I'm in Ontario, but Ontario, I mean, there's nothing particularly unique about our demographic relative to most of the other provinces, especially Alberta, so a lot of our data are very similar.

So, for example, like I mentioned public health data, so I'm talking about this is not looking at anybody else's interpretation of the data; this is the public health data, the raw public health data that's available to every Canadian. So you could go right now onto the Public Health Ontario website or Public Health Alberta website and see these data to confirm.

This phenomenon, which I get has caused some of us to be worried about, that the vaccines in context of the Omicron variant have actually set up the immune system to respond suboptimally, meaning that there might actually be enhanced potential for infection of those who are vaccinated, right? What we see in terms of public health data is that the cases right now have been occurring for the past month. This happened -- this crossover happened at about -- at about -- well, in Ontario it happened on Christmas Eve. In Alberta, for example, the crossover happened a little bit later, up to a week later. But now the -- for the last month,

the -- with the Omicron wave, the number of cases have been occurring disproportionately among double-vaccinators.

So that then -- so that's the public health data that I'm relying on. So the same public health data, when you look at it -- and so because I know the -- I can -- I know the numbers much better off the top of my head for Ontario, that's what I'll use as my example. So keeping that in mind, simultaneously, the public health data has been looking at the most severe outcomes, and that includes data on hospitalizations. So the way in Ontario we show it is hospitalizations but not including admissions to ICU units, and then we also look at the proportion of people that are in -- have been to the ICU unit, and then we also have data on deaths. And so when we look at these outcomes, so as we've seen this huge spike in the -- massive spike in the cases of, again, I don't want to say COVID-19 but certainly infection, evidence of infection from SARS-Coronavirus-2, of which a proportion of those would have COVID-19, we have simultaneously seen, again, an uncoupling of the most severe outcome. The number of people admitted into the ICUs and hospitals has been lower, so despite record cases, it's been lower than the previous waves. All the more -- most severe outcomes have been reduced. Again, so I

highlight this shows an uncoupling of this idea of infectivity and the most severe outcomes of the disease.

And this is important as well because -- well, yeah, I guess I'll leave it at that, yeah. So using public health data, so, again, I can't use that to give you a specific infection fatality rate, current update of one, but all I -- what I can tell you is the same public health data that existed when this 0.15 percent infection fatality rate was estimated, right, compared to the public health data available now, the public health data is clearly showing this is less dangerous. So, again, I highlight that it -- the current rate would be less than .15 percent, but I can't definitively state what it would be.

Q I want to make sure we understand this, because I don't think any of us are mathematicians, with a 99.85 survivability rate, if 1,000 people were actually infected, statistically, how many of those would die?

A The -- so you're saying 1,000?

Q 1,000, yes.

A Okay, and this is with the assumption of .15 percent of infection fatality rate? Is that what you're --

Q Yeah, exactly.

A -- wanting me to do? So that would be -- so 1.5 [sic], and based on basic math, if we round up at a decimal

point of .52, two people. So I guess the more accurate number, therefore, would be you would have -- because rounding up actually has a substantial -- you're increasing the outcome by -- what is that -- by a third, so 2,000 people infected. In fact, in early 2021, you would have expected 1 to die.

Q Okay so if 10,000 people are known to be infected, statistically, 15 of those would be expected to die?

A Yes -- back in 2021, early 2021. Not --

Q Okay --

A -- now, not now. It would be -- it would be --

Q Right.

A -- likely be much lower, but how much lower I can't say definitively.

Q Now, you obviously touched on this, but the next thing I wanted to ask you is about the issue of endemic, because you touched on this in your report. Now, I'm now in Section 6 of your report. I'm not necessarily going chronologically through your report, but the issue of endemic, first, can you help us understand -- because I know you used that term -- can you help us understand what "endemic" actually means comparative to, let's say, "pandemic" or "epidemic"?

A Yeah, obviously with the timing. So an epidemic and a pandemic, you're dealing with an acute scenario, meaning short time frame, where an infection is

occurring and spreading, and the difference between an epidemic and a pandemic is the scope, the scope of the problem.

So with an epidemic, the scope is much -- on a much smaller geographical scale. So, for example, with the SARS -- the original SARS, Severe Acute Respiratory Syndrome by Coronavirus that caused the disease SARS, which we called, you know, at that time, the Severe Acute Respiratory Syndrome was the disease, that was -- because it was much more limited scope, that was declared in Canada to be an epidemic.

So a pandemic is all dealing with the scope. So if it's on a much broader scale, and in this case, you know, if that -- it's on a global scale, then it gets declared as a pandemic. If the dangerous, right, the most dangerous outcome -- because, again, I have to highlight, so, for example, if you have a common microbe that's part of the human microbiota, that's something that can readily be transmitted potentially around the globe, but if it has no dangers associated with it, although it has that same scale, it's not going to be defined as a pandemic.

So that's the two things, there has -- there's two things for -- to declare something a pandemic: There has -- it has to meet a certain threshold of danger and a scope, a very large scope of the problem. But, yeah,

so that's dealing with things in the acute or short-term.

When we talk about something being endemic, we're talking about something long-term. So the -- most of the Coronaviruses that we're used to, the ones that cause the common cold, like I would argue the Omicron variant is likely one that -- and the way it's behaving is starting to fit largely into this category. They're what we would call endemic; they're always with us, right? We're always interacting with them. They're always causing some form of mild disease.

So in that context, you know, we would not declare -- so a cold definitely, even in terms of the scope of a cold or the flu -- and the flu is a good example. The reason why the flu sometimes meets this threshold of an epidemic or pandemic is because the flu can be very dangerous, right? So we've heard of flu epidemics, and we -- you know, we -- many of us now have probably heard, in one form or another, of the Spanish flu outbreak in the early 1900s, right, which was declared a pandemic. And we have had a pandemic flu also declared as swine flu in the 2000s, back around 2009. So, you know, that's because they can spread on a large scale. But the flu gets called an epidemic or a pandemic because it is also associated with high fatality rates in those cases.

Now, when it comes to the common cold, again to differentiate, the common cold spreads at least as readily as the flu. So in terms of scope, it would fit into the definition of an epidemic or a pandemic, but it's never going to be declared as such because it never reached the threshold of danger.

So these viruses -- so what "endemic" means is if it is -- essentially in layman's terms, it would mean these are viruses that we basically have to learn to live with over the long term. So SARS-Coronavirus-2, we can see we've tried -- we've tried all kinds of things to stop it for two years. Not only have we failed, it's -- I mean, it's spread among people better than it ever has in the two years in the form of the Omicron variant, right? And that, we just have to show the number of cases. So that -- the virus has been very successful in bypassing all of our attempts to stop it.

The ideal, the ideal outcome, if you're dealing with something that causes disease and you identify it at the epidemic or pandemic stage, meaning short-term, the ideal outcome, right, and the goal that we would always have would be to eradicate that pathogen so we never have to deal with any risk of illness from it, again.

But an endemic agent is one in which we have

failed to eradicate it, and the virus now is able to bypass any and all the barriers that we put up to try and stop it. So there's no question, no question, in my professional opinion, this virus has all of the characteristics of an endemic pathogen now, including the fact that we can already define it as being with -- having been with us for long term, right? It has now existed, and we don't know how long it existed before it was identified, but if we go with the starting point being when it was first identified, it's now been with us for over two years. That alone suggests it's endemic.

The fact that our most recent wave was just completely out of control in terms of cases, not in terms of danger, again, show this is going to be endemic, and the reason -- there's several biological reasons. These are viruses that are amenable to mutation. The Coronaviruses will just constantly mutate. That's why we keep getting the cold.

Corona -- and to explain this, the reason is in order for a virus to propagate, it has to copy itself. When these viruses copy themselves, they actually -- so you think about this as -- literally if somebody is -- if you want to photocopy -- the way I like to explain this, say you have a report, a very large report of hundreds of pages that you want to copy, if you put it

on a modern state-of-the-art photocopier, almost all the time, you are going to get a complete, you know, 100 percent accurate replication of that document, right, the copy that you pull up; you're going to have all the pages copied. Many of us had familiarity with some of the, as we were developing this technology, of not having to put one page at a time on top of the glass and copy, many of us have had the experience of the early versions of doing the fully automated copying, and it would be very frustrating, because you would end up with, at the end, you would find out, as you take the document back to your office and you start going through it, you're missing page 7, and you're missing page 132, there was a paper jam, you know, that occurred or something.

So that's what these viruses are like, when they copy their genetic materials, they actually have built in to -- and this is a survival mechanism -- they have built in, so that copying process, and it's an error-prone process, intentionally error-prone. It incorporates mistakes into the copying the genome, and that's so you end up with different versions of the virus that can probe the environment that it's in, and if that change confers an advantage to the survival of the virus, that subspecies of the virus will start to dominate. That's how this happens. And so that's why

we're always going to -- we're never going to be able to stop these viruses from mutating, and that's why they become endemic.

So for the flu, for example, the flu is actually way better than Coronaviruses, including SARS-Coronavirus-2, at mutating. It mutates much more rapidly. That is why our flu vaccines are so ineffective from year-to-year, because if we were dealing with the same strains that we were dealing with the previous year, our vaccines would actually be much more effective, because they're based on last year's strains. The problem is we're using last year's strain to educate our immune system to deal with a much different-looking current strain.

So it's not as extreme as that with the Coronaviruses, but they do the same, just a -- slower, slower. And so that means that, almost certainly, we are going to be, whether vaccinated or not, no matter what we do, I can pretty much guarantee, and no matter whether we have been naturally infected or not, I pretty much guarantee we are all going to be infected, for the rest of our lifetimes, with the SARS-Coronavirus-2 repeatedly. It won't be as often as the flu, because, again, it takes longer to mutate, so I -- but we will all be infected and reinfected.

But, again, based on the course that it's been

following, that if it's like these other pathogens, they will be relatively mild to moderate infections, just like all of the other endemic respiratory pathogens.

And what we'll have to be diligent about is, like all these other respiratory pathogens, we will have to be diligent to look after the very high risk but limited demographics. So, for example, even the common cold can potentially be dangerous, for example, in babies and the frail elderly, right? So that's what we mean by endemic.

And in my professional opinion, this virus is now endemic, and it's going to be with us likely for the rest of our lives. I don't see how now we can possibly render it extinct from the globe.

Q So does that mean all of our measures right now to attempt to prevent the spread of SARS-CoV-2 are completely futile?

A There's one thing -- well, so I can tell you, the most dominant benefit -- beneficial, you know, strategy that anybody can use with any respiratory pathogen, including SARS-Coronavirus-2, is stay home when you're sick. That applies to any of the respiratory pathogens that we have, and so we -- well, that's the one thing that I really, really, really, really hope the global population will have learned from this declared

pandemic is just what I call is basic social hygiene. This has been the most frustrating thing for somebody who has expertise in this area.

I see it in my workplace, and, I will admit, I'm guilty as charged at times. As a faculty member, there are certain deadlines that we absolutely -- I mean, we can't push them off. So, for example, I have to get grants in order to pay my research team and run the research that I do. So if there is a grant deadline, a submission deadline, and I say, I'm sick, I'm -- so, therefore, I'm not going to go into work, and I'm not going to submit this grant; the granting agency is never going to give me an extension. I lose the ability to get that funding.

So there are times -- and some households, maybe both parents work, so it's very inconvenient if you wake up on a given morning and your child is quite sick. As long as I -- you know, I don't think most parents aren't going to send their kids in if they think it's literally going to be detrimental to their physical wellbeing, they're -- you know, they're going to collapse or something. But if they wake up sick, clearly sick with signs or symptoms, it can be very -- very difficult to -- you know, very inconvenient to try and find childcare or cancel your own work schedule so that you can stay home.

And so many of us have gone into the public with these -- with all of these pathogens that we're talking about, the flu and everything else. One of the reasons why it spreads so rapidly in all of our populations and workplaces and schools is because we don't acknowledge the fact that we are actively sick, that we're sneezing and coughing, or that we have our kids that are sneezing, coughing, and we send them into these areas, and, of course, that's going to spread the pathogens. Sick people spread pathogens. That's how it works.

So what I like to highlight as an immunologist is, for some reason, we've gotten into this mindset that somehow asystematic people are doing this, spreading. And this is there the -- I would say this is where the biggest disagreement -- this is the crux of the whole problem when it comes to some earlier interventions, like masking, is what is actually happening with asymptomatic individuals -- I can explain that, if you want, at another time, because it's not -- just so you're not -- directly relevant to this question, but keep that in mind, because prior to two years ago, the term that we used instead of asymptomatic is we used the term "healthy people". Right, if somebody didn't have signs or symptoms of illness, I mean, if you go -- so, you could be asymptomatic with anything, if you go to a physician and you're asymptomatic, and they say,

Okay, what are your signs, you know, what are your symptoms. And I mean, so they can assess signs, as what we mean by signs. Signs is something somebody else can see that provides evidence that you're sick. Symptoms are things that you feel that can provide indications that you're sick. So signs and symptoms are used.

So a physician cannot see a lot of your symptoms, you have to describe them. So, for example, if you're feeling pain, unless it's severe pain, a physician isn't going to be able to see that you're in pain, unless it's severe, and then we might need facial grimacing that let's them know. Otherwise, you can have a pain that they have no idea, they have no idea, you have to tell them that.

So that's why -- if you were traditionally to go to a physician and say, I have no symptoms, they're not going to investigate you for a disease, right, because, again, I'd like to highlight, people who are asymptomatic are healthy.

So what I would -- so this is the interesting thing, what I would say is the number one thing that we have done to prevent this has been to not allow sick people to go around others. So the one thing I would say has worked very well is the screening, the screening that ultimately got implemented, which

basically is asking, Are you sick, right? And if you're sick, don't go into work.

So I would agree, scientifically, rock solid data, because if you're not -- if you're coughing and sneezing, of course, you're going to be spreading a pathogen, and if you're not, you can likely go in -- go in to work.

So that's the only thing, that stay at home if you're sick that I would say -- and I would say this is going to be effective all over the place. What people don't realize is, this is fascinating, I would -- because I think most of you are in Alberta, so go to your Alberta public health website and start looking at the SARS-Coronavirus-2, look at the -- on the SARS-Coronavirus-2 data page, they actually have a link, the influenza page, go there, and I encourage you to look at the cases.

What you will see is huge waves of the flu. They only have the last five years currently showing publicly on your web page. 5, 4, and 3 years ago, they show the classic huge waves of the flu coming through Alberta. And you know what's happened in the last two years? No flu, no cases of the flu. It's not because the flu disappeared; it's because we have told people, If you're sick, stay home. Right? Because we have always left the flu, for some reason, and encouraged

people to go to work and go to school, or at least not discouraged them enough when they're sick, and the flu kills people, and the flu is dangerous.

So to me, I hope and pray that when this is all done, the people will remember, You know what, if nothing else, if I'm sick, don't go around other people. That is the simple -- that is the -- that is going to help public health enormously moving forward with all infectious agents that we've ever been living with. So, yeah, that's the number one thing.

And I know that those of you who are here today specifically are most interested in masking, so let me comment on the masking specifically. I am -- masks do quite a good job at preventing the spread of infectious diseases under a certain circumstance, when people are sick.

And (INDISCERNIBLE) so -- (INDISCERNIBLE) -- so I told you, I have to admit, myself, I am guilty as charged about going in to work sometimes when I'm sick. One of the things I try and do is I do try and isolate myself in my office. I do tell people, if they come to my office, I do tell people -- if they come to my office and knock on my door, I tell them, You might want to chat through the door, I'm sick. You know, and when I do have to go around people, I will wear a mask. I have done that, when I've gone in to sick -- and to

work sick previously, because these masks are reasonably well-designed to capture the large water droplets that come out of our respiratory system when we cough and sneeze.

The only way -- so if somebody's not sick, that means they're not coughing and sneezing, so the only theoretical way that a virus then could come out of our respiratory tract is through what we call aerosols, which are super tiny droplets that the cloth masks and surgical masks that we have been using, they're not designed to filter that out, and so this is an intuitively -- like we even know this intuitively.

If you've ever been really sick, so I know this because I have been respectful of those around me, and if I'm actively coughing and sneezing, I will wear a mask if I feel that I have had to go around people because I don't want to miss a critical deadline. And I'll also tell you from my own experience, those things end up slimy and disgusting inside the mask if you are doing a lot of coughing and sneezing. Why? Because they're very good at capturing those large water droplets, and so you have to change the mask quite quickly. I will also tell you that if I'm not coughing and sneezing, they don't get wet and slimy; they're not capturing robust amounts of the moisture that's coming out of our lungs.

There's a huge amount of moisture that comes out of our lungs during regular breathing throughout the day. We know -- just that's what happens. So in Alberta, you'll notice like in Ontario, especially during the winter, one of the phenomena are the humidity goes way down, right? Cold air humidity tends to be very low, and so if you don't have a humidifier in your home, typically what happens during the winter is you'll notice that when you wake up in the morning, you will tend to have a much dryer throat than at any other time of the year, and that's because there's so much moisture that's given off, and all night long, it's the air is wicking moisture as you breathe it out, and your body's actually having trouble replenishing it. You end up much more dehydrated in the morning than -- and during the winter than you do at any -- during any other seasons. So there's a lot of moisture, and the fact that it's not getting soaking wet tells you that. So, again, a long answer, but I want you to fully understand.

So to summarize, in terms of what's been implemented, I think the number one effective strategy has been keeping sick people away from others, and hopefully that continues, and the masking. So if people were to have to go around other people when they have SARS-Coronavirus-2, masks would definitely help

prevent the spread of SARS-Coronavirus-2.

But in healthy people, I have never been able to recommend masking of people who are not actively coughing, sneezing, you know, who are not sick. So, in other words, if you pass the screening that you're supposed to do every morning before you go in, in my professional opinion, there's nothing a mask is going to do to protect yourself or others around you at that point, because you are not -- you are not and nor are those around you expelling the type of infection-spreading water particles that spread disease.

Q So symptomatic masking is rational and effective?

A 100 percent. I believe -- again, I hope that that will be highly encouraged for everybody around the world moving forward, that if they are going to make the decision to send their child to school when sick or if they're going to go in to work when sick, for the respect of the health of others, yes, put on a mask, 100 percent.

Q But is asymptomatic irrational and ineffective?

A Yes, for the reasons that I said, because then you're not spreading those large droplets that masks are designed to stop.

Like -- so a lot of people don't realize, like when you think about even a surgical mask and you think

about a surgeon, right, there's been studies that have looked at this, this context, what people don't realize is what those surgical masks are designed to do. It doesn't sterilize your breath in any way, right? What it does is it stops any large droplets. When a surgeon is working over a surgical area, an open wound, it's making sure that -- now, this is the other thing, any surgeon who is doing surgery ideally should not be doing the surgery if they are sick. But literally what they're there for is to stop large water droplets.

It would be to -- and literally, for example, one of the reasons for wearing the mask is drops, spittle. Hey, we've all experienced that embarrassing time where we're talking, and then, all of a sudden, a little bit of spit comes out, and we're like, oh, I hope nobody saw that, right? That's literally one of the reasons why they wear the mask, to make sure large water droplets, including spittle, don't drop out into the surgical wound. So they're not designed, like I said, again to filter out with any kind of efficiency the aerosols, which are these super tiny water droplets that are far tinier than the pore sizes in these masks.

And so, again, to highlight this, there's something else that's important, because, again, this comes back to the idea of symptomatic versus asymptomatic or what I would call healthy people. Now,

what happens is in order for somebody to get sick, they have to initially be infected. As I pointed out, the infection does not necessarily equal sickness or disease. And the other thing that's important to note is infection certainly does not mean immediate disease. Because you have a pathogen in your body, so you might be -- so when people get sick, this is what happens, when we do get sick, this is the sequence of events: We have to be exposed to a certain threshold of the pathogen, which is not once. Our bodies, we have innate -- like we have physical barriers that immediately protect us from infection. For example, one of the things we have in our airways, our airways are lined with mucous. That's one of the reasons why I just said we have so much moisture coming out of them, we're constantly covering all of the membranes throughout our respiratory tract with mucous.

So if we have a pathogen come into our body, for example, one of the immediate lines of defence is that mucous, it will get buried in the mucous, and that mucous constantly gets removed from the body. Even if you're healthy, if you never clear your throat, you're eventually going to have to clear your throat because our airway is full of -- or your cells with these specialized hairs on them, we call them cilia, and their job is literally to, like fingers, to move this

mucous up. Because if you think about it, since our airways are constantly producing mucous, if we didn't have any way of getting that mucous out of the body, under gravity, the force of gravity that would migrate down into our lower airspaces, and we would literally drown. They would fill up our lower airways, and we would no longer be able to facilitate gas exchange. So these little hairs push the mucous up and out of our body. That's why, you know, it may end up getting -- accumulating in our throat so we can cough it out, or if it's in our nose, we'll end up, you know, with the mucous accumulating where you've got to blow it out of our nose.

Now, if it's a pathogen that has been able to bypass those barriers, our immune system has set up what are called sentinel cells. These are cells that are strategically located at critical entry points for pathogens into the body, so they're distributed all throughout our airways underneath the mucosal surface, below that -- you know, the mucous that's on the surface of our cells. And if a pathogen can get by that, these sentinel cells very quickly identify that there's a pathogen and start our immune response to start clearing this.

Now, there's two parts to an immune response. One is we call it the innate response. So, first of all,

we have to understand, actually there's three technically in terms of timing. The one is physical barriers that I just talked about like the mucous or cell barriers, right, that a virus would have to get by to get into the body. Those are always present. There is no immune response that has to be mounted. That's why, for example, burn victims, that they lose a large amount of their skin, are highly prone to infections because they've lost that physical barrier.

Now -- so in the lungs, these sentinel cells, if the pathogen gets past these initial physical barriers, and so that's why you have to have a certain threshold. One viral will not cause disease; you have to bombard these natural barriers with high numbers of the virus, so you have to have it delivered to you, you have to inhale a threshold dose, and that changes depending on the infectivity of the virus.

But so you have to -- if you get that threshold dose and your physical barriers can't deal with it, you have those sentinel cells that will immediately start detecting that virus and starts penetrating in -- and starts infecting cells past those physical barriers, and that they will start -- and trigger a whole series of events that lead to what we call innate immune responses, so those are very rapid, short-term responses. And then if they fail to clear the

pathogen, then we mount the types of responses that we're trying to get with these vaccines.

We call them acquired or adaptive immune responses, and the key effector mechanisms there, the key weapons are T cells, which could kill off virus-infected cells so they can't serve as virus replication factories and antibodies, which can block viruses from getting into other cells. Now, those latter things can take up to -- it takes about two weeks for those T cell and antibody responses to peak, so the innate response is very fast.

And so if you have an infection of the lungs, one of the first things these sentinel cells start to do in terms of communicating is they get these cells to produce the mucous, to start producing lots of it, because it -- we've got a virus that's bypassing this barrier, so let's make this barrier even more rigorous, a thicker mucous layer. And so that's why when we get an infection, as the virus starts replicating -- this is important -- so, in other words, early on in infection, yes, so if we were to take somebody who was infected early on, would we be able to detect the virus? Yes. Is that virus a replication-competent virus particle? Yes. Is it going to be able to infect and cause disease in other people? No, for two reasons: (a), a person has to reach a threshold level

in your own body such that you're delivering such a large enough quantity of the virus for another person to inhale that threshold dose to get them sick. The second reason is you could even have potentially a large amount of the virus in your body, but if you're not sending it out of your body, you're not going to be able to infect anybody else, and so this is the thing.

So our immune system -- so viruses take advantage of this early immune response for the transmission process. So because what happens is this mucous secretion starts increasing, and so that means we have a lot more mucous being brought up into our throat and into our -- and our nasal passages, right, producing a lot more of this. And so the body, to try -- you know, what it wants to do is get rid of as much of the viral particles as it can, because the fewer virus particles it has left in the body, the more easily it's going to be able to clear that infection.

And so the way our immune system gets it out of the body is it causes us to cough out all this mucous that's accumulating, all the liquid that's full of these viral particles, and we sneeze it out of our nose. That's literally -- we're trying to dump as much of the viral particles out of our body as we can. That is when we become an infection hazard to other people. And that's why I say these masks are awesome at

stopping the transmission when this transmission is -- when there's the high risk of this transmission, and that's when people are actively coughing and sneezing. As long as you have the virus contained in your own respiratory tract, you know, you're not doing that.

So in theory, you can -- so this is actually kind of interesting. Much more so than viruses like the influenza viruses that we live with, the SARS-Coronavirus-2, there's been a lot of literature suggesting, therefore, that one of the ways the virus might spread is through aerosols, right? And so that's -- because if you're not coughing, and you're not sneezing, then the only way the virus theoretically can get out of your body is being carried on the small water droplets that come out of our -- come out with our breath, right, with every exhalation we give.

So then that means that the masking, therefore, if somebody is not symptomatic, the only thing that it could potentially have to stop in terms of the virus leaving the body would be these aerosols. And like I said, while -- you know, I've got lots of figures and pictures to show that, you know, the pore sizes of these masks are not designed, they're not nearly small enough to stop these viral particles from getting through, that the water droplets that could potentially have the virus on them, the pores are way, way, way too

big to stop that.

Now, granted, so, for example, I noticed in Dr. [redacted] report that he mentioned that -- actually maybe it wasn't even his report, but some have pointed out that it -- and I agree, it's not like it's one pore, if the virus gets past one pore, it's out of the mask. So, example, the surgical masks actually have three layers. So what it is more like is it's having pores all offset from one another. There's a whole bunch of pores that the virus would have to navigate. It would be like going through a maze.

So what these masks can do with aerosols is it can slow down the transit time it takes to navigate this maze of large pores that are all offset before it leaves the mask, but it doesn't stop it from leaving the mask. And, in fact, what ends up happening, this is the predominant thing, this is also in my figures is because it has to navigate this sort of complex maze to get through all the open doorways, that provides resistance, and any gas will follow the path of least resistance. And that's exactly why when we wear our masks, the vast majority of what we exhale never even, unfortunately, gets through the filtering material, again, which isn't designed to filter out these aerosols, but rather bypasses it.

And we've all seen that phenomenon; I mean, you

know, I wear glasses, especially now is not a great time, so I encourage anybody, put on a mask with their -- so what's especially -- what I especially recommend, if you -- so I have this every time I go to the grocery store, go outside for a little bit, let your glasses, you know, accommodate to the temperature around, right, so they get nice and cold; then go into a store, go into a warm location and put on your mask, right, put on your mask and step through the door into a warm location. Now your glasses are such that any moisture that's coming out is going to readily condense. I find it so frustrating because I can hardly shop. It takes me about 10 minutes before I can start shopping because I'm constantly taking my glasses off and wiping them because of all the fogginess happening. That's the aerosols, and that's, of course, because of the mask. Even with the pinch piece, if you have a good mask, a surgical mask that have the middle pinch piece, very difficult to get a seal properly around your nose. And so when you exhale, because we're slowing down the progress of the air through the filtering material, it'll just simply exit alongside the nose; that's where we see the fogging.

Now, the other place a lot of people don't realize is even the surgical masks are not designed to fit properly around -- by -- in front of the ears, and so

you almost always have these large, relatively large, triangular gaps at the back of the mask where it loops over the ears. And so literally when we exhale with these masks, the vast majority, when we exhale, fires up past the nose and out past the ears, and so there is no filter. And then, like I said, the limited amount that does come through the filter, it's not designed to stop these aerosols.

Like I said, if it did -- like, again, I can take off my glasses right now, and, for example, watch (UNREPORTABLE SOUND), I just breathed on my glasses, and you can probably see it's fogged quite a bit compared to my other lens, right? That's one exhale. So you can imagine if I was wearing a -- had been wearing a mask and go -- in some cases, I've had to, you know, because of these requirements, if I'm wearing a mask, there's not much aerosol coming out in just one breath. You can imagine how much liquid would accumulate in your mask if it is, in fact, filtering that out. If it's filtering it, it means it has to stop them from getting out in the air, from going through. If it's not getting into the air, then it's staying in the mask, the masking material. But I can wear these masks, if I'm not coughing and sneezing, I can wear them, and my mask will not get wet.

So, again, it's just intuitive to the point

where -- I like to use -- I'll just finish with this, an example which I think is helpful to consider this. Early on in the pandemic, in fact, every time I went to get my hair cut, and thankfully I was able to, you know, after quite some time, because my hair was horrible, like many of us, for the longest time, but, you know, when I actually first went and understanding this, out of respect for the hairdressers, I tried to explain this to them and actually asked them if they wanted me to take my mask off, because if they were worried about aerosolized transmission, right, the mask for filtering this stuff, I tried to point out to them, If it's my breath that you're worried about, do you want me to take my mask off. Because they always cut my hair from behind, right, and that way, if they're afraid of my breath, I'm directing it away from them. And they -- you know, but, no, because of the policy, said no, no, no, no, everybody has to be masked to keep -- you know, to keep us safe, and I tried to explain.

And so the best way is -- again, to envision this, again, if you go out in the winter time, cold air, and you put your mask on, you'll see exactly what I'm saying -- I put a picture of this in my report -- you'll -- because you can see these aerosols, because these tiny water droplets, when it's really cold, will

condense, right? Again, if water -- the gaseous water as -- when it's cool, it will turn into liquid. And so winter time is a great time because you can see the aerosols condensing in the cold air around you. And so when you breathe out in the winter, you'll see the -- it blasts up, you see this fog essentially as the aerosols are condensing, blasting up past your nose and out past your ears just like I said.

And I've shown people, if you're a hairdresser, what it does is it encases your head in this huge cloud of aerosol, all right. I've tried to point this out to my hairdressers is that if you are genuinely afraid of my breath, you know, as an asymptomatic individual, do you not realize that the whole time your hands are immersed in my aerosols by you forcing me to blow them around my hair instead of away from you.

So I'd just like to highlight that, because, again, that's kind of science meeting the reality that we currently have and how the two just simply don't align. So I'll --

THE CHAIR: Dr. --

A -- just stop there.

THE CHAIR: -- yeah, Dr. Bridle, I think it's now 10 after 12, Mr. Kitchen. I think it's time for a break.

MR. KITCHEN: Yes, I agree, however, I do

want to ask one question.

Q MR. KITCHEN: And, Dr. Bridle, I invite you to answer this in 5 minutes or less, and we can come back to it after the break, but I want to ask this question, because it's connected to the conversation we've had. Dr. Bridle, so you've said now that where we're really at is endemic, but I think the burning question we all have is was SARS-CoV-2 ever actually a pandemic? Right? You said declared pandemic, and you said that there was a (INDISCERNIBLE) severity for it to actually be really a scientifically a pandemic. So was SARS-CoV-2 ever a pandemic, and if so, when did it cease being a pandemic scientifically?

A Okay, yeah, that's an interesting question, but I can keep this short, yes. Sorry about that, you're getting the typical, you know, scientific, we like to make sure that all the details are relayed. But in this case, so -- this is -- the pandemic was declared again, assuming that the -- sorry, [redacted] --

(AUDIO/VIDEO LOST)

MR. [redacted] Sorry, can we just -- sorry to interrupt, Dr. Bridle -- I think we've lost a Tribunal Member --

A Oh, okay.

MR. [redacted] -- Dr. [redacted] I don't see her. Could we just --

MR. KITCHEN: Well --

MR. [redacted] -- (INDISCERNIBLE) for a minute. Oh.

MR. KITCHEN: Dr. [redacted] if you need us to break, we can, you know, we --

THE CHAIR: Dr. [redacted] is here.

DR. [redacted] No, yeah, I came back, yeah, sorry.

A Okay, great --

THE CHAIR: Thank you, Mr. --

A -- I don't think I said anything --

THE CHAIR: -- [redacted]

A -- that you missed, Dr. [redacted] Did -- what was it -- yeah, I think I was just starting to answer, so I'll just start again --

THE CHAIR: Sure.

DR. [redacted] Yeah, just when you were going to answer the question, yeah.

A Oh, okay, great.

DR. [redacted] Thank you.

A Yeah, so this pandemic was declared with, again, on the initial concern that the infection fatality rate might be as high as 10 percent, and, again, as I've said, an infection fatality rate certainly between 1 and 10 percent. I don't think there's very many scientists around the world that would agree that that would be a

pandemic situation provided the pathogen is genuinely dangerous, because then you're, you know, talking about -- well, the infection fatality rate, that is an indication that it's going to be dangerous to far too many people.

But the reality is, just like I said, as we have come to appreciate the size of that denominator, which we didn't know at the beginning, we now know that the -- the real infection fatality rate is in the -- was in early 2021 in the ballpark -- and we're not even sure it's the full estimate because we don't have a full understanding of how big the denominator was. But at that time, it was estimated to be about .15 percent.

So to put that in perspective again, that was dealing with the earlier variants, which is when the pandemic was declared, in that context. And, again, at .15 percent, that is not a problem of pandemic proportions. It is -- it just simply is -- that's a fact.

And so it's not a case -- and then, again, that's for the entire population. And if we go to the demographics that we know, which is the vast majority of the people that are in the -- and the lower-risk demographics, it would be much lower. Again, I can't say exactly how much, but it would be lower.

So, again, to put that in perspective of .15

percent, that is in the same realm as a bad flu season and -- for which we never declare that to be a pandemic, despite the fact that, you know, the flu spreads around the world, nor is it declared an epidemic, even though it certainly meets that definition in terms of its spread throughout Canada.

Now -- so the thing to understand -- and now, as I point out, as far as Omicron, it would be even lower, but that's because there's been some biological changes as well to the virus, right, that's made it less deadly. So if I was going at .15 percent, because that's dealing with the earlier variants where -- which were relevant when the pandemic was declared, just to clarify, it's not that we went from an infection fatality rate of 1 to 10 percent to .15 percent, right, because that would require some kind of biological change or effective intervention that's completely stopping those deaths. And, no, it's the initial estimate was, the initial concern was that it was that high.

So what happened is the mathematics became more accurate by the time this paper was published. That same math applied to the beginning of the pandemic. So, in other words, if we knew by early 2021, you know, what the accurate -- if we had those same accurate numbers at the beginning of the pandemic, the pandemic

would not have been declared; it would not have been a problem of pandemic proportions. As I've pointed out, the flu is -- equals this, a bad flu season.

So, in my opinion, and based on our own policy, health policies in Canada, this would not have qualified as a pandemic. It qualified as a pandemic because we thought the infection fatality rate was much higher than what it really has been and what it has proven to be.

And the point that I'd like to make as well is, because a lot of people have probably heard of this term with the emergency use authorization in Canada for the vaccines, in Canada, we called it the authorization for interim use, but it means the same thing.

And the reason why that's important is because that's something -- and this whole -- actually, this whole concept actually we have right now of overriding constitutional freedoms, and we're hearing about this all the time, what a lot of people don't realize is, you know, this imposition where the Government can start dictating things and overriding potential individual, you know, constitutional policy rights is often -- is based on the perception -- like the impact of something on Canada. Technically it has to incapacitate the ability for Canada to operate in a certain way.

So a classic example would be if we were at war. At war, that's where you can have overriding executive decisions, right, and if Canada is at risk of being destroyed, being overtaken, right, being taken over.

So at a 10 percent or even 1 percent, that would have a dramatic impact on Canada, you know, death rate; that would have a dramatic impact on Canada to be able to function as a country. But at 0.15 percent, we've never done -- like I said, we have that for the flu routinely.

So, again, I hope that helps put it in some perspective. So, again, based on the science, the publications, my, you know, summarized answer to you, Mr. Kitchen, is that, with the math corrected, this has not been an issue of pandemic proportions, true pandemic proportions.

MR. KITCHEN: Thank you. We'll leave it there for lunch.

Mr. [redacted] I'm fine if you want 45 minutes or an hour, an hour-and-15, I'm fine either way. As much as -- we'll definitely finish today. I think we're going to be a while yet, but we will finish today.

THE CHAIR: Okay. Let's take an hour; let's come back at 1:15. I think we all -- we went straight through from 10:00, so I think an hour is fine, and we'll see everybody at 1:15.

And do we need to caution the witness in any respect, Mr. [redacted]

MR. KITCHEN: You're muted.

MR. [redacted] I've got it now.

Other than --

THE CHAIR: Okay.

MR. [redacted] -- he's not supposed to discuss his evidence with his counsel or anyone else --

THE CHAIR: Yeah.

MR. [redacted] And I'm sure --

THE CHAIR: Thank you.

MR. [redacted] -- Mr. Kitchen has given that warning in advance.

THE CHAIR: Okay, we'll see everybody at 1:15. Thank you.

PROCEEDINGS ADJOURNED UNTIL 1:15 PM

Proceedings taken via Videoconference for The Alberta College and Association of Chiropractors, Edmonton, Alberta

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January 28, 2022 Afternoon Session

HEARING TRIBUNAL

[redacted] Tribunal Chair

[redacted] Internal Legal Counsel

Dr. [redacted] ACAC Registered Member

Dr. [redacted] ACAC Registered Member

[redacted] Public Member

[redacted] ACAC Hearings Director

ALBERTA COLLEGE AND ASSOCIATION OF CHIROPRACTORS

[redacted] ACAC Legal Counsel

FOR DR. CURTIS WALL

J.S.M. Kitchen Legal Counsel

[redacted] CSR(A) Official Court Reporter

(PROCEEDINGS RECOMMENCED AT 1:16 PM)

THE CHAIR: We will be back in session for the afternoon, and just before I ask Mr. Kitchen to continue, I just remind you, Dr. Bridle, that you are

still under oath.

A I understand, thank you.

THE CHAIR: Okay. All right, Mr. Kitchen.

DR. BYRAM BRIDLE, Previously sworn, Examined by Mr. Kitchen

MR. KITCHEN: Thank you. And, Chair, I'll try to be mindful of the time. If we get an hour or so into it, and we're still going, I'll try to find a good time for a break.

Q MR. KITCHEN: Dr. Bridle, thank you so much for all that information prior to the lunch break, but to continue where we left off, the question I had is we talked -- you talked about how isolation works, masking for asymptomatic doesn't work, and then we didn't get into any other restrictions yet, but I'm very curious, if isolation at home does work, and you said, intuitively, it does, can you give some insight as to why Omicron is still spreading the way it is unabated?

A Yeah, so, first of all, just to clarify, meaning isolating at home when symptomatic, right, when actually sick. I don't recommend that people have to stay away from others if they're not sick.

So, yeah, in terms of the Omicron, you know, so it's a multi-facetted answer, I guess. And so, first of all, I guess I'll start off with the, you know, the related topic of the vaccines, because that was

purported to be -- you know, we were hoping that was going to be the number one strategy for stopping the spread of this. And then the idea being, you know, the concept was that only those who were vaccinated would not be capable of transmitting the virus, and those who were unvaccinated would be capable of transmitting the virus, and, hence, you know, the isolation, kind of segregation that's been occurring in society.

But so one needs to understand a little bit about vaccines to understand that aspect because that's critical, because, again, like I said, that was supposed to be the number one strategy for stopping transmission.

So these COVID-19 vaccines -- so, again, I mean, I'd like to highlight and my record shows for itself, being a publication record, that I've been actively publishing in the area of vaccinology during the declared pandemic. I am a vaccinologist. So, again, you know, my expertise is in viral immunology, and specifically I focus heavily on vaccinology.

So I am actually strongly in support of the concept of vaccine mandates, but these COVID -- current COVID-19 injections look nothing like and they perform nothing like any historically mandated vaccines. And that helps to understand a large part of the question you're asking.

So what I mean by that is we're all probably familiar with the vaccines that are mandated during childhood, so the childhood -- what we call the childhood series of vaccines. So that's things like -- things like the mumps, measles, and Rubella vaccines, the ones we -- you know, we get for tetanus that get updated every 10 years and so on, chicken pox as of 2010.

And so all of these previously mandated vaccines have a quality that we refer to, as immunologists, as conferring sterilizing or near sterilizing immunity. And what that means is technically if somebody's vaccinated, they can still get infected because infected means you the get the pathogen in your body. But what sterilizing and non-sterilizing --

THE CHAIR: Dr. Bridle, Dr. Bridle --

A Yes.

THE CHAIR: -- you're frozen.

MR. KITCHEN: He's not frozen.

THE CHAIR: Yeah, he's back now.

A Okay, do I need to repeat anything?

THE CHAIR: Just the last sentence.

A Oh, okay, thanks. So previously mandated vaccines confer what we call sterilizing or near-sterilizing immunity. And so sterilizing immunity means like, in all cases, a pathogen can still get in your body. So a

respiratory pathogen like SARS-Coronavirus-2, obviously we can still inhale it. If we had sterilizing immunity, it would mean that we have the appropriate type and quantity of antibodies in our upper respiratory tract to be able to fully neutralize that virus, meaning the antibodies would bind to the virus.

And that's one of the reasons why we've been targeting the spike protein. The spike protein is the thing that sticks up on the surface of the virus that grabs onto the receptor on our cells, the same receptor I was telling you about earlier that children express at much lower concentrations, which is why they're inherently protected.

So if you have an antibody that binds to the spike protein, then that spike protein can't grab onto our cells. And if the virus can't get into our cells, there can be no replication whatsoever and, therefore, no risk of disease and no risk of transmission. That would be sterilizing immunity.

Near-sterilizing immunity means that the virus, probably there would be a lot of neutralization of the virus, but the virus might still be able to infect a limited number of cells that we would have sufficient additional immunological mechanisms to clear that virus from the infected cells, things like T cells, which are very good at this, and it would clear the virus again

before it would replicate to that -- to a quantity that would reach what I referred to previously as the threshold dose required to infect somebody else. So that would be what we call near-sterilizing immunity, meaning you can get some infection yourselves, limited replication, but you're not going to get sick because there hasn't been enough replication to cause illness, and you're not going to transmit, because, again, you haven't reached that threshold dose that needs to be delivered. So that's what all our historical mandated vaccines look like; they do this.

Oh, and the other thing they do is they -- they not only confer this type of immunity but for very long periods of time. So when you think about it, once we are done our childhood vaccination series, except for the, you know, update every 10 years for things like diphtheria and -- for example, the -- and tetanus, we never have to be vaccinated again, we don't have to get boosters. So we call that robust or long-lasting immunity. So that's the nature.

Now, we're all probably seeing -- you know, we're already, in Canada, rolling out -- well on our way to rolling out third doses. We've actually been implementing fourth doses in some long-term care facilities where there's been a complete inability to control the spread of the Omicron variant. Israel, you

know, of course, is large -- most of their population has got four doses.

So this highlights something, this is three to four doses in well under a year. So that -- so, clearly, they don't -- they don't have the duration of immunity; they don't provide the, you know -- a reasonable length of protection. That alone means these vaccines will never be able to stop the transmission of this virus, because there's no way we can get the whole world vaccinated and under three months, such that the people, you know, no longer -- we haven't reached the point where people have lost protection. Otherwise, if you get only -- if it's only through part of the population by three months, by the time you're vaccinating new people, the people who were vaccinated at the beginning are going to be susceptible again. So that's one of the problems.

The other problem is that -- I already explained this, that the immunity is -- just really protects the lower airways. And the Omicron variant, we're talking about a version of the virus now that preferentially stays in the upper airways, so there isn't that -- those aren't those neutralizing antibodies in the upper airways conferred by this vaccine that would confer that sterilizing protection.

So on that basis -- oh, and the other thing is

that there's been so many mutations in the spike protein of the Omicron variant that the immunity conferred by this, which is spike-protein specific, is largely irrelevant. A lot of those antibodies can't even physically bind to the spike protein anymore because it's changed too much.

So for all those reasons, that's one of the reasons why we're seeing the vaccine [sic] circulate freely, because it's largely then the unvaccinated that have been -- that have been -- or have continued to be asked to isolate and have been basically -- you know, segregated from society. So they are, you know, stay at home, not being able to go into the workplaces and so on.

So the fact -- and like I said, I've said this before as well, some of the -- for those in school settings or work locations, we're talking about people where almost everybody is vaccinated, but the virus -- like I said, despite that, we had this record peak for cases with the Omicron variant. So that's one of the reasons, because the vaccines, unfortunately, have failed to meet their goal.

If these conferred long-lasting sterilized or near-sterilizing immunity, I may have had to have retracted my earlier statement about this becoming endemic. We may actually have had a chance of

eradicating this virus. But, you know, because of these weaknesses in what an ideal vaccine should be -- I should even point out that even the very definition of a vaccine was altered about a year ago to accommodate these inoculations that we're providing, because, again, the definition of a vaccine was one that conferred sterilizing or near-sterilizing immunity. They were originally designed to not blunt the most severe forms of disease but actually prevent disease and prevent transmission to others. So that's why -- that's a primary reason why we're seeing this virus continue to circulate.

So now when you think about that, it's annoying that the vaccines are now largely irrelevant in terms of their ability to stop transmission; at the same time, we have kept -- we have remained -- keeping the vaccinated individuals from workplaces, we continue to require them to wear masks and do the physical distancing. So -- and, again, the fact that we've been doing this all along, but the waves of cases just keep getting progressively higher, although, like I said, the virus is progressively less -- that's the good news in all this. As that happens, the virus becomes -- has become less dangerous. So despite the spread, there is less potential harm to people. So I always want to remind people I don't want to be instilling unnecessary

fear.

But nevertheless ever increasing cases, and since the focus is on cases, that means that we've been trying to stop our cases. And, again, I won't say cases of COVID-19, that is what we ultimately want to prevent, but what we're actually measuring, again, are positive test results for potential infection with SARS-Coronavirus-2.

So what it tells us is that the masks and the physical distancing, despite the fact that we have not only maintained that all the way through but actually removed the vast majority of people from the population who are unvaccinated tells us that that combination of those critical three, which are supposed to be the three things to -- to end this pandemic, the vaccination, the masking, and the physical distancing, you know, that's real world evidence, you know, that we've all seen that really we can't -- argue doesn't exist, right, because we see it in our workplaces and schools. It clearly shows those aren't working. They can't be working while we're actually having, during this process of maintaining those three strategies, while removing most of those who are unvaccinated from those scenarios, when you actually see ever-increasing peaks in the, you know, recent waves, that clearly suggests that these are not working efficiently, right?

They're not -- they're certainly not efficient solutions to resolve the problem as we have it.

That's why many people are working right now on trying to develop vaccine strategies that ideally would be sterilizing or near-sterilizing because that would provide, potentially, an ideal way to prevent this. But then one even argues whether it's necessary if the virus isn't dangerous enough because -- this is something I teach my students -- one of the questions I get asked all the time, with all the vaccine technologies that we have, why don't we have a vaccine for the common cold. Well, the reason is simple, no medical intervention, no medical intervention comes with zero risk. So you always do a risk-benefit analysis.

And so the primary reason why we have never developed a vaccine against the cold that we try and implement is the cold in the vast majority of people again is not a major issue. And so if people aren't at substantial risk of harm from a pathogen, we're not going to introduce an unknown potential amount of harm from a novel medical intervention, and so that's why we'll never have vaccines for the common cold.

But, nevertheless, I just wanted to bring that up there, that that might be a viable strategy, if needed, if we were to get a future version of the -- you know,

future variant or strain of the virus that were to attain more dangerous characteristics again. But with the current tools that we have, we have seen the Omicron variant, the spread, the transmission go completely out of control. So, yeah, I'll end it there.

Q MR. KITCHEN: Well, thank you. But let's talk about prevaccine, let's talk about 2020. My understanding is, you know, the vaccine really didn't start to get up to -- until January of 2021, so about a year ago, you know, and the time that's really relevant, of course, for this case is, you know, from May 2020 till December 2020. That's when the chiropractors were allowed to work, that's when Dr. Wall was working, and that's when there was a mandatory mask requirement in place by the College.

So let's talk -- and as far as I can see, that's prevaccine. So let's talk back then. What's your take on why these measures, no vaccine, why measures like physical distancing and masking didn't work back then?

A Okay, so this leans heavily on what I already explained. So pathogens are a spread, there's risk of spreading it to somebody else when we're actively releasing large enough quantities from our body to meet the threshold dose needed to infect, bypass the initial physical barriers, and initiate disease -- or initiate,

sorry, what we would call a productive infection that would result in disease, because, again, disease is when there's the onset of signs and symptoms.

And so the reason why these largely haven't been -- weren't effective there, so outside of the scope of vaccines, is because we were keeping people out of the workplace who weren't sick. Again, I keep emphasizing that. If you're not around sick people, you tend not -- you're going to tend not to get sick.

And again -- so, again, these masks do a reasonable job at preventing the spread of illness when somebody's coughing and sneezing. That's what they're really designed to do, that's what the pore size is designed for in these masks.

And, otherwise, if -- so then the only argument that remains then for why these masks attempt to restrain the virus if somebody's not symptomatic would be, again, the concept that they have -- the assumption that they have a high enough dose of the virus in their respiratory tract but are not yet sick because of it and, therefore, exhaling large enough quantities, a threshold dose, through aerosols, right? That's the only physical way that a healthy person could, therefore, be spreading this, and as I've explained because of the pore size. And, more importantly, the pore -- really, the pore size is irrelevant if you

don't have a proper fitting mask, such as the vast majority is exiting the body unfiltered. You know, the virus isn't going to respect the masking, nor --

And then when it comes to the physical distancing, this is a complex process because some physical distancing theory can help if you can control, if you can control, because this is the thing, physical distancing was primarily implemented -- and, in fact, it's largely -- one can even argue what should be the appropriate distance. Many studies would suggest that an appropriate distance would only be 1 metre rather than 2. So it's a rather -- beyond 1 metre becomes rather arbitrary if you can -- if you pick a number beyond that.

But what people need to understand is that the reason this physical distancing was also selected was, in the context of sick people who were actively transmitting the virus by coughing and sneezing, it's this idea of large water droplets again. And the reason why 1 metre has always been recommended as the minimum distance to try and minimize your chance of getting infected -- so I would definitely recommend if somebody is around somebody who is coughing and sneezing, I would never recommend that you -- if you want to keep yourself healthy, I would recommend that you never go within 1 metre of their personal space,

and the further away you are, the less risk there is. And that's because people -- you know, when we cough and sneeze, the large droplets that we dispel land on the ground approximately a metre away from us, up to a metre away, so that's where that came from. But, again, that's for people who are symptomatic and meaning they're actively coughing and sneezing and projecting these large water droplets.

Otherwise, we're talking about aerosols. And when we're talking about aerosols, aerosols can travel very large distances, massive distances, in fact, depending on the environment. So, for example, there's very few indoor places anymore, like work environments, that have modern -- and even houses, you'll notice, most of the -- most modern buildings now have air circulating all the time, and so that creates currents, air currents, all the time in our homes. We're often unaware of these, but, you know, you know that you can get the test kits to look at smoke detectors or even smoke. If you ever put the smoke in a room, for example, in air vents and so on, you can often see that there are these air currents that are circulating. So we can't see that, so where these aerosols go is going to be dictated by the air currents that are around us.

So as an extreme example, and I've pointed this out to people, you know, kind of in a half-joking way,

only half-joking because it is actually serious, so, you know, I, from time to time, I've used -- you know, I use a bus. I've got a bus stop not far from my home, and again the best time -- the best time to see this, there's two ways to actually visualize this, one is observing smokers and the other one is observing people breathing but in the winter time, where you -- again, you can see the aerosols because of the condensation in the cold air.

And so one of the things that I always, always do, because I'm a nonsmoker myself, is if somebody's smoking, I always stand upwind from them, right? There is no defined distance at which smoke dissipates to -- and which it's safe, if there's a wind. If you can be 5 metres downwind of somebody at a bus stop, and you're going to be inhaling their smoke if the wind's taking it that way, because, yes, these aerosols dissipate, but if you have a wind that's moving quickly, you're going to be inhaling, you know, a reasonable amount of smoke, secondhand smoke. So many of us recognize that, and so if we don't want to inhale the smoke, we stay upwind, and that's what I'm talking about with these aerosols and air currents carrying this.

And so it's the same thing, if you have somebody that's, for example, let's say, unmasked and breathe out, if you -- if there's -- if the air is what we call

stale, is not moving, you're going to see a cloud that forms in front of their mouth, and it's going to dissipate as it moves out. In that case, the aerosol's probably going to dissipate, pretty low concentrations, right, per volume of air space at not too far a distance. But, again, if you're standing, you know, 3 metres downwind of the person and, you know there's a reasonable breeze, those vapours, you can see them coming right by, right by your face. And so you're actually inhaling, you know, reasonable concentrations of the air being expelled by that individual. So that's how, you know, is -- that's a good way to look at it.

And so it's the same thing, so -- and worse, this is the other thing, so I point out again that, in fact -- so you combine that, we're talking about aerosols with the masking, and the very frustrating thing there is -- again, I try to point out -- if I'm standing at a bus stop, and there's people sort of downwind of me, and I want -- and if I were to feel that I had to protect them from an aerosol, I would actually rather have to take my mask off so I'm projecting the aerosol ahead when then maybe it gets dissipated, you know, down in front of the crowd of people. By putting on the mask, I'm actually making sure that I'm blowing lots of unfiltered air out past

my ear and actually firing it basically in the direction of the people, right, or right beside me. So that's what I mean.

So this is the problem, this is the problem when it comes to the mask. We're not properly control -- and, in fact, it -- when you think about it, it's -- it's not logical, we don't think logically, because we think about -- we've all seen our breath in cold air, so we think if we're going to control our breath -- I'm going to use the example, bad breath. If you want to avoid somebody detecting bad breath, one of the things you do you don't breathe on them, right? So you find a way of making sure the breath goes some other way. Even if you're looking at them, some people will sort of breathe out the side of their mouth, change the shape so it kind of directs it away from the person. And this is inherently because we know that we can't alter the direction that it goes, but so we're always thinking of breath coming out from our mouths.

And so what the interesting thing is what people often do, out of reflex, is in order to -- when they have the masks on, in order to avoid having any of these aerosols hit them or their breath hit them, they tend to look away from them. And as I pointed out, because of the -- what the direction -- the air -- the air actually coming out, you know, by the ears, by

looking away from somebody, you actually redirect the unfiltered air in their direction.

So an example, in my workplace, we were actually told -- because it turns out that our hallways are less than 2 metres, so we were actually -- what we were actually asked to do was if we passed one another in the hallways, we'd go belly to belly or chest against the wall, like kind of inch our past one another with our backs turned. And all time we're do -- all I -- you know, all I'm doing by doing that is, you know, at least if I have the mask on and I'm looking at the person, I'm directing the air away from them. As soon as I turn my back on them, again, I'm directing air toward -- in their general direction.

So this is the problem, and this is why we've had trouble with the masking and controlling the spread of aerosols, and why distancing, why distancing is quite arbitrary in the context of aerosols. So, again, there have -- there was a published scientific study in a peer-reviewed journal that clearly showed with these aerosols, they can travel -- they can travel, again with the air currents, up to 30 metres, you know, if they're carried on an air current that's swift enough and going in a certain direction rather than swirling air.

So it's all dependent on air currents, it's

dependent on the direction that the unfiltered air is going. So we're talking about -- again, again, I would say -- you know, I saw Dr. [redacted] report, I agree 100 percent with him on the efficacy of masking with symptomatic individuals, you know. But we're talking about -- but, again, what you asked is people who are going into the workplace who are asymptomatic, masking to prevent the spread of aerosols and control the direction in which they're going is not -- does not do the job, not in the context of aerosols. So that's why this virus has been spreading.

And I'd like to point out again, if you -- if we -- if that is true, if the masks -- if the virus, it could potentially spread on aerosols, and there's some -- lots of studies have suggested that maybe it can and -- but masks were doing their job, then we would expect that people would have been protected. But like I said, the actual -- in the study that was published looking at immunity in healthy individuals, people who never had any evidence that they were infected or knew they were infected with the SARS-Coronavirus-2, showed many healthy adults acquiring immunity for the virus, and so that's been occurring despite the masking.

Q Well, I need to ask you a couple questions about asymptomatic transmission, because -- and symptomatic

transmission for that matter. Let me ask you this: Of all the transmission of SARS-Coronavirus-2 or SARS-Coronavirus-2, roughly how much comes from asymptomatic people and roughly how much comes from symptomatic people?

A So the subtotal of scientific literature would suggest very little comes from asymptomatic individuals. It is not zero. There is some asymptomatic transmission that can occur.

One of the studies that often gets highlighted was a -- again, it was a peer-reviewed scientific paper published in an high-impact journal. It was actually studied in a huge population in China, about 10 million people, and the conclusion from that study was among a sample size of 10 million people. They found no substantial evidence of asymptomatic transmission.

And, again, it's not surprising, because, again, for all the reasons I already explained, so I won't go into them again in any detail, but just very quickly, you have to have the virus in your lungs at a sufficient quantity to be -- such that your body is releasing enough to exceed that threshold dose needed to cause illness in somebody else, and that almost always requires active expelling of the virus from the body through coughing and sneezing, but not always.

There is the theoretical scenario where you could

have somebody who's still not actively coughing and sneezing, so they don't know that they're sick, it might be a little bit threshold dose. When it comes to biology, anything is possible. I'll never say anything is impossible. So it is certainly theoretically possible, and, in fact, I would argue it is a real -- real thing, but it would be high -- it's highly improbable, meaning a rare event.

And there has been like a lot of agreement, generally speaking, including among major public health bodies, like the World Health Organization, there's many organizations that, after a while into the pandemic, we're starting to recommend just end the testing, testing for evidence of SARS-Coronavirus-2 and asymptomatic people for this very reason, because, you know, again, we recognize you're testing healthy people.

And what was being recognized though -- so although there's very few cases, documented cases of clear-cut transmission from asymptomatic people of infectious viruses that may be at a dose that can cause disease, it's definitely not a substantial driver of this pandemic in any way, shape, or form.

So even, I'd like to point out -- so I notice that -- you know, like Dr. [redacted] cited some peer-reviewed scientific articles, and that's great, because, again,

that's the, you know, best type of evidence for this, but even there, the important thing is looking at what was actually measured.

So when you actually look, when they were measuring some of the -- in some of those masking studies, it was -- they were looking at, again, doing genetic testing essentially, like PCR testing, to look for evidence of the genetic material from the virus, and so this -- you have to be very careful again because -- okay, so this requires a little bit of background in terms of measuring, measuring, how you measure whether a virus is being filtered.

So with this PCR test that we've all probably heard about, it's called polymerase chain reaction. What it is is this concept that we can use little pieces of genetic material that recognize sections of the genetic material from the virus, and so if the genetic material from the virus is present in a sample.

So, for example, if you put a mask on an individual like -- and you ask them to breathe, and you capture those samples, you can run this test to look for evidence, you can ask is there any evidence of the virus based on genetic material being present. And when you do that, this test can detect small segments of the genetic material from the virus, and then it -- this gets amplified, you run it for a number of cycles.

And if genetic material is present, you keep amplifying it with each cycle, somewhat exponentially, until you get enough of it, you can literally visualize it in a test. So you can ultimately amplify it to such an amount that you can visualize the genetic material, and then you say, okay, so that genetic material seems to have been present.

The problem with this is and the problem we've -- you know, I don't -- I can't comment on why this has happened, because it's -- it's against all historical standards, but we have relied on just the PCR test in Canada for some reason, and we have arbitrarily picked, in most cases, cycle cut-offs.

Because what happens, when you go to very high cycles, your amplify -- you can -- what can end up happening is you can end up amplifying background, you get background signals we call it. And so you think you see a causative result, but it's actually just background. And we've been calling, running these tests and calling -- so, for example, in Ontario, up to 38 cycles, if you can then detect a signal from this test, we're calling that a positive test result for SARS-Coronavirus-2.

But this is how it's supposed to work: We do actually -- PCR is not a gold-standard test for detecting it. Like it's a fabulous technology, but

like anything, all technology, it has limitations. It is able -- what it's not able to do is detect -- it's not able -- it's only going to tell you if a portion of the genetic material -- material is present. It can't tell you if there are replication-competent, intact virus particles, in other words, virus particles that have the potential to infect somebody.

But we do have a gold-standard test for that, a virology assay. Remarkably, we abandoned this early on in Canada. And specifically what's supposed to happen is in order to validate your test, in order -- in other words, in order to say, okay, my test, the results that I'm showing in this test are proving -- or are suggestive, highly suggestive that what I'm detecting is infect -- or are virus particles with the potential to infect somebody else. What you do is you take your sample, and you split it into two, and with one, you run your PCR test, and you determine at what cycle number you get a positive result.

And in the other one, you do -- that uses gold-standard virology test, which is actually a functional test. What you do is apply the sample to cells. You let these cells grow, you grow them on plates, and we grow them for what's called confluence, which means the entire bottom of the plate is covered with these cells; you can't see the plate at the bottom

of the plate anymore.

And then what you do is you add your sample. These are a special type of cell, we call them permissive cell lines, and what they are are they are cells that are stripped of all their anti-viral properties, they're not able to protect themselves from viruses, so that if there is a virus in your sample, it can very efficiently infect these cells, and it will start replicating and spreading, and it will kill the cells. We call this cytopathic effect.

So what you do is you look at your cells under a microscope, and you make sure, before you add your sample, that the entire bottom of the plate is covered with the cells, then you add your sample. If there's any replication-competent virus there, which also means, therefore, that it would have the potential to infect and cause disease in somebody else, when you look under the microscope later, you will see those cells removed from the -- those cells have been killed off, and now you'll be able to see the bottom of the plate. And what you do is you find the cycle number at which your samples no longer cause any damage to that cell layer, and then that is how you prove, objectively, the cutoff for your PCR.

And what's interesting is we actually did this -- I did. Our micro -- National Microbiology Laboratory,

which is part of the Public Health Agency of Canada. It's located -- it's one of our -- it's a Containment Level 3 and 4 facility in Winnipeg, Manitoba, they did this at the beginning of the pandemic, and -- which was the appropriate thing to do, and remarkably -- and this is published, this is a peer-reviewed published paper that they issued early on in the pandemic. And what's remarkable there is they set the cut-off at 24 cycles. Now, that doesn't mean anybody running a PCR test has to have their cut-off at 24 cycles. The -- the actual cycle cut-off, any person running this test should, first, establish what the cut-off is for themself, with their particular protocol, their set of reagents, and their particular technical expertise.

So the cycle number should act -- for the cut-off should change from laboratory to laboratory, but everybody should be able to show you that gold-standard virology assay and the results from it to provide the rationale as to why they picked that particular cut-off.

But nevertheless, it -- because it's not going to stray too far from that. And so my point is the National Microbiology Laboratory showed that the proper cut-off in their hands of the PCR assay was at 24 cycles. In other words, this paper, if you go and you read it, our own public health scientists that

published this, what they found is that if the PCR test came up positive at cycle numbers higher than 24, those samples, they were unable to infect the cells in that gold-standard virology assay with those samples. Meaning, there was no evidence of replication-competent or -- virus particles that had the potential to infect anybody else.

So if they were running the diagnostic tests, for example, to the PCR, therefore, they would set the cutoff at 24. They would say anybody with a positive test result up to 24 -- and they wouldn't have to run this assay again, you don't have to do it every time, and it makes no sense to do so -- they would then, with high confidence, be able to say anybody who tests positive up to a cycle number of 24 almost certainly has infection of -- replication-competent viruses in their body with the potential to infect others. But the reverse of that conclusion is anybody with the test result that is cycle number above 24, they would have to conclude that those people are not able to infect anybody else.

And so this is the problem, because a lot of the publications that relied on this genetic test, and, therefore, there is, without the gold-standard test being run in parallel, there's no way to tell whether their positive results were false positives, or even --

the thing I like to point out, there are genuine positive tests but that do not -- but -- in which those individuals, so they're genuinely detecting, they're truly detecting genetic material from the virus, but those people actually aren't infectious, and that's actually people who have mounted immune responses.

This is very important to understand, because what happens is one of the things our immune system does -- I didn't go into the details, but some of you may recall when I was explaining kind of line of defences, I mentioned that once the virus penetrates the physical barriers and starts affecting cells, we have these sentinel cells which will detect infection and trigger these subsequent immune responses.

Well, these sentinel cells, one -- and a couple other cell types, what they're designed to do very on [sic], in order to detect these viruses is they gobble them up, they actually consume them. We call this phagocytosis, right? So they actually basically eat, consume the virus, and then what they do is they take the virus, and they break it into pieces, and then they take these pieces, and they actually take it to the draining lymph node, and they show it to our B and T cells, to say, Look, here's a dangerous pathogen that you need to go and try and clear from the body.

And then we get our B cells and T cells activated.

The B cells are the ones that then produce the antibodies. And you know that this process is happening when your lymph node swells, because if those B and T cells are being activated, they start proliferating in large numbers, so we have an army, an army that's designed to go and recognize the pathogen.

So that's why if you're sick, like you have a throat infection, you can often palpate the lymph nodes, right, just behind your jaw, or your physician does that. That's what they're looking for for confirmation, because your lymph node is swelling; that means you're actively mounting an immune response against the pathogen, and it's clear evidence that you're infected.

But, so, this is what you have to understand, this is the key, to get to that process, we have to have cells that gobble up the virus and carry it to the lymph node and show pieces of it. These cells will hold on to that so that virus is no longer replication-competent. It's inside the phagocytic cells and -- but it -- they will hold onto this for up to weeks, even sometimes months, and that is to make sure that there is always a supply of the target that the immune system needs to respond to to protect the body.

So it can take -- usually it doesn't take months,

but certainly, for sure, at least two to three weeks, they'll be holding onto this material in case -- and that's the case, the immune system has to keep responding, in case they have to keep getting more effectors recruited, depending on how virulent the virus is.

And so in many cases, that -- then what you get is you get a true positive test result with the PCR. There's actually, you know, viral particles present -- or partial viral particles, at least pieces of the general genetic material present in the body, but as you can imagine, that's not ever going to infect anybody, right? It's inside the cells of our immune system that use that to educate the rest of our immune system.

So this is why it's important to understand how this works. Yeah, so I'll leave it at that.

Q Thank you. All right, so I need to go back to -- you established that SARS-CoV-2 spreads by aerosols; we've established that the masks don't stop aerosols; we've established that they do tend to stop the bigger droplets, we've established that asymptomatic spread is rare. And that leaves the question then, forgive me, but if I'm listening logically to what you're saying, then, when symptomatic people wear a mask, they'll end up spreading SARS-CoV-2 through aerosols; is that

correct?

A Yes. Again, there's evidence this virus can spread through aerosols. So one thing, just to clarify what you said just a moment ago, the -- so, yes, there's evidence that the virus spreads by aerosols, but I also want to make it clear, the virus is going to spread very efficiently through the large water droplets with the coughing and sneezing as well, as well as contact media transmissions.

So I notice in Dr. [redacted] report, you know, he had mentioned that as well -- he had mentioned all three -- all three occur. He placed more emphasis on the large water droplets and the contact transmission, so I don't disagree. I just want to make that clear. But again, those are symptomatic individuals; we're talking about large water droplets and contact transmission, those are people who are actively -- you know, actively releasing large amounts of the virus.

And so with a contact transmission, actually I have additional concern there, because I agree that contact media transmission is an issue, and that's where I'm concerned when we -- when we're old -- when we're making people use these masks only in the context of aerosol media transmission, because, again, those who are actively sick are isolated, what we're doing with these masks, because of the contact -- or

potential contact is where we -- people are constantly handling their masks, right? So if there is any spread of virus, we're actually bringing their hands to their mask.

I have been -- I am unable -- I wear a mask on a regular basis, clearly for some of the, you know, surgical work that I do as part of my research program.

I -- when I'm doing the surgical stuff, I do tend to be very careful, you know, very mindful of that. And even there, it's very difficult not to touch a mask, but you're taught, you know, when you're doing surgical work not to touch it. But, otherwise, unless you're doing surgery, I'm not able to -- especially if I'm -- unless I'm focused on it all the time, I'm not able to avoid touching my mask. In fact, the average person cannot talk for any substantial period of time and not have to touch their mask because it causes bunching of the mask, you know, and it pulls off the chin or it pulls off the nose. So there's very few people who get through an eight-hour workday without handling their masks over and over and over and over again.

And worse, many people, unlike a surgery, where you would then discard your mask, and then if you have another surgery, you would put on a fresh one, there's a lot of people who keep reusing their masks over and

over. So that potentially enhances the contact media transmission. So I just want to be clear on that, that it's not just the aerosol, it's contact media transmission and large droplets. And wearing a mask for the large droplets can handle that, but you don't want to be handling the mask or else you're promoting the contact via transmission. But, again, I highlight that's symptomatic people, and we're screening those individuals out, so they're not supposed to be in the workplace, so that leaves, therefore, just the aerosol media transmission.

And so, yes, I agree with you that in the context of the aerosol transmission, an asymptomatic person leaving their home and then donning their mask to try and prevent the aerosol media transmission for all the reasons that I just cited prior to this is not going to be effective at preventing transmission by that route.

Q The question that I'm left with and I think many people are if they have the masking in place, and we have the screening in place, and yet what we've seen in the last year-and-a-half that we've had masks, because we didn't have it the first few months of the declared pandemic, the last year-and-a-half that we've had masks, we've just seen the spread increase and increase and increase and increase. And yet, what you're telling me is that it is effective with symptomatic people because it --

somewhat because it stops their droplets and spittle.

And I'm left with that question, right, of if masks are somewhat effective with symptomatic people, and symptomatic people are supposed to be removed, and it seems like they sometimes are, and yet we still have all this increase in spread, all right, so people -- nonscientific people like me are left scratching their head.

A Would you like me to address that point?

Q Yes.

A Yeah, so it's for the reason that we've been talking about is the aerosol media transmission.

Q Okay.

A So I've cited in my report, there's a large number in there. I mean, that's exactly what was looked at. So, again, just to make this clear, there's a big difference between SARS-Coronavirus-2 and the viruses that we're familiar with. This is why I took some time to investigate it.

So what seems to relatively unique about the SARS-Coronavirus-2 is this aerosol media transmission. That's something else they should clarify. Previous viruses historically -- because -- so this is again why, initially, the masking seemed to make sense, but only in the context of symptomatic individuals is because we assumed that the primary mode of spread was

the coughing and sneezing and contact media transmission. So that is pretty much what most of the previous viruses and our other viruses that we're used to causing respiratory infections, they usually fall into that category.

For the flu virus, for example, that is the primary way by which it is spread. It's not recognized. In fact, it's well recognized that the influenza viruses don't spread very efficiently via aerosols. So that's what's unique to this virus.

So, again, like all our historical studies and the masking studies, again, this is a strategy that is designed to stop those kind of respiratory pathogens, and that type of transmission, but not aerosol transmission, and so that's why we've been seeing this. And that's why I say when you take sick people away from other people, that's the most effective way, but the problem is with the aerosol transmission, people are still able to go out there, right, and transmit this virus.

And the issue here is with the -- yeah, the masking in particular. So this is something that I hadn't highlighted, which I think is important, because what it comes down to then is what would a protective mask look like or what would really protective masking look like in the context of aerosol media transmission.

So as a researcher, this is something that they deal with all the time. My entire laboratory is rated as a Containment Level 2 laboratory, so all of my entire research space. So this is because we work with what's called Containment Level 2 biosafety hazards. So -- and there's a certain amount of protection that -- that we implement to protect us. So these are not particularly -- these are not dangerous; these are not dangerous pathogens; these are not disease-causing agents, or, at most, if somebody were to get a large dose of them, it would cause mild disease at the most.

But so -- but what we have to do all the time when we are -- design a research program, I -- we're constantly policed in the sense that I have to get a biohazard permit in order to conduct my research. So I have to describe how I'm conducting my research and what protections are in place to make sure that people aren't put at unnecessary risk from the Containment Level 2 to agents that we work with.

The SARS-Coronavirus-2 -- and so I'm very familiar, therefore, with biosafety strategies, right, and personal protective equipment that one would use in these scenarios. And like I said, I've done collaborative research on the SARS-Coronavirus-2.

For the one publication that we published recently dealing with the novel vaccine, that involved a

challenge study with the SARS-Coronavirus-2, where animals were vaccinated and then challenged with the virus. So that work is done, and it can take -- what we call Containment Level 3. So SARS-Coronavirus-2 is considered a Containment Level 3 pathogen.

Now, this is interesting because this then says -- so we have -- the Public Health Agency of Canada has told us what the appropriate protection is against a Containment Level 3 pathogen, and I have that in my report. So, in fact -- not people to look at it, but if you want to take a note and look at it later, I would refer everybody to Figure 7 on page 13 of my report, because what I've done there -- what I've shown is a picture of a stereotypical personal protective gear that one would wear to protect themself against infection with a Containment Level 3 pathogen.

And so what I can tell you is -- I mean, it would be laughable if I ever put on a surgical mask or a cloth mask and then asked to go in and challenge our animals with a SARS-Coronavirus-2 wearing that. I mean, I would get myself in serious trouble. I'd probably have my biohazard permit revoked for showing such lack of understanding of personal protective equipment, because I'd be putting myself at incredible risk of being infected with the SARS-Coronavirus-2, because a lot of the procedures that we're doing create

aerosols. So if you're pipetting, which is a -- it's a scientific tool for allowing us to deliver precise quantities of fluid; that's known to create aerosols.

So a lot the work and manipulation we do -- and we're working with high doses of viruses as well, remember, in those kind of settings with lots of potential for aerosol production, so I'm very familiar with what it takes to protect one from a pathogen that's been aerosolized.

And if you can refer to this picture, the first thing you'll notice is the individual has the pathogen in a tube, a closed tube, and these tubes will only be opened inside this special unit that their arms are inserted into. It's called a biological safety cabinet. And if you can see the picture, you'll notice that just in front of the individual's elbows, there's a grate. There's a solid stainless steel surface inside the hood, and what's in the front of it is a grate.

And what happens is this has special air flow, and what happens is air actually blasts up from this grate and then up into the cabinet and then goes through a HEPA filter -- actually a number of HEPA filters. HEPA -- so unlike the masking material in the low-cost masks like the surgical masks and the cloth masks, which have very large pore sizes, HEPA filters have

extremely small pore sizes that are designed to filter out most pathogens. And so what that air, therefore, is -- so what it does is creates a wall of air in front of you that is basic -- essentially sterile air. So you actually run these things for 20 minutes, so if there's any contaminants in it, after 20 minutes, the air that's running is essentially sterile. So then when you put your arm -- you put your arms in slowly, because you don't want to disrupt the air flow too much. By doing so, you're literally going through an air barrier, so no aerosols can come out of that cabinet.

But in case any does, however, say for example, that individual were to make a mistake and insert the arm too quickly to disrupt that air flow excessively and allow a little bit, potentially, of aerosol to come out, that's why they have the rest of the personal protective equipment, the gloves and the gown, is to minimize the potential for contact media transmission. You don't want spills on your personal clothing, right, such that, you know, if you go home, you know, you might be touching your clothing, then touching other things, so that's to protect against that contact media transmission.

But you'll notice they don't -- they aren't wearing a cloth mask or a surgical mask; they're

wearing a mask -- and as you can see, very different -- this is actually a requirement interestingly. I would not be able to go into this facility with the mask that's in this picture. And so if you notice what the difference is between the individual wearing that mask and me, I've got a beard. And so this is very important to note. So if you look at their mask, you'll see it has elasticized material such that it provides a tight seal along the skin everywhere. And then around the hair, you'll see a headband. And then what you see is you see a tube coming out from the back of the -- the headpiece, and what it goes to is a little unit that mounts on the belt at the back of this individual, and this actually actively filters air.

So what that -- what that has is has a fan in it, and it has HEPA filters, and so it's actually drawing in air from the environment, from the room this individual is in, passing it through HEPA filters and then into that hood and specifically the face mask area so that what they're breathing is HEPA filtered air.

And like I said, so this individual -- so often, people working in these facilities are required to shave so that their mask can actually make proper contact, right? Because right now, I'm allowed to wear a cloth mask right now, and I'm not -- and I like to have a beard, and it's winter time, and I'm not

required, but I'll tell you the -- and because I know of the futility of masking in the context of aerosols, but the reality is, you know, if I were to wear a mask right now, I mentioned about how air would escape past the ears and the nose, well, also around my beard because the beard is holding the mask away from my skin, and I can guarantee that my beard has far larger pore sizes in it than the masking material.

So I just want to point that out, because that's our own government agency that's designed for telling us how we safely interact with Containment Level 3 pathogens, of which SARS-Coronavirus-2 is, that is how one would protect themself from aerosolized mediated transmission of a Containment Level 3 pathogen, and as I'm sure you can appreciate, it's not a cloth or a surgical mask.

Again, I can't emphasize enough that if I were to try to enter this facility and conduct this type of research with that, I would almost certainly have my biohazard permit rescinded and my ability to conduct that type of research removed, at least temporarily, until I underwent training to demonstrate that I understand how to truly protect myself from a Containment Level 3 pathogen.

And this isn't just for the individual of course. The key thing, in any of this strategy should be both

protecting the individual and also the people around them. You don't want a researcher coming out of a Containment Level 3 facility potentially spreading Containment Level 3 pathogens to the public.

Q Is there any logical or scientific reason to think that masks are more effective at preventing transmission of the virus by asymptomatic people in one place than another?

A No, no. They're physically -- they're operating based on the same physical principles. Now, I have seen the argument made that maybe the environment can potentially put an individual at greater risk. So, for example, in the health care environment, again, masking -- the physical protection conferred by a mask doesn't change based on the environment that they're in, but the potential risk of exposure does.

So a health care worker working with actively infected individuals certainly might be at increased risk of potentially being exposed. All the more reason why I would argue that they actually need proper protective equipment, so beyond the cloth mask, like something that would actually be designed to filter out this, and those are things that could not be worn for long durations of time. That would, for example, be like a rubber mask that could be fit-tested, again, to seal on the face; you wouldn't be allowed the beard,

and would have -- potentially the filters mounted to it. But you'll find that those devices, very difficult to breath with those devices for long periods of time. But that's the type of thing that might be appropriate in those settings. So, no, this type of masking isn't going to help in different settings.

But what I want to point out is -- so one of the things I noticed actually in Dr. [redacted] report is that he brought this up in terms of health care workers. I mean, I'm no expert with chiropractors, but I agree with him that a health care worker working -- and he used the example of people who are -- were known to be actively infected and potentially infectious with diagnosed COVID-19. Where, I guess, I differ on this -- and, again, I'm not an expert in the world of practicing as a chiropractor, so I could be corrected -- but my understanding is that the average chiropractor is not being expected to work with a symptomatic COVID patient, diagnosed with COVID-19, so I would -- especially in that case, I wouldn't have a concern.

If -- so if a health care worker is working with -- is asymptomatic, and the patient they're working with is asymptomatic, having a mask just doesn't seem to make logical sense to me. A mask that is designed to effectively prevent transmission because

of lack of sickness doesn't make sense to me.

Q Forgive me, you've answered so many of my questions, I have to do a bit of a review here.

Okay, so I'm going to ask a couple questions here about aerosols and droplets, and then I think maybe we can leave that behind, because there seems to be contention on this. Would you say that the balance of the available academic literature supports aerosol transmission?

A So this is interesting, the -- it's debatable. This aspect is debatable about the aerosol-mediated transmission. Certainly without the act of coughing and sneezing, it would be difficult to get a, again, a threshold dose needed to infect somebody out with the aerosols, and there was -- earlier on, in order to explain this spread and the spread despite masking, that that's where a lot of the publications were geared towards were showing this aerosol-mediated transmission, that's been questioned now as well. So it's actually a little bit difficult to say definitively, based on the scientific literature, it's an active area of debate I would say.

And like I said, especially because, as we now have two years of experience and despite this strategy having been implemented throughout the duration, right from the beginning, but the ongoing spread of

increasingly --
(AUDIO/VIDEO FEED LOST)
MS. [redacted] Sorry, I don't mean to interrupt, but Dr. [redacted] has dropped off the call, so if we could just pause until I get her back, please --
A Yes.
MS. [redacted] -- that would be great.
Q MR. KITCHEN: Thanks, Dr. Bridle.
Dr. Bridle, I welcome you to continue.
A Okay.
Q But I just want to make sure I have this right, are there three potential or likely areas of methods of transmission: Droplet, aerosol, and contact; is that accurate?
A Yes.
Q Okay.
A Now, I guess, yeah, in the context of SARS-CoV-2. If we're talking about pathogens in general --
Q Right.
A -- (INDISCERNIBLE) like sexually transmitted diseases, but, yes, certainly SARS-CoV-2, for example --
Q Yes.
A -- those would be the three primary potential modes of transmission.
Q Okay, well, let me ask you this, and, again, you can continue going on about aerosols and droplets and all

that, but I -- what, if any effect on contact transmission do masks have?

A Potentially increasing it for the very reason that I said. I have -- I mean, I'm not going to excuse any individual, because there might be individuals who, miraculously, are able to wear a mask for very long periods of time and never touch it. I'm not going to say that's an impossibility, but I have watched [redacted] of people throughout this pandemic, you know, because it's an area of interest of mine, because everybody's been instructed to not touch their masks because of the acknowledgment that there's contact-mediated transmission. I know it's in Dr. [redacted] report that he -- you know, he mentioned that as a key potential way to transmit.

And I have yet -- I have yet to observe any individual who has not touched their mask multiple times within certainly let's say within an hour. I have not once seen anybody not touch their mask multiple times during a one-hour span. And, again, it's just natural with these masks. There are masks that are designed to stay in place. Again, if you refer to Figure 7 that I have in my report, that type of mask will stay in place; it's got very firm headbands, and it's designed to, you know, to seal. It's got -- you'll notice that the material, if you'll

notice the material, it's elasticized, and it's flexible. So, for example, this individual would be able to talk, you can envision his jaw moving up and down, and all the material that's attached to the plastic face shield, it is flexible -- or not flexible but loose enough that it allows that movement.

And see the differences with the mask, if I'm talking to you -- if I put on a mask right now, as I'm talking to you, within -- I don't exact time, but probably within 30 seconds, the mask, again, will have migrated off my nose or off my chin, and I'll have to do an adjustment. So unless you're sitting with these masks, never use -- never chewing, like not chewing on gum, not talking, it's going to be very difficult. And even at that, you know, people get itchy noses and so on. And depending on how they take their masks on or off, there's actually -- I mean, there's proper training procedures even for putting masks on and off.

Especially for surgery, right, you want to keep everything sterile, you want to keep your gloves sterile, you want to keep any masks that you put on sterile, right? So the proper thing would be just to handle the mask by the straps that go over the earpiece, right, and nothing else. But people, all the time, are grabbing their mask, you know, or taking their mask and grabbing it, you know, and stick in

their pockets or whatever. This is not the way these masks were designed to work.

Again, originally, remember, these masks came out of the concept of surgery and trying to make -- keep surgical fields as clean as possible. And if you watch how a surgeon dons and doffs their surgical equipment, including their mask, it's very different from what the average individual is right now, because we haven't trained, we haven't trained the general public in that kind of, you know, what we'll call sterile technique.

So, no, wearing a mask in an inappropriate environment can potentially cause more harm. Again, I'm not concerned. I'm not concerned about that contact media transmission if the person isn't symptomatic.

Q Right, so but, you know, I've heard you say, obviously, the masks don't work for asymptomatic, but I've heard you say they kind of work for symptomatic because they'll stop the droplets, but, in your opinion, do masks -- are they a net contributor to spread or a net inhibitor of spread when you balance out the contribution to contact spread with the reduction of droplet spread?

A Okay, so I would think that the net would be potentially enhancing for the -- again, for -- again -- and if it's an asymptomatic individual. And the reason

is if there is any --

Q Hold on, asymptomatic or symptomatic?

A The -- well, in both cases, right, they're going to do something for the -- well, again, if somebody's not sick, then I'm just not worried in general. If somebody is shedding the virus, if that's the scenario where somebody is shedding a virus, I think it's going to have a net negative result. And that's because, again, it's not designed to filter out the aerosols.

What happens when people put a mask on, there's well-established behavioural changes that occur, right? When we feel -- when we feel more protected, we tend to behave -- it's human nature to tend to behave in riskier ways.

So it's interesting, this is interesting: I play hockey, for example, I'm an ice hockey goaltender. Now, so one of the things is if you want to -- if you want a contact game -- or, sorry, a contact-free game of hockey, one of the general rules of thumb is you don't have people put on -- you put -- you have them put on the minimal amount of safety equipment. And what will often happen is because, following -- what often presents a very danger to the elbows is the elbow pads, but a lot of people will not wear the shoulder pads, because that's not a particularly risky area. And one of the reasons is is because it's

well-established behaviour, if you load yourself up with armour, you tend to be more risky in your behaviour, potentially more aggressive in a sport like that. And it's not different than everything.

And so what happens is when people -- when -- this is the problem, see if people mask, and they understand the limitations, they understand what they're designed for, where their strengths are and where their weaknesses are, you're fine. But the general messaging that people have received is that these masks are fabulous at preventing the spread of this. And so when you have that program in your mind, As long as I have my mask on, I'm not a risk now to anybody else, and they're not a risk to me; what you inevitably see is, on average, masked people will tend to interact closer than people who are unmasked, and that's just the reality.

And so if there is aerosol mediated transmission, if you're, on average, interacting in closer vicinity with somebody, there's the potential for greater aerosol mediated transmission than if you're not masked, you don't feel that, you know, (INDISCERNIBLE) extra protection.

And so that's what I argue, as a scientist, I mean, when I wear it, I know that it is -- you know, so I wear them because I have to when I go to the grocery

store and everything, but I recognize that they're not properly protecting against aerosol mediated transmission. And so if there can be aerosol mediated transmission, of which is active debate in the field, you know, I recognize -- I'll stay in my -- you know, far away from individuals. So that's one -- that's one potential harm.

So, yes, the net effect on average is the average person who is masked won't maintain as much distance, and so if they are transmitting, that could potentially be an issue. And then the other is that the contact that I just mentioned with the mask.

So, again, I simply -- I just am not concerned about asymptomatic or healthy people, period. But -- so -- but if anything, the net result of masking -- that's what I'm saying is especially if you're symptomatic, that's where the mask can stop the droplet -- the droplets, but there especially, you have to be very careful. Again, you know, if you're going to the workplace in, like I said, that I have, I have multiple masks that I change regularly, and, again, I'm mindful because I've been trained in this concept of, you know, sterile technique in the microbiological world and thinking from that perspective; because especially if you're symptomatic, you are spewing droplets into that mask, and it's getting soaked, and

it will soak through. This is material that's absorbant. You can think, especially with a cloth mask, it'll soak right through. And you can see that -- the wet stains. And so if you're grabbing that mask, you're going to dramatically enhance contact mediated transmission and -- and you have to be, again, mindful that when you have that mask on, although it's effective with the large water droplets, you don't want to go closer to people than necessary.

So, yes, you have to be very careful with masks: You have to recognize the strengths, their limitation, and you have to maintain other strategies that are independent from the mask. And by that, I mean, again, recognizing the inherent weaknesses of the masks and so, you know, not grabbing them, you know, not touching them and then, you know, touching others and that type of thing.

Q So in your opinion, is this part of the reason why, after a year-and-a-half of masking, the cases and the infections just keep going up?

A Yes, yeah. It's ineffective in the context of controlling the spread of SAR-Coronavirus-2. Again, I can't emphasize that enough. I use my own workplace as an example. We've prided ourselves on the fact that well over 99 percent are vaccinated, and I can tell you that the messaging both from the president of my

university and the Medical Officer of Health, who has presented in multiple town halls, have told us, although, again, it's -- this is -- it's often difficult to comment as a scientist, because there's the publicly acknowledged message, and then there's my message as a scientist, but --

So their message has been that the vaccines are excellent at protecting people, break-through infections are very rare, and it either prevents transmission or reduces that -- the number of viral particles that get transmitted, so excellent at overall trying to prevent transmission. So that's my campus community, more than 99 percent fall into that category.

And -- but everybody is still doing the exact same masking and the physical distancing, and yet SARS-Coronavirus-2 has ripped through our community. We recently had two -- two of our residences with outbreaks, declared outbreaks of -- so, you know -- and, again, I always find it difficult. So the public messaging was those are outbreaks of COVID-19. What they really were outbreaks of people identify -- who had positive test results for SARS-Coronavirus-2. I can tell you the majority of the students, you know, we had no deaths. The vast majority of the students had mild cold-like symptoms for a couple of days.

I can also give you the example at my son's high school, the same Medical Officer of Health recently declared an outbreak at his school. One of the cases was confirmed, where sequencing was done, to confirm that it was Omicron. And so the whole school was shut down, right, and everybody went home. In that case, the individuals both had -- they reported mild cold-like symptoms for three days and then recovered.

But the whole point being in that school again, this is high school, so they've been actively promoting vaccination. It's not nearly close to a hundred percent, like in the university, where it's been -- people are not allowed on campus if they're not vaccinated, but a large profession, and masking every day, right?

So this is all evidence -- and so that -- and again, I'll emphasize again, Omicron, that wave in terms of the number of people who tested positive for SARS-Coronavirus-2, it dwarfed, I mean, it shattered all previous records, you know, that we had in all previous waves, and this is despite not only the masking and the physical distancing that was there from the beginning but added to it what we hoped was this super strategy of vaccinating everybody. So even with that thrown on board, the masks have not stopped the spread.

So my professional opinion is and has been from the beginning that the way we're using these masks is not appropriate, it's not going to stop the spread, and worse, that there are harms. Again, I am not concerned in the context of symptomatic [sic] people, the masks necessarily promoting harm of spread because they're asymptomatic, they're not sick, but there are inherent harms to the mask itself, to individuals wearing them.

Would you like me to talk about that at all; is that something that's relevant?

Q Well --

A I have that in my report. I have it in my report if you're interested.

Q No, and I see that. Well, I mean, you seem to talk about -- well, let me ask you this: This fact that masking potentially actually increases the spread of SARS-Coronavirus-2, would you identify that as a harm?

A Yes.

Q Now, I know you identified the harm of low oxygen levels, but you also, which I found interesting, you mentioned the harm of muffling speech and inhibiting communication between individuals. Do you identify that as a significant harm?

A Yes, yeah. So I live in the world of special needs. I have two children with special needs, one of them does have speech difficulties. He has Down Syndrome, so I'm

around individuals with special needs all the time. I've interacted as a parent supporting work done by a speech therapist. And one of the things that I can tell you that has been particularly difficult, his speech through the speech therapy and also through sheer hard work, especially through my wife, his speech has dramatically improved, but this improvement has largely happened over the last couple of years. You know, he's in his formative years, he just turned 12.

It was exceptionally frustrating for him early on in the pandemic and frustrating us as parents to observe, because what a lot of people don't realize that when it comes to Down Syndrome, a lot of individuals have difficulty speaking. The best way to explain or for people to experience what it's like if an individual has Down Syndrome to try and speak is there's physical reasons for this. They tend to have smaller than average mouth cavities and larger than average tongues, size of tongues, often length. So I mean, my son, if he sticks out his tongue, a little bit like a snake, so long, but also very thick, and this combines to make it hard for them to speak like many of us. Again, it's difficult for him to physically get his tongue behind the teeth or the roof of the mouth, for example, because of the length and because of the size. So it's like if we were to stuff a couple of

marshmallows in our mouth and then try and talk, it muffles the speech.

So he had difficulty being understood at the best of times, and with the mask on, that further muffles the speech. So he went through a period where he progressed so well with his communication in school, and all of a sudden, for a long period of time, his teachers lost the ability to understand him for quite a while, and he had to learn with the mask to speak louder and to learn to annunciate even better to get that back.

So it was very hard for that -- to see that step backwards. You know, you have to understand for an individual, especially a young person, to lose the ability to communicate your thoughts and feelings becomes very difficult. So that's just an example on that side.

Even in terms of muffling the speech, so, again, I'll give an example to try -- you know, to try and convey, you know, an example of -- that we might be able to familiarize ourselves with. I personally like watching professional basketball. The Toronto Raptors are my favourite team. If anybody has watched the Toronto Raptors, one of the things that you'll know is that their coach, Nick Nurse, has got himself into trouble multiple times throughout the pandemic. He

always wears the mask, and he's always taking his mask off, and he gets in trouble for it, you know, people from the public complain that he's not wearing his mask or not wearing it properly. And the reason he gives every single time is he's the coach, he's trying to get critical instructions to his players, and they can't hear him or understand him. And you'll see it, it will be in the heat of the moment of a game, and he's trying to get instructions to his players, and that's when he pulls his mask off and is giving instructions to his players, and then he'll put it back on.

And that's the case, you know, we've all -- I'll tell you in the context of teaching, we've really had to adopt the whole concept of using microphones, because it's even very -- more difficult to project our voices to the back of the classroom. So, yeah, muffled speech definitely has that in impairing the ability to communicate.

MR. [redacted] Dr. Bridle and Mr. Kitchen, my apologies for interrupting, but I think we've gone a little far afield of the qualifications of this expert when we're talking about communication. We're here to talk and hear from him about transmission and efficacy and those kinds of things. I'm not trying to be unsympathetic to your comments, Dr. Bridle, but I think you haven't been called as an expert to talk about

those things.

A Can I comment about the specific comments I had in my report?

MR. [redacted] I'll leave that up to the Tribunal. It depends on what question Mr. Kitchen asks of you, but, again, I'm not trying to be difficult here, but you were qualified to speak about the transmission and efficacy of masking and physical distancing, and I don't think we're here today -- I'm not trying to be difficult, but I don't think we're here today to talk about communication problems --

A Okay --

MR. [redacted] -- and those types of things.

A -- and I respect that. I'll wrap up then with something that definitely is in my realm of expertise, so --

MR. [redacted] I'll let Mr. Kitchen decide what he wants to ask you next maybe, but I just wanted to be clear we shouldn't go too far off what you were called to testify about. So I might have an objection to what you're about to say too, if it's going to be in the same vein.

MR. KITCHEN: Well, let me jump in. I have two comments: One, Mr. [redacted] let me know if you're going to apply to strike that, because we'll have to deal with that. Two, it doesn't take expertise to do

what he's doing: He's observing reality as a scientist. You know, if he told me that clouds were made out of water droplets, it's the same as saying that masks muffle speech. So I don't think it requires any expertise, but, nonetheless, I take your point.

Q MR. KITCHEN: So, Dr. Bridle, let me ask you this: What would you identify as the three most severe harms of masking? Oh, hold on, you're muted.

A Okay, yeah, I listed quite a few. Let me just go to these points if you don't mind.

Q Yeah, I'm on page --

THE CHAIR: Excuse me, Dr. Bridle, what page are you on in your report?

A Actually, I'm looking for the page right at the moment. Okay, so page 8 would be one. So page -- I've listed my concerns about the masking and potential harms on page 8, and then also I would like you to refer to page 14, where I have some additional ones, and one that I would highlight perhaps is one of my biggest concerns, as Mr. Kitchen had indicated.

First of all, related to this, there's something that I was hoping to have the opportunity to say, it's directly related to this, in the expert report from Dr. [redacted] that I was able to look at, there was an accusation made against me actually with respect to these harms. Can I just address that for a moment?

Q MR. KITCHEN: Well, that's fine with me, but my friend might take issue with that, and I can understand why.

MR. KITCHEN So, Mr. [redacted] I was going to ask him a question on that. If you want me to hear him [sic] ask the question, I can do that if that's helpful to you.

MR. [redacted] Well, that might be helpful. I think it's fair for your client to comment on Dr. [redacted] report, but I think it depends on the extent of your question or the type of your question.

A Okay, what I would like to do, if you don't mind, I'll just read something of the report and then see if you're okay with me just commenting on it. Just let me find this when it comes to the dangers.

Q MR. KITCHEN: Well --

A Okay, yeah, so the comment that I want -- the thing I want to comment on is in the -- Dr. [redacted] report on page 8, the one, two, third paragraph down. He says: (as read)

> Lastly, both Dr. Dang and Dr. Bridle make unsubstantiated claims that there are numerous harms associated with masking.

And then states: (as read)

> There are no known harms associated with masking.

So that is what I was hoping to respond to.
Q Yes, well, I'll let you respond however you like, but -- well, let me ask you, I take it you would say that claim is inaccurate?
A Yes, and I provided scientific citations to demonstrate that that I'd like -- there is one in particular I'd like to highlight that is clearly within my realm of expertise, and it's a serious concern that I have.
Q And I want to hear your comments to that, and I --
A Okay.
Q -- invite you to, but I want to also ask you this: That claim coming from a public health doctor, is it merely inaccurate, or does it rise to the level of willful ignorance?
A Well, yeah, that's -- yes, that's why I wanted to comment on it, and also accusatory, indicating that we -- you know, that we -- suggesting that we have failed to -- or that I have somehow failed to demonstrate harms associated with masking.

And, yeah, because there's numerous -- there are numerous potential harms with masking. So I guess this -- yes, and so I'll highlight. So if you like, I can pick three. I can think of two right off the top of my head, and I can look through the list.

But I guess what I would do is bring people to the attention of those two pages, because I list numerous

potential harms on page 8, and I mention several more on page -- as I said, page --

Q 14?

A -- 14. So it isn't that I failed to identify, and these are substantiated, and I have peer-reviewed scientific publications to back them up, so this -- yeah, that's what I just wanted to mention is that is, I feel, a very untruthful statement and accusation against me.

So let me go on to some of the major concerns. I'll start with the hygiene hypothesis. So I just had been asked to comment on harms with the mask, so this one focuses on children. But what people need to understand, and I wrote an article about this early on -- after one year into the pandemic. I wasn't concerned when we were told it was two weeks, you know, and that was the original warning, even if it was a few months.

But after a year, I expressed this serious concern. It used to be called the hygiene hypothesis, but the concept is this is that we're designed to interact and interface with our microbial world. It's absolutely required for proper physiological development. For example, many people have shown -- and this has been shown with what we call gnotobiotically delivered animals, so animals that have

no microbiome whatsoever. Behaviours are fundamentally altered. They have the -- the development of the central nervous system is altered. But one of the key things is the immune system does not develop properly if we don't have proper interaction, as we are growing up with the microbial world.

So a lot of people don't realize when we're born -- so, first of all, when we're born, we are immunologically naive. Unless there was some kind of in-utero infection, meaning infection of the fetus while in the mother, then when born, the vast majority of us are immunologically naive: We have not been exposed to anything in the microbial world up to that point.

But further -- so that means that our immune system learns to interact with the immune system following birth. Further, and because of that -- and actually because of that and to have that opportunity to learn what is dangerous and what is not dangerous in the microbial world, our immune systems do not reach full maturity, they are not fully developed until about the age of 16, and the vast majority of that development occurs between birth and the age of 6

And what we know is that if and especially young people are not allowed to be exposed on a regular basis to the microbial world, their immune system does not

develop properly, specifically the ability to differentiate between the non-dangerous microbes that we encounter all the time and the genuinely dangerous pathogens. And it's only the latter we want to respond to, because if you can imagine if we -- if our immune system is what we call dysregulated, and it thinks that non-harmful microbes are worth responding to, that's very dangerous, because we have non-harmful microbes all over and inside our body.

An individual who responds inappropriately, for example, to -- and it's -- and it's many things, it's in our environment, it's even the food that we sample, the air that we breathe, the dust particles that we're exposed to in the environment. If we're not adequately exposed and our immune system learns to tolerate these things, not respond, then we can end up with problems like chronic inflammation in certain locations.

So, for example, if somebody were to develop a food allergy, right, that food is something we should be tolerized against, that you're going to have chronic inflammation in the gut when exposed to it, or if you haven't been properly exposed to the environment, so, for example, a lot of people who are mainly -- you know, grow up in urban areas might have more of a propensity towards things like hayfever, because when young and their immune system was learning to

differentiate the dangerous things in our environment from the non-dangerous things, they weren't exposed to some of these things that you're exposed to in a rural environment.

And so what -- and so this is very important, and the reason why this is important is because one of the things that masks are exceptionally good at filtering out are large particles, like I said, large water particles, that also includes dust particles, so environment -- things we are exposed to in the environment that are not dangerous and also bacteria, especially bacteria. And a lot of this development is not actually around the virome that populates the body, but it is, in fact, the bacterial.

So, for example, in these gnotobiotic animals that have no microbiome whatsoever, if you want to correct the behavioural deficits that they will develop and the immunological deficits, we can repopulate their gut, for example, with a lot of these what we call like probiotic bacteria, the same ones you would get in yogurt, like lactobacillus, for example, so it's largely these bacteria, these non-harmful bacteria that allow us to, you know, to educate our immune system.

Without that, what happens is a child's immune system tends to become dysregulated, never learns to differentiate properly, and individuals are at a much

enhanced risk of developing autoimmune disease -- anything that's disassociated with an improperly regulated immune response. So allergies, which is responding to non-dangerous things in our environment and causing inflammation against them; asthma is when you're responding to inert things in the air that you inhale and responding inappropriately to those, that cause asthma; and autoimmune diseases.

And so, and we know this is the case, because so, for example -- and this is largely looking at those who grew up largely in urban centres versus those who grew up on farms. Those who grew up on farms are much more exposed on a regular basis to a rich microbial environment. And so those who grew up in these urban area -- or, sorry, rural areas have a much lower incidence overall of allergies, asthma, and autoimmune diseases.

And so by -- so, again, by putting these masks on children, first of all, they're not at high risk of the most severe outcomes of SARS-Coronavirus-2, and I've already explained one of the physical reasons, they just don't -- simply don't express the receptors at nearly the concentration that adults do in their lungs that the virus uses to infect. But we have put masks that are effective at isolating their lungs from the microbial environment, and we, of course, isolated

them, kept them away from their friends, a lot of family members, and a lot of social interactions. Literally, for children, it's a good thing to get dirty, to get dirty, to have dogs lick their faces, to [redacted] other people, that their immune systems need to interact with other microbiomes in order to develop properly. So that is an immunological concept that long-term masking -- and, again, nobody has any concern. I mean, kids get sick, and maybe they're at home, relatively isolated for a couple of weeks. It's not a problem if it's a couple of weeks or it's a couple of months. But once we start -- I wrote my article first about my serious concerns about that a year in. A year is getting too long. A year is a substantial amount of immunological development in a young person. And now we're at two years with no current end in sight. So that is a serious potential harm. By masking children, we are potentially, there's no question, we're going to have an unknown number of children with allergies, asthma, and autoimmune diseases in the future, and they're going to have those for the rest of their lives because we masked them for two-plus years. So that's one.

And then I guess another one that I would mention is this idea of carbon dioxide, because this is just intuitive, so, you know, fire fighters have the

equipment to do this. At my university, we have the ability to do this, look at CO2 levels, and we often do that when looking at how we adjust the air change rate in our rooms, especially the work rooms we work in a lot, like the laboratory space that we're in, the animal research rooms that we're in.

And so if you monitor the carbon dioxide level in front of your mouth without a mask and then with a mask on, it goes up. And this makes intuitive sense, because what you're doing by putting a mask on your face is you are restricting, you know, the free flow of oxygen. What you're doing is you're creating an additional dead space. When we exhale, when we exhale, there's always dead air. We cannot get all of the air out of our lungs, and we can't get all of the air out of our mouth. That's dead air. When we inhale, that dead air, when there's not been fresh air exchanged, gets inhaled back into the end of the lungs.

By -- so by putting on a mask, you're extending that dead air space a bit, and so it does increase the carbon dioxide level a little, not a lot, a little, and this creates a condition of very mild hypoxia, it's not severe hypoxia, but if you have high carbon dioxide, then the net result is you have slightly higher -- lower oxygen levels. But, again, slight changes in oxygen concentration we know can have profound

physiological consequences.

So, for example, on the positive side, endurance athletes, especially if they know they're going to have to compete at a higher elevation will often go to train in areas with a higher elevation. There's not a massive change in the oxygen concentration, but by going there for a long period of time, being exposed to that lower oxygen concentration and training in that environment, their body gets more efficient at the oxygen exchange. Then they can perform better in the sporting activity at a higher elevation.

But so we're kind of expecting this from individuals. So we're putting masks on -- again, I'd like to emphasize, masks make sense if you're going to wear it to go into work for, you know, a little bit of time because you have to meet a deadline, but you're sick. They make sense when you're doing surgical procedures. You're doing a limited procedure, you leave, you take the mask off. They're not designed to be left on for long periods of time and exposing people to chronic low levels of hypoxia.

And, again, I'd like to highlight this is just kind of intuitive in the sense that -- like I know for myself, if I wear -- and I wear masks all the time except for surgical intervention stuff, but if I wear a mask for several hours, I start developing a headache,

constant thing and consistently. I need to take a break; I need to get out in the fresh air.

And I would encourage anybody, if -- just focus, put on the mask and go outside, because often that's where the air, you know, seems the freshest and everything, keep your mask on and take several deep breaths, right, and pay attention to what it feels like. Then take that mask off and take in a big deep breath; it feels so refreshing. And that's why, because we are impacting, albeit to a small degree, our ability to gas-exchange, by taking off that mask, we're removing some of the dead air space that we've created; we're reducing the dead air space.

And this has -- because we've never done this for such a long period of time, we simply don't actually know the extent of harm that we might be causing, especially to developing children again, I'd like to highlight, right, this constant, prolonged exposure to low-level hypoxia it might be causing.

So I think I'll leave it at that, if that's okay, Mr. Kitchen. I -- I mean, I could look through and provide another one, but those are probably my two top concerns at this point in general.

Q Thank you. I am going to try to bring you through pretty quickly, I want to give my friend a chance to cross-examine, and we are down to, you know, roughly

only two hours left.

MR. KITCHEN Well, Mr. [redacted] let me ask you this because I want to be mindful of this. How much time do you think you're going to want for cross-examination?

MR. [redacted] Mr. Kitchen, I expect I'd be -- and this is not a criticism of Dr. Bridle, but he seems to give expansive answers -- so thank you, Dr. Bridle, for that -- I would anticipate 20 minutes, maybe a little longer just because of the nature of the answers, but I don't think I'll need terribly long.

I'll leave it up to you in terms of how much you think you'll want to be, but it may be time to take a break right now as well, given how long you've been asking questions.

MR. KITCHEN: Yeah, yeah, I agree.

THE CHAIR: Yeah, it's, by my watch, 5 to 3, so let's take 15 minutes, and we'll come back at 10 after 3 and resume then, okay?

MR. KITCHEN: Thank you.

THE CHAIR: Just a reminder, Dr. Bridle you're still under oath.

(ADJOURNMENT)

THE CHAIR: And, Mr. Kitchen, we'll turn it back to you.

MS. [redacted] Sorry, Mr. Kitchen, we can see

you talking, but we actually can't hear your audio.
MR. KITCHEN: Sorry, I have a mute button on my mic, so I apologize, so you missed --
MS. [redacted] No worries.
MR. KITCHEN -- the last 10 or 15 seconds, sorry.
Q MR. KITCHEN: Dr. Bridle, I just have some specific questions about comments that Dr. [redacted] has made both in his report and in questioning.
Dr. [redacted] has stated that every country that has imposed masking has experienced decreased transmission of COVID; do you disagree with him?
A Yes, I do. I'll point out again, you know, like -- you know, my expertise isn't epidemiological per se, but as a researcher, I certainly am qualified to look at the scientific literature and interpret some basic data.
I do know of numerous countries where the opposite is true. And, in fact, when we look at the United States, we see states where that trend is the opposite as well. I know that Dr. [redacted] did not like the example of Sweden, but I mean that is an example. He didn't seem to cite any science to -- he just said it's, you know, complex to interpret the reasons for observing differences, but, nevertheless -- and he didn't dispute either that Sweden is a classic example of, you know, a country where they went the natural immunity route, and

seem to have done just fine, and there's other examples. But, yeah, so, in other words, that all we need is one example to say that that is not true. So I do disagree with that overgeneralization.

Q You just called it an overgeneralization. So is that a fairly absolute statement?

A Could you remind me what page of that report is it on, just so I can look at it myself?

Q I'm quite sure he said that in questioning, not in his report.

A Oh, can you repeat --

Q I do know --

A -- (INDISCERNIBLE) --

Q -- that he said it --

A -- so could you repeat it again, please?

Q So he said that every country that has imposed mandatory masking has experienced decreased transmission of COVID.

A Okay, so, yeah, that's not an overgeneralization, that's incorrect. Again, when somebody has said "every", and all we need is one example where they didn't do it, and the -- you know, the outcome has been fine, like Sweden, so that makes it not just an overgeneralization, it makes it incorrect.

Q Do you find it unusual that he makes such an absolute statement?

A Yes. So in the sciences -- so I even mentioned this before when I was giving examples of -- when we were talking about asymptomatic and transmission, right, I -- there is asymptomatic transmission. It's not common, and it's not a driver in this. And when I mentioned, when I talked about that, is when you're dealing with biology, there are no absolutes. Biology is not an absolute science. It's not black and white. It's not like mathematics, it's not like chemistry, it's not like physics.

Biology, there are general ways that, you know, biological systems function, and there's almost always exceptions to the rule. So there's what the dominant biology is, and then there's always exceptions to the rule. So very rarely, if ever, can you make definitive statements like that when it comes to biology, especially when you're talking about fairly complex biology. Because here, we're talking about -- we're not even talking about one biological system, like people, like humans; we're talking about the biologic -- the biology of people interfacing with the biology of a virus in the context of a complex environment. So there's absolutely no way you can make absolute statements like that in the context of this current medical scenario.

That's -- so, again, that's the -- you know, so as

a scientist, that's not the appropriate scientific approach. One has to be open to the fact that there are exceptions. What we always have to do, and also to explain, the way science and medicine is supposed to function is we should -- we need to weigh the weight of the overall evidence.

Again, because there often are not absolutes, often things are not intuitive or common sense, what often happens is -- I mean, so it's very clear in science, if somebody put -- as soon as -- so the first time a paper is published, that's obviously the first report on a given scientific issue, so it sets the tone. At that point, that becomes what the scientific community agrees at that point in time, early point in time, seems to be the reality. If the subsequent scientific literature is all in agreement, that's something that usually then gets enshrined in science as a -- as, you know, sort of as a classic paradigm in science. But as soon as you have disagreement, say the second publication find -- finds something different, at that point, you automatically need additional research to be done to sort out the problem.

And so at the end of the day, it's never about -- and so especially one thing to keep in mind, you know, my advice to everybody with this is there's a lot of science that has accumulated over the past two years,

and, therefore, it's always about the weight of the science. They're not about citing one paper or, you know, two papers or selective papers. One has to look at the overall weight of the evidence, like on scales, and see what the balance of that evidence is. So, yeah, just by the very nature, we can't, in this scenario, make such conclusive statements.

Q To give Dr. [redacted] to properly and fairly characterize his position -- and my friend can interject if he disagrees with me -- Dr. [redacted] has said the evidence for the effectiveness of masking in reducing the spread of COVID-19 in a heath care setting is overwhelming, and there's heaps and mounds of it. And then he says in a non-health care setting, well, it's less clear. He makes no distinction between asymptomatic or symptomatic; he simply says in a health care setting, it's guaranteed to work, we know absolutely it works, there's just no question, maybe there's a question about the community.

What I've heard you say is, Well, look, it doesn't work at all for asymptomatic people, it's just -- it just doesn't -- it's not even relevant, it's not even logical because they just don't spread it because they're asymptomatic, there's no asymptomatic spread. So, you know, you two, as experts, you're kind of talking at cross-purposes.

So I want to ask you about the health care setting, okay, and then the non-health care setting, because that's how he's done it, okay, to be fair to him.

So he says that the evidence for the effectiveness of masking in the health care setting is, quote, Overwhelming, and, quote, There's heaps and mounds of it. Would you agree with that or disagree?

A Yeah, we wouldn't be here today hearing this case if there was universal agreement and if it was overwhelming evidence. This is an area of active debate. It's an area of active research. I looked at Dr. [redacted] report, because the other experts have provided that. Where the misunderstanding comes in is this concept of asymptomatic transmission and this misnomer, this concept.

Where it's been most exaggerated, for example, is children. We've mislabelled children as somehow being these individuals that rarely get sick but are overflowing with large quantities of this incredibly pathogenic virus, right, so they can spread it to others. That's simply not the case.

So, again, I highlight, Dr. [redacted] and I are not far off in our view of masking. We're in complete agreement that masking makes sense if you're symptomatic, and it can very much help as a tool to

curb the spread if you're symptomatic, and you're choosing to go around other individuals in that state. But not asymptomatic.

I mean, this is again, intuitively, I guess, you know, again, to put it in a perspective that maybe the average layperson could appreciate, knowing what I told you about the Omicron variant, where the reality is the average flu is more dangerous than the Omicron variant for the vast majority of the people, especially the very young, for which SARS-Coronavirus-2 is not particularly dangerous, but, you know, we've never implemented this, if this asymptomatic transmission was always such an issue, and we were to accept this now as a paradigm, we'd have to apply this to every -- every infection -- we would never -- we would never know if somebody is ever, quotes, healthier or unable to transmit to anybody else. There would be no way of me knowing of somebody else who has no signs or symptoms has, you know, in their lungs, respiratory syncytial virus or a flu virus or Norwalk virus or any of the viruses that we face. So just from that perspective, it's counterintuitive.

And this is definitely within the realm of immunology, and it comes largely from a misunderstanding -- and, again, you know, with all due respect, the average physician who has been in a

position of authority, you know, to implement policies, and this is one of the reasons why -- a lot of people don't realize it, and this is an area I have expertise in as well because we have an emergency preparedness plan in our university for responding to a pandemic. We were required to implement this by the Government following the 2009 flu, declared swine flu pandemic, where people realized that there was initially -- the response was one of panic and realizing that we really did not have a coordinated response, we hadn't really prepared for such a scenario. Now, that turned out -- that fizzled and that was not a true pandemic.

But so all the -- the Government made all publicly instituted -- institutions, including my university, come up with a pandemic preparedness plan. Our country came up with a pandemic preparedness plan. Every province and territory was required. We threw these out within the first week to two. At my institution, we threw it out within five days of the pandemic being declared, and we haven't been following any defined plan since.

And that applies at the Federal level as well. We -- like, if you look, we still don't know what the goalposts are. We don't know what the finish line is before we declare that we're out of this. In fact, the goalposts have kept moving.

And what I can tell you is that in those pandemic preparedness plans, none of them looked like this at all. They relied on the more traditional ways that we approach this kind of problem, which was you treat people who are sick as sick, and you keep them away, especially from the vulnerable populations, and you focus your protective efforts and your protective measures on the high-risk demographics if, if, and when a pathogen shows a predilection towards causing harm in limited demographics. And so, you know, we haven't reached that point here. You know, we didn't follow those kind of plans, and so this is where we've come in with these other approaches.

And what I do want to point out then is -- actually to get back on track, Mr. Kitchen, can you remind me what your core question was? I was just coming to it, and I wanted to find something in the report here.

Q Well, like I said, Dr. [redacted] says, end quote, heaps and mounds of evidence supporting the effectiveness of masks in --

A (INDISCERNIBLE)

Q -- a health care setting --

A -- yes, and so -- so, no, that is a point of contention, and so his report even highlights this. So one of the things -- I mean, he hasn't -- he hasn't

cited heaps and mounds of evidence. It's a limited number of citations.

And this is -- so this is something that I want to deal with head-on just so that people, when interpreting the two reports, can understand. He accused me of solely leaning on outdated documentation, or maybe not solely but certainly leaning on outdated documentation when it came to my report. People are free to look at my reference section. I have lots of updated citations in there.

I want to highlight that, in fact, after accusing me of using outdated literature, the two things that he most emphasized when talking about this -- when talking about this concept of masking, the first one was a citation from 2011. So he actually set the record for the oldest cited paper with respect to masking and citing the one from 2011, a Cochrane review. And so --

Oh, and the other thing he said is he accused me of using examples from other viruses. And I want to point out that this 2011 one is the oldest -- second oldest reference of all the reports about masking and dealt with influenza virus, not SARS-Coronavirus-2.

And one where he spent half of a paragraph highlighting it was actually to describe what he felt was, you know, sort of break-through work that was done, and it's a study that was done in the early

1900s, which shattered records in this in terms of the oldest citation, and that certainly wasn't dealing with the SARS-Coronavirus 2.

So he's got that aspect wrong in terms of arguing that he's got the updated literature. And, in fact, I just want to highlight this as well, because this is overstated again, he actually said in his report, on pages 1 -- at the very end of page 1, the final last few words, onto page 2, he said: (as read)

> A vast majority of literature [this means his literature] is from the years '20 to '21 with emphasis on literature published in 2021.

So I actually went to his reference section, because, again, I do lots of review of, you know, scientific and medical documentation, and I excluded some of these because they're not peer-reviewed articles. A couple of them are websites. One of them was a website where he -- that described the 2011 paper, the source of the 2011 paper that he got.

And so, in fact, it turns out that of his citations, 19 of his citations about masking, of those 19, 11 were from 2020 to 2021. That's 58 percent. So that's not a vast majority of the literature. And he then emphasized that most of it was from 2011. Well, in fact, only two of those is 11 -- sorry, two, the emphasis was on literature published in 2021, but only

two of those 11 papers were from 2021, 18 percent of the papers cited since 2020 were from 2021.

And so I think it's important, again, otherwise, it gives a misconception that somehow he's captured the recent, cutting-edge data, and I have -- again, people are free to look through -- I've got plenty of citations from 2020 to 2021, so that's not the case. It's not -- this isn't the case of somebody having -- understanding current literature, and somebody else, myself, not understanding the current literature and only focusing on historical literature. I want to point that out.

Further, he even states in this, if I can find it here, and this is important because this is a very important thing for us to understand, because we're all hearing public messaging, and we're all trying to sort through this information and understand, and there is lots of misinformation, there's genuine information, and there's been messaging that's been changing over the course of this. And so this is very important because one of his critical sources of information about this are public health officials, especially Dr. Theresa Tam, and that's why I'm hoping I can just find this here quickly. Where is it?

Q He mentions Theresa Tam on page 8. I don't think he mentions her anywhere else.

A Okay, thank you. Oh, Dr. -- sorry, I mean Dr. Tan, sorry. Do you see the reference to Dr. Tan?
Q T-A-N?
A Yes.
Q 'N' as in "nothing"? No.
A Medical Officer of Health. Give me one second, because this is an important point.
Q Okay.
A Let me just pull up the document here.
Q Do a search on it.
A Sorry for the extra time, but I just want to make sure, because this is important.
Q I don't find anything for T-A-N.
A Okay, sorry, yes, that's why, I meant Theresa Tam. I'm getting her Medical Officer of Health, her name messed up here, it's Theresa Tam, Dr. Theresa Tam --
Q Yeah, page 8.
A -- so this is on page 8 just before the summary, the subheading "Summary", and this is when talking about that that I made unsubstantiated claims, that there are numerous harms associated with masking, there are no harms, but we've already discussed that.

And then -- this is very important, because -- this is very important here, so what he states in that last sentence: (as read)

Indeed, public health experts, including

Dr. Theresa Tam, have walked back any statements alluding to the potential harms and increased infection risk of masking. There's no scientific documentation there, so peer-reviewed literature, and what this is -- so what he means, what he means, and if we're blunt about it, is that Dr. Theresa Tam has completely contradicted herself in the context of this pandemic.

And specifically what he's referring to when he talks about walking back in his statements, it was that a lot of top public health officials, including Dr. Tam, Dr. Fauci in the United States, and others and agencies like Health Canada were actually discouraging the use of masks and widespread use of masks earlier on in the pandemic and widespread use of masks earlier on in the pandemic, and that was because of the scientific evidence available at the time.

So, yes, they later walked back the statements, and I can tell you that I have yet to know what the scientific foundation is for Dr. Theresa Tam walking back that statement. And I point out, as you can see by the wording here, you can ask yourself, it's not scientific, I don't know what walking back a statement actually means. She never rescinded the statement. Yes, I will agree that she downgraded the -- I guess, the importance she placed on that, you know,

down-playing of masking as an effective protective strategy in the context of SARS-Coronavirus-2 early on, but she never rescinded it. She did, indeed, dampen it or walked it back to some degree. And, again, I have yet to see, she hasn't produced any peer-reviewed scientific literature that I've seen.

Now this -- so this becomes very critical, because I'm not going to say -- I can tell you there's lots of literature to suggest there's harms of masking, and it doesn't work, and, again, this comes down to the whole disagreement is about asymptomatic transmission. And, again, I highlight that in the studies that are cited to support this, the vast majority of those studies are defining transmission based on PCR positivity, not proof -- not demonstrating with using the functional virology assay that I said, that there is definitively replication-competent viral particles in the sample, especially at a concentration that would meet the threshold required to cause infection in other individuals.

So a lot of those studies actually agree, potentially, with the outcome that made -- where they measured what they did, but they didn't prove that there was transmissibility of the sample that they were collecting. And so that's what it comes down to is how we interpret asymptomatic transmission in this.

Because like I said, we are all in uniform agreement that if somebody is sick, this makes some sense.

And then the other thing is, which I was very surprised, because often scientists who have been speaking out in a way that's perceived to be against the narrative, one of the arguments that constantly comes up is, well, you haven't proven your point with the randomized controlled trials.

So I want to explain to everybody, a lot of people, when it comes to clinical medicine, consider a randomized controlled trial to be the be-all and end-all. It's where you actually look at a relevant clinical setting, and you have your treated group and your placebo group or untreated group. If you're talking about masking and SARS-Coronavirus-2, it would be a compilation in the context of SARS-Coronavirus-2 with the potential for it to be transmitted, and you would have a population that's masked and a population that is unmasked, that would be the negative control group, and then you actually see if there is an effect. So for everything that has not been accepted in the public health narrative, it's because there hasn't been a randomized controlled trial.

Let me give you an example. The same Dr. Theresa Tam told all of Canada that the concept of vitamin D reducing the potential for infection is fake science.

I can believe -- I'm an immunologist. I'm even left with -- I've actually sent a letter to my administration university telling me [sic] that am I going to get in trouble if I continue to teach immunology like I have during my whole career, because I can tell you vitamin D is a critical component of the immune system. There are -- it functions at such a basic fundamental level with so many aspects of the immune system.

Without it, it would be like if somebody is familiar with cars and a car engine, it would be like if you have a high-performing race car, say, a Formula One race car, there's no question, if you deactivate one of the cylinders in that engine, it is not going to perform as well as if it had that cylinder functioning. It's not going to be competitive in the race.

And that's the case with vitamin D. I mean, there's thousands and thousands of papers -- I can tell you -- I can give you 77 citations right now that show the benefit of vitamin D in the context of SARS-Coronavirus-2. That's why we have -- one of the reasons we have our annual cold and flu season. As an immunologist, I often don't refer to it as the cold and flu season, I refer to it as the low vitamin D season.

THE CHAIR: Dr. Bridle, I'm not sure that

vitamin D was really relevant --

A No --

THE CHAIR: -- to --

A -- no, I'll probably be back to it immediately, yes, thanks, I appreciate that. So my next comment immediately ties it in.

And the point being that it was declared that a randomized controlled trial, therefore, was needed to prove the effectiveness of vitamin D in the context of SARS-Coronavirus-2.

And so that's where this ties in. So when you have an area where there is definitely, clearly, far more debate going on and the science is -- it's why you have even more reason for a randomized clinical trial if you really want to sort out this issue.

Now, what I was honestly shocked by is in Dr. [redacted] report, he acknowledged that but then went on to proceed to argue that a randomized controlled trial could not be done because this is such a cut-and-dry topic, because everybody is in such uniform agreement that masking works in the context of SARS-CoV-2. Well, clearly, that is not the case. If nothing else, my expert opinion disagrees with his expert opinion. There's evidence of nonuniform agreement right there. And when scientists disagree, we need further research to work it out.

Now, I want to highlight something, because this is very important to understand, randomized controlled trials has been -- that's been the basis for promoting anything to do with treating or protecting from COVID-19. So what we get to here, and I just want to go to this now -- I thought I'd have these better marked -- so I want to get to this where he talks about the randomized controlled trials, and I think this is in his rebuttal section. And it talks about -- he uses a -- an analogy there. Let me see here. Okay, yes, right here: (as read)

> With respect to the evidence for effectiveness of masking [this is on page 7], Dr. [redacted] states that in the absence of evidence for randomized controlled trials in meta-analyses ...

And then it continues on, and that's -- so that's what he's responding to, this idea of randomized controlled trials. So he admits it is correct that there are a few randomized controlled trials on masking, and there's none in the context of SARS-CoV-2 as -- so we're talking about a fundamentally different virus. Then he says: (as read)

> There is an overwhelming burden of evidence from other studies showing the benefits of masking. Furthermore, it's not ethical to do

RCTs on masking given its significant benefit.

Well, we've just talked about, there's potential harms, potentially even in the context of symptomatic -- asymptomatic people, maybe more harm than good. And it doesn't, for all the reasons I've explained, doesn't help spread SARS-CoV-2 by the aerosol route. So none of that fits into play here.

And then he goes on to give an analogy that this -- to say why the randomized controlled trials can't and should not be done with masking. He says this is like parachute-jumping out of an airplane. We wouldn't run a study right now, right, none of us would ask for a study to be run asking people to jump out of a plane with a control group that is not given a parachute, right, and to the test the idea that parachutes stop people from dying when jumping out of a plane.

Well, this is not a fair comparison whatsoever. Worse, he got upset about one of the other experts. He actually says here: (as read)

Notwithstanding the factual error on page 6, it is fallacious and unscientific to equate death rates by age in the context of a global pandemic with those of car accidents, with, at a minimum, it is a false dichotomy and

then [et cetera, et cetera].
So he was really upset with the use of an analogy to -- due to car accidents with deaths caused by an infectious agent in the context of a pandemic but then goes on and uses his own completely, arguably even far more inappropriate, analogy to argue that RCTs have no role to play when it comes to considering the benefits of masking.

And what do I mean by this? It's intuitive, I agree, we're not going to run a study to determine whether jumping out of a plane without a parachute increases the risk of dying upon impact with the ground, and we don't have to. That experiment has naturally been run multiple times. If people -- if somebody jumps from a large height, if they want to commit suicide, they know they can jump from a large height. Anybody who falls, plunges to the ground from a large height will experience death. We've had people with parachutes jump out of planes, and the parachutes failed to deploy, and they've died. So this is not a comparison.

The equivalent with -- the RC with masking would be that we know that, in the control group, if they do not wear the mask, they are going to die. Yes, that would be unethical. We do not know that. In fact, we're debating that very fact and whether it's actually

doing anything to protect these people from harm. And so I would actually propose that the precise thing that we do need scientifically to sort this out and especially if we're going to force people to follow this rule, we need to run a randomized controlled trial and sort out the science once and for all.

So again, you know -- I mean, I'm not going to apologize for the long answer, it's a thorough answer, and so, no, this is not a clear path. And I'm sorry, Dr. [redacted] has not cornered the market on, you know, the fact that, you know, being be able to state that everybody knows this, and everybody agrees on this fact.

Q MR. KITCHEN: Thank you, Dr. Bridle that answers several other questions that I had.

Since we're in that area on his report, on page 5 of your report in the last sentence of your section on asymptomatic transmission, you kind of make a summary statement, you say: (as read)

> There is no substantial evidence to suggest that people who are asymptomatic represent a substantial risk of causing COVID-19 related hospitalizations or deaths in others.

Now, as you know, Dr. [redacted] takes issue with this issue on page 7 of his report. He says that you have no scientific evidence for this statement. He also says

the fact that you would make such a statement, quote, proves a lack of understanding of asymptomatic transmission and its deadly effects on the community.

I have a couple questions on this. My first one is do you think there's any scientific evidence to support this statement that you made?

A Okay, that I think I can answer quickly. People, first of all, can read page 5 of my report, see the citations that I have there, and then refer to everything that I've explained today.

I understand the science -- so again, with all due respect, when it comes to asymptomatic transmission, what we're talking about is we were talking about fundamental, hard core immunology -- or, sorry, virology at the interface with immunology. That is precisely my area of expertise. I'm a viral immunologist. This has nothing to do with public health or anything like -- it has public health implications, but the science behind this, this is how a host immune system interacts with a virus that dictates whether or not the outcome is going to be potential transmission and infection and causing disease in others. And I mean people can take my expert, you know, commentary or not. Like I said, I have the citations there, and I've talked at length about the science, the precise mechanisms governing

this.

And just so that you understand, I don't know if people can see, but I actually appreciate being asked the question, because I've got that very thing marked up, so I'm glad I actually got to talk about this, because, again, I have been called upon to review lots of literature, grant applications, scientific publications, right, manuscripts people want to publish in peer-reviewed journals. And sorry to be blunt here, but this -- this report from Dr. [redacted] was and -- generally unprofessional, disrespectful in tone, very much highlighted here. That's why I have this actually underlined, because it's quite offensive. He uses language that is offensive, accusatory. He makes assumptions. He's hypocritical in areas of his report. And I can give examples of all of these so -- if I wish, and this is one of them. And he makes demonstrable -- you know, many claims that lack evidence, lacks citations or that are only backed up by hearsay evidence, and then makes these kind of statements, right, that as an expert in this area -- and I'm sorry, but looking at the expertise, I am quite confident that I have deeper expertise in the area directly relevant to understanding asymptomatic transmission or lack thereof. And he's actually arguing that I am provide -- that I have no scientific

evidence. That is a lie. That is a lie. I provided the scientific evidence today. I have all these citations. I'm looking at page 5 of -- and I see all kinds of citations listed here and a description of the science. And he says this proves -- somehow this proves a lack of understanding. Like this means me, that I do not understand this.

This is unprofessional. I don't do -- write this way in any of my reports, so I'm sorry, this group needs to understand this. I have been involved in a lot of court proceedings. I have been involved in a lot of scientific proceedings. This is not a scientifically or medically acceptable document for interacting with other scientists or medical professionals, and this highlights it.

So thank you, because I didn't know if I'd have the opportunity to share with the group, but this statement is -- there's several others, and I'm not going to take the time, but if anybody has a question, I can prove what I just -- my overview of his report, but that is, certainly I had listed, as the most egregious statement against myself.

We have to respect one another as scientists and physicians. I do respect Dr. [redacted] perspective. Like I said, I agree with much of his science, and I've acknowledged the peer-reviewed publications that he's

used as valid, you know, acceptable scientific publications. I think we need to be very careful, and this stepped over the line, in my opinion, in terms professionalism in this kind of environment.

Q Thank you, Dr. Bridle. I am almost done. I know this might be obvious, is there an important difference between correlation and causation?

A Yeah, absolutely. A massive difference. The burden of proof is vastly higher for causations. Correlation can contribute to the overall determination of causation, but causation means that you know for sure that one thing influences the outcome of another thing, directly influences it, not, you know, has a direct impact on a certain outcome.

So, for example, we know that SARS-Coronavirus-2 is the causative agent of the disease we call COVID-19. If somebody is not infected with SARS-Coronavirus-2, they will not get COVID-19, and if we infect them with a different virus, they will not get COVID-19. It's a causative agent, right? So it's a cause-and-effect relationship.

A correlation means that something trends in the same direction as something else, you know. And a classic example -- and so I talk about this quite a bit, because when I teach actually my immunology students, because it is important to understand the

difference, so, for example, when it comes to -- you know, one of the correlations that does -- that is related and does have some link through causation, as we get older, people tend to have a greater risk of getting cancer. And there's two reasons: Scientifically one is we get exposed to more potential mutagens that can cause cells to turn cancerous; also our immunological function declines, and our immune system is very good at controlling cancers, right? But there's many other things that correlate with age as well, right?

So I don't know -- for example, as you get older, there's also a greater use, on average, of dental implants, right, as people lose their teeth, but that's not a causation to have cancer, for example. So that would be an example of a correlation, right, somebody getting older, where if something gets -- as they get older, there's an event that happens more frequently among that population, but that event doesn't necessarily mean that it's the cause of another event that increases in frequency in that older population. So, yeah, there's a huge difference.

Q Dr. [redacted] stated in his report that, quote: (as read)

A very, very, very large number of health care workers in Italy contracted and died from COVID in early 2020.

He concluded that part of the reason that happened is because the Italian health care workers ran out of masks. Now, in your opinion, is there a causal link between masking and what happened to the Italian health care workers, or is there only a correlation link?

A Do you have a page number for that so I can take a quick look?

Q That I think was in his examination. It's not in his report, but I can --

A Okay, I didn't recognize it --

Q -- invite my friend to --

A -- that's fine. So, yeah, I -- yeah, that's fine, I can comment on that. I heard the question.

So, no, that's clearly not. So, again, if -- in that case, when you're talking about a clinical scenario, a complicated clinical scenario where there's other things happened, so what I mean by this is it's very different from a lot of the, for example, preclinical experiments that I run. I can run experiments in very controlled environments.

So, for example, if I run a study in mice, these mice are all genetically identical. They are all the same sex. They are fed the same food. They're housed in the same environments. They -- and so we can divide them, and we can have one treatment differ between them, one thing. And so it's very easy then to

attribute an effect to that one thing because everything else is controlled.

So in the scenario that Dr. [redacted] was talking about, the only way that you could potentially allude strongly to causation is with a randomized controlled trial. That's the whole point. And so the reason it's so -- what randomized controlled trials are is they take account for these real life settings. So in the real world, when you're dealing with a clinical scenario where you're talking about an outbred population, you're talking about males and females, you're talking about old and young, you're talking about different lifestyles, different historical exposures to pathogens, et cetera, et cetera, and, therefore, different immunological programming and -- you know, and you're dealing with a pathogen and different potential exposures to that pathogen across that population, you're talking about many, many uncontrolled variables.

So what a randomized controlled trial is you try to account for all those variables by getting those variables equally distributed as much as possible among the two groups. That's why it's called a randomized trial: You literally random -- you can take two people, they randomly get associated to either the test arm or the control arm. And the idea of it's

totally -- if it is truly random, then at the end of the day, both arms of your trial should have people that represent the whole -- all those variables that exist in the real world should be --

THE CHAIR: Dr. Bridle, could -- I'm not --

A Yes.

THE CHAIR: -- sure that this is really relevant. Could we get back to the question, please?

A Oh, yeah, well, it is relevant because this is the way that Dr. [redacted] could have made his conclusion and should have.

And so with the relevant -- and so what I'm saying is with this randomized controlled trial, you equalize all those variables, it's very large because of all the variables, and then when you run those kind of studies, that is what allows you to draw strong conclusions about the potential causation of a variable, which, in this case, is masking.

In the scenario that you just posed, there's no way causation could be attributed to masking. There were far too many uncontrolled variables that were not accounted for.

Q MR. KITCHEN: I've only got one more question on this and then one final question, and then I'll be done.

Dr. [redacted] in his testimony, so in his questioning, he described the lockdown restrictions imposed in Alberta in November and December of 2020, so a little over a year ago now. He stated cases went up after the lockdown, but eventually later on cases went down. He then concluded that the lockdown did not cause the initial rise in cases, but that it did cause the eventual drop in cases. In your opinion, is this a logical or scientific conclusion?

A No. So actually he had the latter part of that argument in his report highlighting -- trying to highlight that these lockdown measures, including masking a key component, had contributed to the dramatic decline in cases.

So more recent history demonstrates that that is patently false, that that's just the reality. That was looking sort of -- taking a snapshot in time. So again, first of all, it's correlative at best. Secondly, I -- at least it was in the report. I didn't see any peer-reviewed scientific -- I didn't see any citations attributed to his comments there. That's one thing that I had noted. And further, it's one snapshot in time; it was looking at the tail end of one of major waves of the pandemic -- waves of positive test results for SARS-Coronavirus-2.

And what I would like to highlight is that since

he highlighted that snapshot in time, we have had a record-shattering wave of the Omicron variant, where all the historical stuff that was being I guess highlighted as the reason for that decline, right, it was still in place, coupled with the fact that the vast majority of people were then vaccinated to add additional -- an additional layer of protection, we had record-shattering cases of Omicron.

So clearly, like -- and so again -- and I mean, I'm a scientist and when I have the data, make certain statements when there's overstatements or things misstated. I don't think it's incorrect for me, as a scientist, to declare something like that as being patently false.

Q Thank you.

MR. KITCHEN Those are all my questions on direct examination. So, Mr. [redacted] I've managed -- (INDISCERNIBLE) --

THE CHAIR: Mr. [redacted] (INDISCERNIBLE), would you like a few minutes?

MR. [redacted] I think, in fairness to Madam Court Reporter, we should take at least a 10-minute break. Again, I don't expect to be particularly long, but Mr. Kitchen may have some redirect, and I think we should take -- just take a 10-minute break if you're comfortable with that, Mr. Chair.

THE CHAIR: I'm fine with that. It's 3:55, so we'll come back at 10 after 4. Thank you.

(ADJOURNMENT)

THE CHAIR: Okay, I think we're all back, so Mr. Kitchen has completed his direct, and we'll ask Mr. [redacted] to continue.

MR. [redacted] Thank you, Mr. Chair.

Mr. [redacted] Cross-examines the Witness

Q MR. [redacted] Good afternoon, Dr. Bridle. I wanted to begin by saying that I was very displeased to hear your expert testimony on the effects of aging. I, however, will not use that to attack your credibility, I tend to agree with it, I have to admit, but, nonetheless, I thought that was something we should all not take into account in today's hearing.

I have a couple of clarification questions for you, Dr. Bridle. When I looked at your cv, and then I Googled you at the University of Guelph, I just want to be clear that your position is at the University of Guelph in the pathobiology department at the Ontario Veterinary College; is that accurate?

A That is accurate.

Q And that's part of the Doctor of Veterinary Medicine program; is that correct?

A Yes, that's correct, yeah, as alluded to before, a lot of my teaching is actually of the students enrolled in

the Doctor of Veterinary Medicine program.
Q Right.
A Yeah.
Q You had some discussions with Mr. Kitchen where you talked about what was occurring at Guelph University. Over the course of the pandemic, have there been any requirements at Guelph University for you as staff or perhaps students to mask if there's in-class settings or teaching?
A So just -- so, yes, just to clarify, not just students and staff but faculty as well. So actually I'm technically not a staff member. So just so people understand, yeah, there's three categories of people at the university: Faculty, who are the professors is what we're referred to; the staff -- we're represented by the University of Guelph Faculty Association is kind of the best way to distinguish; then there's our staff, and many of them are affiliated with fundamentally different unions; and then there's the student population.

But all three populations, yes, there have been masking policies that were implemented at the University of Guelph, yes.
Q And did you comply with those masking policies, Dr. Bridle?
A I did. I respect the law, and I respect rules, and so

even though I -- you know, what I've shared with you today, I respect those rules and adhere to them, yes.

Q I think you mentioned as well that when you went for a hair cut, you or the barber or the hairdresser had to wear masks, and that, I'm assuming, was because of the Chief Medical Officer of Health order or something like that; would that be correct?

A That is correct, yes.

Q So you observed that as well, that masking requirement, I should say?

A Oh, yes, I acknowledged that masking requirements have been implemented in many places, yes, including my public health area, yes.

Q Yeah, and more to the point, when you went to see the barber or to get a hair cut, you complied with those?

A I did so I'd get my hair cut, yes.

Q I think you were very fair in saying, Dr. Bridle, that there were I think some fairly significant areas where you and Dr. [redacted] were, I think you'd even said, a hundred percent in agreement, and I think that was in the context of masking and persons who are symptomatic and the benefits of masking. I think that's what you said anyhow.

I think, isn't it fair to say, that for a chiropractor, that person treating a patient can't definitively know whether the patient is symptomatic or

asymptomatic; would you agree with that?
A Well, okay, so from a technical -- from a technical standpoint, nobody can know without screening or asking whether somebody is symptomatic. So again, as I explained earlier, but I can explain again because it's a common area where people don't quite understand the distinction, so a sign is something that somebody external to the individual can identify, can use to identify that somebody is sick. A symptom is something that a person experiences that's associated with sickness.

So specific -- so nobody -- so, in other words, by definition, nobody upfront can identify whether somebody has a particular symptom, but you can identify if somebody has a particular sign. And again, so -- and I can't comment beyond that in terms of chiropractors. I -- that's not my area of expertise. I'm not sure exactly how it works, but --

So, for example, in my field of expertise, that's why we've been using the prescreening, and again it's asking the questions. By asking the questions, if people have -- are experiencing any symptoms or showing any signs, then they are not to go in, you know, to the workplace, my workplace, for example. I can't comment on what happens in a chiropractor's office though.
Q Okay. I'm not going to take you through all the

exhibits that are in front of the hearing relating to mask mandates and mask requirements, but -- and I'll indulge -- hopefully my friend will indulge me a little bit, rather, I'll just tell you that there have been some exhibits from entities like Alberta Health Services and the Chief Medical Officer of Health in Alberta which set out mandatory masking and social distancing, and I'm talking about the typical blue medical masks, not N95s and things like that, and that you referred to Dr. Tam as well.

It's probably fair to say, isn't it, that you disagree with those type of mandates?

A In the context of asymptomatic individuals, yes. I agree with them in the context of symptomatic individuals for all the reasons that I've stated earlier.

Q I'm wondering -- and again you may not have had the chance to review this in detail, I'm not going to take you towards it -- but one of the key documents in this hearing is a Pandemic Directive that the College of Chiropractors created that, among other things, required social distancing and masking.

I'm assuming that, in your work, you do have contact with members of regulated professions, perhaps physicians, maybe lab techs, CLXTs, others. Are you familiar with generally the concept of self-regulation

for professionals?

A Yes, I have, yeah, multiple clinical colleagues, so, yes, through them, I understand this to a certain degree.

Q And I don't want to go into a lot of detail, but if you were to look at the Ontario Regulated Health Professions Act, which I understand is an omnibus legislation, it sets up a college like the College of Physicians and Surgeons, the CPSO, and is it your understanding that that organization sets up registration requirements for physicians that they have to meet before they can become registered as physicians?

Sorry, you're muted.

A So I -- honestly, I can't comment in much detail on that. I mean, I know that my clinical colleagues are licensed by a body, for example, in Ontario, like you said, like the College of Physician and Surgeons of Ontario, but the actual licensing process and the administrative structure and how that's managed, I -- I'm sorry, I don't have the expertise to comment on that.

Q Yeah, and fair enough. I didn't want to take you there; I was just trying to, you know, get your sense, I mean, in your work, that you're aware of the fact, for example, that a physician has to register with the

CPSO before they can practice as a physician.

Are you also generally aware that, again, a member of the CPSO has to have annual, continuing competence requirements, has to meet recordkeeping requirements, and those type of things established by the CPSO?

MR. KITCHEN: Mr. [redacted] look, we all know where you're going, and tomorrow I have a member of the CPSO up, and I'm not going to object. You're going to ask him these questions, I'm not going to object because he's a member of the CPSO. Dr. Bridle --

(AUDIO/VIDEO FEED LOST)

THE CHAIR: You've gone -- you're frozen, Mr. Kitchen.

MR. KITCHEN: -- have him talk about regulated members when he's not one.

MR. [redacted] Mr. Kitchen, you just froze there a bit, so I'm not going to proceed with that line of questioning then, that's fine.

Q MR. [redacted] In your -- as your job and in your area of expertise, I'm assuming you've looked at the Ontario equivalents to, broadly speaking, the Alberta Chief Medical Officer of Health masking and social distancing requirements; is that fair to say?

Oh, I think you're muted, sorry.

A It's not showing that -- can you hear me?

MR. KITCHEN Yeah.

Q MR. [redacted] Yeah.
A Okay, yeah, so I -- yes, yes, is my answer.
Q Would it, keeping in mind your comments to me about your visit to the barber and what happened at the university, your university in terms of the masking requirements, would you think that it's important to comply with CMOH orders?
A So could you clarify that question? What do you mean exactly, like in which context? I mean, if I want to get food from a grocery store to feed my family, of course, I think it's important to comply so that I can get food.

Do I think that I need to be masked in those scenarios? No. Do I take every opportunity to not wear my mask where it's allowed? Yes. You know, so I'm not quite clear. That's how I would answer that. Maybe a more specific form --

Q No, I was looking -- I'm sorry, I was looking to ask you some questions about the masking components of Medical Officer of Health orders, but I think you answered that before when we talked about the policies at the University of Guelph.

MR. [redacted] Those are all my questions for you, Dr. Bridle. Thank you very much.
A Okay, thank you.

Mr. Kitchen Re-examines the Witness

Q MR. KITCHEN: Dr. Bridle, I just have two questions in redirect. When you wear a mask because you have to to get groceries or work (INDISCERNIBLE), do you do so willingly or is it (INDISCERNIBLE)?

THE CHAIR: Mr. Kitchen, you're frozen, and you broke up with your question.

MR. KITCHEN Okay, I apologize, I'll ask it again.

A I did -- I heard the question, but did the rest of the members would like -- would you like them repeated?

MR. KITCHEN No, [redacted] didn't hear it, so I'll have to ask it again. I apologize.

Q MR. KITCHEN: When you wear the mask, you just referred to wearing it to do groceries, you referred to wearing it at work, at the University of Guelph; when you wear it, do you wear it against your will?

A 100 percent, yes.

Q Do you think the prescreening questions that are pretty typical in your office and would be typical in Dr. Wall's office and any other chiropractor's office, do you think those questions are pretty effective at keeping symptomatic people out of the offices?

MR. [redacted] Mr. Kitchen, I'm going to have to object to that because Dr. Bridle has already said he knows nothing about chiropractic clinics, so I

really don't think he can answer that question, at least --

MR. KITCHEN Okay.

MR. [redacted] -- the second part of your question anyhow.

MR. KITCHEN: Point taken.

Q MR. KITCHEN: Dr. Bridle, let me ask you it this way: You have -- you said you have prescreening questions for your laboratory; do you think those prescreening questions are effective at keeping symptomatic people away from the laboratory?

A Yes, absolutely. So as I explained, symptoms are something that somebody experiences, and the only way to understand whether somebody's experiencing them is to ask questions.

So, for example, if you go to a physician, that's what they're designed to do, there are certain signs they can look for. So a sign, again, would be something -- so, example, when they take your temperature, they're looking for evidence of fever. That's something they can objectively assess themselves. You don't have to tell them that you have a fever, and then that's something that's a sign -- or, sorry, a -- yeah, a sign, therefore, of sickness.

Symptoms -- and symptoms can precede, can precede a lot of the signs. So that's the best way to actually

screen is for symptoms, which is something somebody is experiencing and an objective third party cannot directly observe. So the only way to get that out, whether you go to a physician or anything else is by asking the relevant questions.

And the -- so, for example, so the one that's used for my workplace was designed in consultation with physicians, who are experts at asking the relevant questions about symptomology, to assess whether somebody is sick -- and in my experience, that has been very effective. For the first time since those questions were implemented at the university, and it's the first time in the history of my laboratory that I have consistently not seen, not even once, one of my lab members come into work sick, whereas it was a relatively common occurrence prior to that.

Q Is there any logical reason to think that if Dr. Wall was to ask the same questions of his patients that it would be any less effective for him than it is for you?

MR. [redacted] I'm going to object to that too, Mr. Kitchen; it's just beyond his scope.

MR. KITCHEN: I disagree. I think it's perfectly legitimate. The way I asked it was is there any logical reason to think it would be any different, so that's not a scope question.

MR. [redacted] I don't think Dr. Bridle can

even comment on whether it's logical or not when he doesn't know what happens in a chiropractic office or what the specific requirements were for any screening that Dr. Wall carried out. I just think it's too far afield of what he can comment on.

MR. KITCHEN: Well, Chair, I put it to you; I think it's a perfectly legitimate question.

THE CHAIR: Okay, we will caucus and get back to you as quickly as we can.

(ADJOURNMENT)

THE CHAIR: The Hearing Tribunal has discussed the matter, and we've decided to allow the question.

Q MR. KITCHEN: So, Dr. Bridle, I'll just re-phrase it -- or not re-phrase it, re-ask it.

Is there any logical reason to think that if Dr. Wall, in his chiropractic office was using the same questions that you've been using that he would have different results?

A There would be no reason to expect different results. The expectation, what we were expected to do with ours is make sure -- let's put it this way: As long as the questions are comprehensive enough and thorough enough that a -- the average physician would be able to make a reasonable assessment as to whether or not somebody is or is not infected, that that's going to be an

appropriate questionnaire.

And just I guess maybe to help for you to interpret, one of the things that the -- well, yeah, let's just leave it at that. That's ultimately the litmus test: Physicians are the experts at diagnosing disease, and if they've designed a questionnaire that would allow them to get the same information that they would out of the individual, should they be a patient in their office, and they're screening for disease, yes, that questionnaire would be university applicable irrespective of the environment.

Q And my friend can object to this if he wants, but would you agree with me that those are administrative controls; is that an appropriate term to call those?

A Yes.

MR. KITCHEN: Those are my questions on redirect.

THE CHAIR: Okay, thank you, Mr. Kitchen. I think we'll just take a few brief minutes for a break just to see if the Panel has any questions for Dr. Bridle, so we'll be back with you as quickly as we can. If you could put us in our break-out, thank you.

MR. KITCHEN Thank you.

(ADJOURNMENT)

THE CHAIR: Okay, I think we're all back. Thank you for your patience.

Dr. [redacted] does have one question she would like to ask Dr. Bridle.

The Tribunal Questions the Witness

Q DR. [redacted] Hi, Dr. Bridle. Just regarding the IFR, you commented that in 2019, there was a prediction that the -- that there could be as much as 10 percent with regards to COVID-19 in terms of those who are infectious who get the disease, right? And then you mentioned, in early 2021, studies had shown that it was about .15 percent, and now even less. So I'm curious to know if there's any research or studies or -- to the best of your knowledge, if you knew that there was any percentage given in the time frame that we're concerned about, which would be from May to December 2020.

A Yeah, in that -- so that study that I cited in my report includes that time frame. So it would include everything from -- I was assessing everything from the beginning up until -- so the very earliest that it would have included data, and I'm not even certain -- I'd have to go back, and I have -- and double-check, but the earliest would have been, you know, like maybe January 2021, but the data would have been all from the start of the declared pandemic up until the end of December for sure.

It wouldn't have anything much newer than that,

because the way publications work, the publication process, just so you can understand the timing therefore, is normally what happens is when we have a manuscript ready, we submit it to a journal. And then what will happen is an editor will be assigned, then they'll try and recruit reviewers. Once they've identified reviewers for it, that paper gets sent to the reviewers. So there's a review process.

Normally reviewer -- so that process -- that process right there often takes a week, and then the review process always takes a minimum of two weeks, depends on the journal. Some like report back in two weeks, some three weeks, and sometimes they don't get them back when requested from reviewers, and they have to solicit them and try to remind the reviewers to get it in.

But so the point is, ideally then, they're going to get those initial reports after one month from the initial submission, and almost always, it's very, very rare for a manuscript to be accepted immediately with no revisions. So almost always, if a manuscript is going to be accepted, it is with revisions, and then, depending on how much revision they feel is necessary, that's going to dictate the -- dictate the time the authors have to go back and revise their manuscript. So for example, if they had to generate new data or run

new experiments, it's going to be -- it could be months they're given.

But for an article like this though, it would usually be a matter of weeks, and then that revised version goes back, and then, often, their reviewers have one final review, and then if they're satisfied with the changes, they'll approve it, the manuscript will be accepted. And then, at that point, it's called what we call in press, and then a short time thereafter it will be published. So --

Q So, sorry, so just -- so the question then, it was released or -- in some capacity in 2021. It --

A Exactly.

Q -- was based on the information from 2020 --

A Exactly because --

Q -- so the --

A -- even though it was several months into 2021, the data that they would have had available when they first submitted it would have been for -- mainly from that duration you're talking about.

Q Sure. So in the latter stages of 2020, would we have had -- would you or the population or whatever have any idea that 10 percent wasn't the number that we were looking at in the middle of 2020?

A Yes, yes. Yeah, that was very quickly obvious. So, again, what I mentioned is it wasn't a prediction that

the infection fatality rate would be 1 to 10 percent; it was that initial like immediate concern that it could potentially be that. It wasn't like any kind of modelling was done. This was high profile public health officials, like Fauci, like Theresa Tam, expressing this potential concern, but we very quickly -- it didn't take much time before we knew, we really started to narrow down the high-risk demographics.

And so we knew very early on, again, that the highest risk demographics were the frail elderly, those who are immunosuppressed, those who are obese, and those who have multiple comorbidities. And for the rest of the people, we knew, so very earlier on, that the risk of fatality from infection from this particular virus was quite low, yes.

DR. [redacted] Thank you.

A No problem.

MR. KITCHEN: I'm going to ask for permission to ask a follow-up question.

THE CHAIR: Okay.

Mr. Kitchen Re-examines the Witness

MR. KITCHEN: And I'll give you the question, and then you can let me know if you're okay with it.

Q MR. KITCHEN: Dr. Bridle, what do you mean

by "very early", right? Because it came in March 2020. So the Pandemic Directive came out in May of 2020, so it's important that we know what you mean by what's "very early", that we knew it wasn't going to be as high as 1 percent.

MR. KITCHEN And, Chair, is that okay that he answers that?

THE CHAIR: Mr. [redacted] do you have any objection?

MR. [redacted] I don't object.

A Yeah, so that's a good question. It was prior to the implementation of the policies that we knew that, in the low-risk demographics, it wasn't going to be anywhere close to 1 percent infection fatality rate. So prior to May, right? The virus was first identified in late 2019. It was only -- it only took a couple of months to start identifying that this was -- so basically what we refer to this as is this is a virus -- we talk a lot about discrimination, you don't want discrimination -- but this is a virus that very much discriminates. And we knew that within a couple of months, meaning, a potentially, a very dangerous virus that would have a high infection fatality rate, would indiscriminately kill people.

This virus is very discriminatory. We knew within a couple of months of the -- when it was -- after the

virus was first identified. So by "very early", I mean like by January, by the end of January 2020, we already had a good idea that there was a limited number of demographics that were at particularly high risk from this virus.

THE CHAIR: I think we should leave it at that. We're talking in generalities now.

MR. KITCHEN: I'm going to ask for permission for one more question.

Q MR. KITCHEN: Because I want to -- I want you to be able to answer Dr. [redacted] question.

At what month in 2020 did scientists know that the IFR was going to be below 1 percent?

MR. [redacted] Mr. Kitchen, I'm going to have to -- I don't want to be difficult here, but that is a very vague question. When we say scientists knew, which scientists, when, how did they know? I think we've explored this a little bit, but I'm reluctant to let it go much further than that, because it's just a broad topic to begin that -- and, of course, in fairness to Dr. Bridle, he can't speak to what other people thought.

So I think my request to you is that you've explored this enough, and I think you shouldn't go any further, and I hope you're comfortable with that.

MR. KITCHEN: I'm going to ask Dr. Bridle --

Q MR. KITCHEN: -- when did you know?
A I was quite confident that -- about that by the end of January 2020.
MR. KITCHEN: And I'll leave it there. I think that was helpful for answering everybody's questions.
THE CHAIR: Okay, I think that brings today to a conclusion. We'll being back at 9:00 tomorrow morning. Mr. Kitchen, you can discharge your witness, and thank you very much, Dr. Bridle, for a very long and informative day.
A Thank you. Take care.
THE CHAIR: So we're back on at 9 with your witness tomorrow morning, Mr. Kitchen, that's correct?
MR. KITCHEN: That's right.
THE CHAIR: Okay. Very good, well, we will recess until tomorrow morning. Thanks everybody, and we'll see you then.

PROCEEDINGS ADJOURNED UNTIL 9:00 AM, JANUARY 29, 2022

CERTIFICATE OF TRANSCRIPT:

I, [redacted] certify that the foregoing pages are a complete and accurate transcript of the proceedings, taken down by me in shorthand and transcribed from my shorthand notes to the best of my skill and ability.

Dated at the City of Calgary, Province of Alberta, this 21st day of February, 2022.

[redacted]

[redacted] CSR(A)

Official Court Reporter