

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 8

VIA VIDEOCONFERENCE

Edmonton, Alberta

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

4

5 January 29, 2022 Morning Session

6

7 HEARING TRIBUNAL

8 J. Lees Tribunal Chair

9 W. Pavlic Internal Legal Counsel

10 Dr. L. Aldcorn ACAC Registered Member

11 Dr. D. Martens ACAC Registered Member

12 D. Dawson Public Member

13 A. Nelson ACAC Hearings Director

14

15 ALBERTA COLLEGE AND ASSOCIATION OF CHIROPRACTORS

16 B.E. Maxston, QC ACAC Legal Counsel

17

18 FOR DR. CURTIS WALL

19 J.S.M. Kitchen Legal Counsel

20

21 K. Schumann, CSR(A) Official Court Reporter

22

23

24

25

26

1 (PROCEEDINGS COMMENCED AT 9:08 AM)

2 THE CHAIR: Well, good morning, everybody.
3 We've got one witness I believe to examine today,
4 Mr. Kitchen, and just before we do that, Mr. Maxston,
5 anything to raise?

6 MR. MAXSTON: No, thank you for asking, but
7 I should mention, Mr. Kitchen, you'll probably speak to
8 this, but he has sent Mr. Lawrence and I his proposed
9 qualification for his expert witness, and I don't think
10 there will be an issue.

11 Mr. Kitchen, I would have responded to you, but I
12 needed to run that by my client, and I just saw it this
13 morning, so I'll let you know that in advance.

14 MR. KITCHEN: Thanks.

15 THE CHAIR: Okay, let's turn the floor
16 over then to Mr. Kitchen, and you can bring your
17 witness in, and I just remind everybody to mute
18 yourself, please, and hopefully we'll have enough
19 bandwidth today that we don't have any interruptions.

20 MR. KITCHEN: All right. So, Dr. Warren,
21 I'll just do some introductions because we have so many
22 people, and I don't know if you can see everybody on
23 the screen. I've got mine on gallery view so I can see
24 everybody.

25 The four Tribunal Members are Dr. Dianna Martens,
26 Dr. Leslie Aldcorn, those are chiropractic members of

1 the Tribunal; and then Mr. Jim Lees and Mr. Doug Dawson
2 are public members of the Tribunal. So there's four in
3 total.

4 Walter Pavlic is the lawyer for the Tribunal,
5 probably won't hear anything from him, but he's the one
6 that advises the Tribunal, so if they caucus, he goes
7 caucusing with them, and don't wonder at that.

8 Mr. Maxston is the lawyer for the -- what I will
9 refer to as the prosecutor in this case. So we have
10 the College, we have the Tribunal, those are separate.
11 The College is bringing the action against Dr. Wall,
12 and that's happening through the Complaints Director,
13 that's David Lawrence. His lawyer is Blair Maxston, so
14 he'll be the one that cross-examines you.

15 And then, of course, there's the Hearings
16 Director, you won't see her, but that's Ms. Nelson.

17 And then have our court reporter, Karoline.

18 And then of course, Dr. Wall is here. You won't
19 see him or hear him, but he's listening. And that's
20 everybody.

21 So with that, Karoline, could you please swear him
22 in.

23 THE CHAIR: Dr. Warren, just before
24 Karoline swears you in, I'll just -- we tell this to
25 everybody, Karoline is a court reporter. She's making
26 a verbatim record of the proceedings, and so we would

1 ask that you try not to speak real quickly. I have no
2 idea whether that's your speech pattern or not, but if
3 you could just keep that in mind, please.

4 THE WITNESS: Sure.

5 THE COURT REPORTER: And please wait for
6 Mr. Kitchen and Mr. Maxston to finish their entire
7 question before you answer. Do not interrupt them.
8 It's just makes the audio very difficult for me, so ...

9 DR. THOMAS WARREN, Sworn, Examined by Mr. Kitchen
10 (Qualification)

11 Q MR. KITCHEN: Dr. Warren, I just have a few
12 questions for you about your background, and then I'm
13 going to tender your qualification, and then we'll go
14 from there, so I don't imagine that it'll take too
15 long.

16 A Sure.

17 Q Dr. Warren, do you have a medical degree?

18 A I do.

19 Q And what have you done for residencies and fellowships?

20 A Sure. So I did four years of medical school at the
21 University of Western Ontario, graduated in 2005. Then
22 I did three years of residency at the University of
23 Ottawa in internal medicine. And then I did two
24 fellowships in infectious diseases and medical
25 microbiology from 2008 to 2011. So I'm Royal College
26 certified in three different specialties.

1 Q Thank you. This may come up in your questioning, but
2 I'll ask it now, can you give us an idea, just briefly,
3 of what infectious disease, what that speciality is?

4 A Sure. So I'm an infectious disease specialist and a
5 medical microbiologist. People can be one or the other
6 or both.

7 So as an infectious diseases specialist, I treat
8 patients with infections, so diseases caused by
9 viruses, bacteria, parasites, fungus. So about
10 two-thirds of my practice is clinical work, taking care
11 of patients with infections, mostly in the hospital but
12 some outpatient work as well. And then about a third
13 of my practice is more administrative-type work. So as
14 a medical microbiologist for ten weeks, I manage the
15 microbiology laboratory in the hospital that I work in.

16 I also am responsible for covering the infection
17 control service at the hospital I'm at for about ten
18 weeks a year.

19 And then my primary administrative responsibility
20 is something called antimicrobial stewardship, and so
21 that's really just monitoring antimicrobial, antibiotic
22 use within the hospital, ensuring that it's appropriate
23 and controlling its use and intervening when needed.

24 Q Excellent, thank you. Are you currently enrolled in a
25 graduate program?

26 A Yes, I'm doing a Masters in science and epidemiology at

1 the London School of Hygiene & Tropical Medicine, which
2 is part of the University of London, England, and I'm
3 in my fourth year, so I should finish later this year.

4 Q Thank you. Do you teach in any capacity?

5 A Yeah, I have an adjunct appointment at McMaster
6 University as an assistant clinical professor, and so
7 in my ten years of full-time practice and my eight
8 years of my appointment with McMaster, I've had all
9 levels of learners from medical students, first-,
10 second-, third-year medical students, all the way up to
11 infectious diseases fellows.

12 Q Now, I know you mentioned you work at the hospital, but
13 could you tell us in more detail what your current
14 occupation is?

15 A Like as an infectious diseases specialist?

16 Q Yes, yeah, exactly, we want to know --

17 A So --

18 Q -- about just what that actually looks like.

19 A Okay. So I have hospital privileges at Halton
20 Healthcare Services, which is a medium-size hospital
21 just west of Toronto. It has three campuses, an
22 Oakville campus, a Milton, and a Georgetown campus.
23 And so I am oncall for 17 weeks a year for infectious
24 diseases, which is 24/7 call, can be quite busy.

25 And then other than that, as I said, I have a fair
26 amount of administrative responsibilities, which is

1 basically the rest of my time, apart from vacation and
2 being oncall. And then I have a small outpatient
3 practice, which would involve things like hepatitis C,
4 latent tuberculosis, HIV management.

5 Q Thank you. Are you a member of the CPSO?

6 A I am.

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

9 A Yes, I have.

10 Q And have you prepared other expert opinion reports
11 regarding SARS-CoV-2 and/or COVID-19?

12 A Yes. I prepared I think nine expert reports in five
13 provinces for -- regarding COVID-19 for SARS-CoV-2.

14 Q Thank you.

15 MR. KITCHEN Those are all my questions.

16 Mr. Maxston, did you want to ask any questions
17 before I tender the qualification I want?

18 MR. MAXSTON: I don't think so, Mr. Kitchen.
19 Thank you.

20 MR. KITCHEN: Chair, I want to qualify
21 Dr. Thomas Warren as an expert in the areas of
22 infectious diseases and medical microbiology, in
23 particular, SARS-CoV-2, COVID-19, and the efficacy of
24 masking, physical distancing, and other restrictions
25 intended to prevent transmission of SARS-CoV-2.

26 MR. MAXSTON: Mr. Chair, as I mentioned

1 before, Mr. Kitchen provided this to me and my client
2 in advance, and we're not going to object to it.

3 I will repeat our prior comments with respect to
4 Dr. Wall's expert witnesses that we, again, don't
5 believe this is a hearing about mask efficacy and
6 social distancing, et cetera. We've placed that same
7 qualifier for all of Dr. Wall's witnesses as we have
8 before.

9 MR. KITCHEN: And I'll provide the same
10 response: It's borderline nonsensical to say such a
11 thing when the Complaints Director has submitted an
12 expert on the very issue of masking from a scientific
13 and medical perspective, and that was in response to
14 Dr. Wall's experts. So I understand my friend wants to
15 continue to fill the record with that, but I guess I'm
16 going to have continue to fill the record with saying
17 that I don't understand how it makes any sense to say
18 so.

19 THE CHAIR: You're both on the record on
20 that point, so I don't think we need --

21 MR. MAXSTON: And, Mr. Chair, I'm sorry, I
22 just want to make one comment, I've said this before
23 and I'll say it again, we called an expert because
24 Dr. Wall was calling experts, and we didn't introduce
25 Dr. Hu at our own initiative. It was to respond to
26 what we understood would be expert testimony, so I just

1 wanted to be clear about that. We didn't introduce
2 Dr. Hu for anything other than to rebut the expert
3 witness testimony from Dr. Wall. We've covered this,
4 but I wanted to mention that.

5 THE CHAIR: Let's get back on track and
6 deal with Dr. Warren. I just had one question I would
7 like to ask Dr. Warren.

8 The Chair Questions the Witness (Qualification)

9 Q THE CHAIR: Good morning, sir, thank you
10 for joining us.

11 A Morning. Thank you.

12 Q I was just looking at your résumé and your cv, and I
13 noted that peer-reviewed publications, the last one is
14 noted as 2015. Have you shifted your focus away from
15 research in the last few years?

16 A Yeah, usually most people in academia have either one
17 of two streams: One is research-based or
18 teaching-based. And so my appointment with McMaster is
19 a teaching-based appointment.

20 THE CHAIR: Thank you for clarifying that.
21 Ruling (Qualification)

22 THE CHAIR: Okay, I don't know that
23 there's a need for us to caucus to consider approving
24 Dr. Warren as an expert witness in the fields noted.
25 The College has no objection.

26 So, Mr. Kitchen, I'll ask you to continue with

1 your direct examination of Dr. Warren.

2 MR. KITCHEN: Thank you.

3 DR. THOMAS WARREN, Previously sworn, Examined by
4 Mr. Kitchen

5 Q MR. KITCHEN: Dr. Warren, just going to
6 start with a couple standard questions. Do you know
7 Dr. Curtis Wall personally?

8 A No.

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

11 A No.

12 Q And do you understand your duty today to provide this
13 Tribunal with your expert knowledge and opinions in an
14 objective and neutral manner?

15 A Yes.

16 Q And then the last thing is this: Do you understand
17 that if and when, in the likely event we're going to
18 have a break, you and I are not permitted to speak
19 until your testimony is done?

20 A Yes.

21 Q All right, well, I'm going to start with your report.
22 In the second section of your report, and that starts
23 on page 1, you identified three factors that are
24 driving SARS-CoV-2 transmission and mortality and state
25 that those factors are, quote, non-modifiable. Now,
26 I'm going to ask you about the factors, but, first,

1 could you please explain what "non-modifiable" means?

2 A "Non-modifiable" means that they can't be changed. For
3 instance, I speak about a person -- or a person's age,
4 you can't change someone's age or you can't change the
5 age structure of a population. So non-modifiable means
6 it cannot be changed by some sort of intervention.

7 Q The first non-modifiable factor you discuss is the
8 timing of peak virus transmission or wave of
9 transmission. You say the timing is primarily affected
10 by seasonal patterns. First, I want to ask you, since
11 your report is almost a year old now and we're two
12 years in experiencing this with SARS-CoV-2, has your
13 opinion in this regard changed in any way since
14 drafting this report?

15 A It only changed in that I'm more certain of it. In the
16 last nine or ten months since I wrote my report,
17 there's been even much more accumulating evidence to
18 show that SARS-CoV-2 is similar to essentially every
19 other respiratory -- important respiratory infection in
20 humans, in that it follows a seasonal pattern. We can
21 just even see that in our Canadian data that -- and I
22 mentioned it in my report, but other Coronaviruses have
23 their peaks in January, and across Canada, this
24 January, 2022, we have another peak of SARS-CoV-2.

25 Q Now, I know you cited to a lot of literature in your
26 report, of course, and you just said that there's even

1 more literature since, but can you give us an idea of
2 what is that literature that supports your position?
3 Just a -- I know you can't go into every study, but
4 please give us an idea of what that literature is.

5 A Specifically about seasonal patterns?

6 Q Yes.

7 A Yeah, so I quoted, I don't know, probably about a dozen
8 studies or so, yeah, at least seven or eight, that
9 talked about or showed that SARS-CoV-2 follows a
10 seasonal pattern, which was fairly early, because by
11 the time I wrote the report, it had only been around
12 for just over a year, I think 15 months.

13 And so similar to those studies, there have been
14 more studies looking at the timing of SARS-CoV-2 in
15 different jurisdictions. So some of the studies I
16 quoted were country-specific, others were global. And
17 those similar types of studies, because we have one
18 more year of data have continued to accumulate and been
19 published in the peer-reviewed literature.

20 Q These are peer-reviewed academic articles, is that a
21 good way to describe them?

22 A Correct.

23 Q And can you explain how or why these seasonal or
24 cyclical patterns are, in fact, non-modifiable?

25 A Well, the weather is non-modifiable, and so we know,
26 for instance, with influenza, that it kind of usually

1 starts in the southern hemisphere and moves to the
2 northern hemisphere. Maybe potentially the time of
3 year or the exact time in the winter, the colder
4 season, when the peak occurs might be different, might
5 be December one year, might be January the next or
6 February, but it's always kind of in the winter months
7 in the northern hemisphere.

8 And so the climate and the temperature is not
9 something that can be changed, and that affects
10 multiple things. It affects how often people are
11 inside. It affects transmissibility, because the
12 relative humidity in the air affects water droplets,
13 which is, you know, aerosol droplets is one of the --
14 the primary way that SARS-CoV-2 and many other
15 respiratory viruses are transmitted. So those type of
16 factors can't be changed, but we're going to have a
17 winter in the northern hemisphere every year around the
18 same time, you know, between November and March, and so
19 we can expect a peak of respiratory viruses to occur in
20 that time frame.

21 Q So the theory that lockdowns or restrictions work based
22 on the theory of being able to modify that or being
23 able to work notwithstanding that?

24 A The main -- well, the main purpose, I guess, of
25 lockdowns would be to reduce the frequency of contacts
26 and then, therefore, infection, with the goal, you

1 know, it's usually the stated purpose of not
2 overwhelming health care capacity.

3 But in my second point, I talk about population
4 density. And the number of infections in a
5 geographical location is primarily going to be
6 influenced by population density, and I give an example
7 of New York. Like in the first wave, there was a huge
8 number of infections in New York City, because it's so
9 population-dense, and you can't change that. You can't
10 take 8 million people in New York City and put them in
11 upstate New York, distribute them along upstate New
12 York. So you're still going to have 8 million people
13 in a small number of burrows in New York City, and even
14 though there's a lockdown, you still have large
15 apartment buildings with people in very close quarters.
16 So you're not modifying the population density, which
17 is the most important factor.

18 Q So the idea behind restrictions is not that
19 restrictions can change that factor but that
20 restrictions can work notwithstanding the presence of
21 that factor?

22 A That's the idea. The idea would be by having a
23 lockdown restriction, you're reducing the number of
24 people that you would come in contact with and,
25 therefore, the number of potential infectious contacts
26 or the statistical risk of someone being infected.

1 What I'm arguing in this and what I think some of
2 what the literature clearly shows in the studies that I
3 quoted is that it has a negligible effect in a place
4 that is already population-dense.

5 And so you have a rural location, those people
6 already are going to come into contact with much fewer
7 people. Let's just say, you know, give a number of 8
8 or something per day, whereas you have a
9 population-dense place like New York City, I'm just
10 throwing it out there, but you have people on a random
11 day coming into contact with 80 people, you know what I
12 mean.

13 And lockdown is modifying that slightly, like
14 you're taking in a rural location, 8 down to 5, and
15 then New York City, 80 down to 60. You still have a
16 very population-dense area. When you go out to buy
17 groceries in New York City, you're passing by lots of
18 people, and so you can't modify that population
19 density. And that, as I showed in the studies I
20 quoted, is a very important factor to predict the
21 number of infections in the current wave.

22 The timing is going to be predicted by season.
23 The number of infections is going to be predicted by
24 population density, and the mortality is going to be
25 predicted by the age structure.

26 Q So is part of the reason why we keep getting wave after

1 wave after wave because the cyclical pattern just can't
2 be stopped even by intense interventions?

3 A Yeah, SARS-CoV-2 is now the fifth seasonal Coronavirus.
4 There have been four prior to SARS-CoV-2, and now it's
5 the fifth. And it will continue to cause infections
6 and waves in a seasonal pattern just like the other
7 four do.

8 And so just like we can't prevent influenza or
9 other seasonal Coronaviruses, we can't prevent the
10 waves on a population level, we're not going to be able
11 to prevent SARS-CoV-2 waves. We haven't been able to
12 in the past two years, and we won't be able to going
13 forward.

14 Q So at this point in time, are any attempts, any human
15 attempts to try to stop SARS-CoV-2 from continuing as
16 the fifth Coronavirus, are they just futile?

17 A Yeah, to stop it circulating within the community like
18 globally, yeah. Like trying to stop it, the whole
19 notion of zero COVID makes no sense. It can be done
20 for short periods of time in places like New Zealand,
21 which can -- are literally in the middle of the ocean
22 and can hibernate themselves from the rest of the
23 world. But even there, you see places like Australia
24 that were able to maintain that for periods of time,
25 but now it's circulating in Australia like anywhere
26 else in the world.

1 And so, yeah, it would be utterly futile to say
2 that we tried to stop the circulation of SARS-CoV-2
3 right now, like on a global level within the community.

4 Q So even if an entire nation went into, you know, a
5 complete, you know, locked in your house kind of
6 lockdown for a year on end, it wouldn't matter, because
7 as soon as you lifted that, Coronavirus would come in;
8 is that what you're saying?

9 MR. MAXSTON: Mr. Kitchen, I'm sorry, I
10 don't want to interrupt, but I got the sense on the
11 last three or four questions that there's a lot of
12 lead-in, and I don't want to cramp your style here, but
13 I think there's a lot of lead-in on some of these
14 questions. I wonder if you could consider maybe
15 rephrasing them a little bit.

16 MR. KITCHEN: That's fine.

17 Q MR. KITCHEN: Dr. Warren, just give me a
18 second; you've already answered so many of my
19 questions.

20 So let's talk about the -- I mean, you've already
21 touched on this, but let's talk about the third factor.
22 And I think I understand this better now, you say the
23 third non-modifiable factor is just how old people are.
24 But the first question I have for you to help us
25 understand is what is infection fatality ratio?

26 A Okay, let me just bring that up here on my report.

1 Q Yeah, it's on page -- end of page 2, it's the third
2 portion of that section.

3 A So the infection fatality ratio, so that's the number
4 of people with the infection that died or the
5 percentage. It's a ratio, so it would be a percentage.

6 Q And do you have any idea roughly what that is right now
7 with COVID?

8 A It's unchanged from what I say in my report. So in my
9 report, I say that persons over 80, the IFR is
10 approximately a thousand times greater than the IFR in
11 those under 20, and so the age of a patient is by far
12 the most predictive measure of the risk of mortality.

13 Q In your opinion, is the IFR of people above 80 more
14 relevant than the overall IFR?

15 A Well, I think the IFR in any age group is going to be
16 important, so if we look at -- if we compare the
17 mortality risk in persons under 20, I think that helps
18 shape policy for that age group, so that's school-age
19 people. And we know and it's clear from the literature
20 now, it was when I wrote my report, but it's much
21 clearer now, that the actual risk of death from
22 SARS-CoV-2 infection is lower for that age group,
23 persons under 20, than for seasonal influenza.

24 And so when you're considering policy in that age
25 group, that's important to look at. It's also
26 important to look at what the IFR is in other age

1 groups as well, but it's important to be able to break
2 that down. And so, likewise, when we look at the IFR
3 in persons over 80, that helps us form a policy for
4 that age group, whether it's care homes, nursing homes,
5 retirement homes. It matters what the IFR is in other
6 populations, but it's very helpful to break it down,
7 because each age group and demographic is going to have
8 different policy implications, because policy
9 implications for a school should be very different than
10 a policy implication for a nursing home.

11 Q We've heard in the proceedings so far that the IFR
12 overall for all age groups for COVID is about 0.15 or
13 less now, but what we've heard, at least at one point,
14 it was 0.15. Do you have any reason to agree with that
15 number?

16 A No, that's roughly accurate. I would say it's probably
17 lower now, having gone through the Omicron wave.
18 Omicron has been much less severe with regards to
19 mortality. There are various factors regarding that,
20 but, yeah, that number is roughly accurate. Again, it
21 really depends. When you talk about an IFR in a
22 sub-Saharan African country, which has a much lower
23 population, it's going to be quite different.

24 So in statistics, we use age -- like there's a way
25 of age-standardizing when you compare different
26 countries, and that would always have to be done when

1 you compare or when you discuss these things, because
2 if you calculate an IFR of the Canadian population,
3 without age-standardizing it and then comparing it to
4 another country like say Nigeria, which is much
5 younger, you're comparing apples to oranges. And so
6 there's clear statistical methods if you want to do
7 that comparison.

8 And so generally, when you talk about an IFR
9 overall globally, well, then you have kind of
10 standard -- well, what's your standard population
11 scale, and then you normalize it to that. So it's not
12 an easy answer, but that's a roughly good ballpark
13 number, but I would say it's maybe slightly lower now.

14 Q Okay. So if I'm understanding you, in sort of
15 nonscientific language, the more old people you have in
16 your society, the higher the IFR in that society?

17 A Yeah, absolutely. If you're calculating it just based
18 on your country, yeah.

19 Q And it's lower in Nigeria because they have less old
20 people?

21 A Yeah, the age structure is different. So the
22 proportion of, say, persons in over 70 in a younger
23 country, and that would often be countries in
24 sub-Saharan Africa or different places in Asia, it's
25 going to be different, yeah.

26 And people discussed this with regard to the

1 Omicron wave in South Africa, because the South African
2 population is quite a bit younger, and so people
3 rightly said, okay, well, we need to compare apples to
4 apples here, rather than apples to oranges. And there
5 are standard statistical ways of kind of doing that
6 comparison. There -- and I won't get into that, but
7 you can still do it.

8 Q So when I look at your report, you say 95 percent --
9 we're in Canada -- 95 percent of deaths are in persons
10 over 60. So do I understand correctly then that 95
11 percent of what contributes to that overall IFR of 0.15
12 is from people over 60?

13 A That's right.

14 Q So if we took those people out of the equation, instead
15 of 0.15, we'd have something that might look like
16 0.00000 et cetera; is that accurate?

17 A Yeah, it would be -- if you look at the IFR of only
18 persons 60 and under, it's substantially less, yes,
19 that's right.

20 And again -- and then -- you know, it's
21 affected -- there are other factors, right? There are
22 comorbidities, and, you know, the CDC had a good study
23 just recently that was published that just -- that
24 looked at both age but then comorbidities as well. The
25 risk of death increases significantly when you go from
26 zero to one comorbidity and then to two and then to

1 three.

2 So you have someone who is over 80 with, you know,
3 two or three comorbidities, their risk of death is very
4 high and substantially higher than -- orders of
5 magnitude higher than someone, you know, much younger
6 with no comorbidities. And, you know, statistically,
7 it's closer to zero once you get below a certain age
8 with no comorbidities; it's for all intents and
9 purposes zero.

10 Q Okay. So the IFR differs dramatically over age groups
11 then?

12 A Yes.

13 Q Now, and this has been a big issue in this hearing, the
14 overall IFR, was it ever much higher than this 0.15
15 figure even in the beginning?

16 A Well, it's changed, so if you -- it can be tracked over
17 time, and what you'll see is that, very early on, it
18 was very high because the number of infections detected
19 was much lower very early on because testing was
20 limited, but quite soon after the first wave, the IFR
21 came down significantly.

22 So if you look at the very beginning when people
23 were (INDISCERNIBLE) in the spring of 2020, it was
24 quite high, but over time -- I mean, you could -- there
25 are graphs of this, but over time, the IFR has been
26 going down and down and down, and actually, you know,

1 quite significantly dropped in the Omicron wave,
2 because you have a whole bunch of infections but
3 relatively fewer deaths, and so it's been going down
4 over time.

5 Q That IFR rate early on, so let's say early 2020, is
6 that a highly reliable figure?

7 A No, because it was -- in statistics, you know, we talk
8 about things like bias, like so that would be selection
9 bias. And so early on, it was only the most evident,
10 so symptomatic, the sickest who were being tested, and
11 so you had a selection bias early on.

12 But as with -- in most things in statistics, the
13 larger sample size, the more accurate it's going to be.
14 And so now that we've got, you know, hundreds of
15 millions of cases worldwide that we can reliably make a
16 much better estimate as to what the true IFR is.

17 Q Is it possible that, in early 2020, a very large number
18 of people were infected, but nobody really knew about
19 it?

20 A Yes. It's hard to know that for sure, because there
21 are a number of different factors, one of which just
22 being limitations of testing, particularly in different
23 places in the world.

24 Even in our institution, I remember for the first
25 few weeks at least, if not longer, like we had quite
26 significant limitations on who we could test, who we

1 could only run a certain number of tests per day. But,
2 yeah, there have been other studies that have been done
3 subsequently to say and estimate at least how many
4 other infections are there apart from the ones that
5 we've actually picked up with positive testing, for
6 instance.

7 The estimates varied from, again, the country and
8 various separate testing procedures or protocols, or,
9 you know, who can be tested, who not. Because even
10 here in Ontario, we've changed who's going to be
11 tested. Our Chief Medical Officer of Health says
12 that -- now said, you know, if you have minor symptoms
13 and, you know, are otherwise healthy and stuff, you
14 don't necessarily have to be tested, you just assume
15 you have COVID and stay home. So over time there has
16 been changes to testing protocols and stuff, and so
17 that's going to change how many people are actually
18 detecting.

19 So certainly very early on, there would have been
20 a fair number of people who had the infection but were
21 not detected, because we know the asymptomatic rate is
22 about 10 to 20 percent as well, I said that as well.
23 So at least early on, unless they were close contacts
24 and similarly infected, they probably weren't being
25 tested.

26 Q Now, obviously any IFR is, I guess, concerning or

1 upsetting, because that ultimately means people die,
2 but can you help us understand, give us a figure of
3 what would be considered in the medical community as a
4 dangerously high IFR?

5 A Well, you know, that's a bit of a tricky question, but
6 like I think what we're seeing now, I think one of the
7 important things to say with regards to the IFR of
8 SARS-CoV-2 is that, overall, what we're seeing is that
9 the IFR is approaching seasonal influenza, and seasonal
10 influenza varies quite a bit from year-to-year, and
11 some years are very bad, other years aren't.

12 And actually they're related, because what happens
13 is if you have a bad flu year, because many elderly
14 people, no matter what, are -- in the end, are going to
15 die of a respiratory tract infection. Canada's
16 greatest physician, William Osler, kind of referred to
17 it as -- respiratory infections, at least overall, as
18 the old man's friend. It was just kind of something
19 that just took off the elderly. So whether it's
20 bacterial pneumonia, influenza, Coronaviruses, the
21 frail elderly and, you know, with heart disease or
22 cancer or other things that have debilitated them, it's
23 the heart disease or the cancer that's debilitated
24 them, but the thing in the very end, the last few days,
25 that they might actually die of, is going to be a
26 respiratory tract infection. And so it's very common

1 in that age group.

2 And so influenza, we know that if you have a bad
3 influenza year, the next year is often going to be
4 light, and one of the reasons is that the previous
5 severe season has, unfortunately, killed many of the
6 most vulnerable, and so you've now removed a good
7 proportion of the most vulnerable from the population,
8 and so the next year, the flu, at least in that
9 population may be -- the IFR at least may be relatively
10 low. And so there's multiple different factors going
11 on here.

12 But what we're seeing is that now, overall, the
13 IFR of SARS-CoV-2 is approaching and very similar to
14 seasonal influenza.

15 Q So when you say a bad year, so the IFR for influenza
16 fluctuates then?

17 A Absolutely from year-to-year. So you -- and during
18 pandemic years, the IFR is going to be very high. So
19 if we're just talking about 1919 to 1920, like the 18
20 months from late '17 to, you know -- or late 2018 to
21 2-thousand -- or, sorry, 1918 to 1920, during the
22 Spanish the flu, the IFR would be huge, but there are
23 other years when influenza IFR is quite low. And so
24 you can talk about it on a yearly basis or a strain
25 basis, or we can talk about it over years or decades.
26 And if we kind of generally talk about it over years

1 and decades, then the IFR of SARS-CoV-2 is now
2 approaching the IFR of influenza.

3 But, yes, the estimated mortality of influenza
4 year-to-year can change by two or three times in a
5 season even in Canada. And, again, that's affected by
6 multiple factors. One of the factors, as I said, is
7 the previous year and the proportion of vulnerable
8 people, but it's also going to be the natural mutation,
9 the strains of influenza. We would call them strains.
10 Now, you know, we call them for SARS-CoV-2, it's
11 variants, but it's the exact same process. It's
12 natural mutation of a respiratory virus.

13 Q Right, but you used the word "pandemic" in describing a
14 bad influenza year. Are you aware of what number,
15 what -- you know, the IFR we know for low influenza
16 must be somewhere around 0.15, but what's the number,
17 roughly, for a bad influenza year or a pandemic
18 influenza year? What's the IFR rate? I mean, you
19 know, it could be 50 percent, it could be 25 percent.
20 You know, we don't know because we don't look at this
21 on a daily basis, and so I -- you know, it would be
22 very helpful to have some sort of number to work with.

23 A Yeah, I don't know the exact number for Spanish flu,
24 but the most kind of reasonable estimates for the
25 Spanish flu is that between 50 and 75 million people
26 died, so we're talking an IFR in the global population

1 was not that high, so we're talking an IFR of at least
2 1 percent in that case, if not higher.

3 Q Okay, so 1 percent is high?

4 A Well, it would be -- you know, I think the global
5 population at that point was about 2 billion, so we're
6 talking an IFR probably at that time of about 2
7 percent. Yeah, and these are just rough estimates. I
8 know that the most conservative estimates of the
9 mortality was about 50 million, so that's an example.

10 Q So has the IFR of COVID ever exceeded the IFR of a bad
11 flu year?

12 A Yeah, certainly early on. And with different variants
13 and as it starts to circulate, it's -- it doesn't
14 happen all the time, but the general way a virus
15 circulates is that it attenuates as it goes through a
16 population. So SARS-CoV-2 was a new virus in the human
17 population, and there's some cross-protection from
18 seasonal Coronaviruses, there's some cross-immunity,
19 but because it's a new virus, early on, it's going to
20 be more severe.

21 But what we've seen, especially with the Omicron
22 variant, and what happens with many new virus
23 infections within a population is that they attenuate
24 over time, because it's to the evolutionary advantage
25 of that virus to do that, because it infects more
26 people.

1 Just like one of the reasons we don't see massive
2 Ebola outbreaks is because it kills too many people too
3 quickly, and so it just burns itself out.

4 So we saw that with the Spanish flu. The flu we
5 have now is a descendant of that flu. And what
6 happened is, over time, the virus itself attenuated
7 itself, so as it just started passing through just
8 millions of people, it became less severe. And one of
9 the reasons for that is that -- a virus -- the
10 evolutionary advantage for a virus is to find kind of
11 that balance between causing some disease but not
12 killing the people too quickly, and so we've seen that
13 with SARS-CoV-2 as well.

14 It would be expected. It's not unexpected at all
15 for a variant like Omicron to occur, because Omicron,
16 for a variety of reasons, but one of the primary ones
17 is that it has less severity, infects way more people,
18 and that's expected.

19 Q Okay, you said early on -- I need you, if you can, to
20 try and give me months and years -- so what would be --
21 you said, you know, it was severe early on, well, when
22 was that, and when did that period end?

23 A Well, we know, looking at the variants that there was a
24 variant, even -- I don't know if I referenced it in my
25 report, but there was a variant even just within the
26 first few weeks of the pandemic that quickly switched.

1 I can look up the name. It wasn't given a name like
2 Alpha, Beta, or Delta and stuff. It was given a name
3 based on the base pair change. It was 'D' something,
4 something, changed to 'G' something, I think. It was
5 where the mutation was. So as the variants changed,
6 they're going to have different IFRs, and we've kind of
7 seen that. It does seem as though Delta was a little
8 more severe than, say, Alpha. But that change started
9 very early on, within weeks, and then we started seeing
10 things like Alpha and then Delta and now Omicron.

11 And so very early on, the IFR is going to be high,
12 because the most -- again, various reasons, but the
13 most susceptible are going to be dying, and then once
14 you eliminate those -- the most frail and -- who have
15 been infected from the population, you also have a less
16 frail population, and so that's one reason. I don't
17 want to oversimplify it here. One is inherent to the
18 virus itself. There's a difference between Delta and
19 Omicron, and so the IFR is going to change between the
20 variants, but the population itself is going to change.
21 And so if you have a complete naive population early in
22 the pandemic, that's going to change once the first
23 wave goes through, because, all of a sudden, the
24 frailest population are no -- are, unfortunately, no
25 longer in the population because they've died, and so
26 you have a population change. And these are just two

1 factors.

2 It's complicated. I think one of the risks, at
3 any point, is oversimplifying, but those are two very
4 important factors.

5 Q Thank you. When did the first wave end roughly in
6 Canada?

7 A Well, would have been the late spring of 2020, and I
8 don't have the graphs ahead of me, but I certainly
9 think by May absolutely.

10 Q At what point did the data indicate that the IFR was no
11 longer severe or high or whatever word you want to use?
12 You used the word "severe"; at what point did the data
13 indicate that the IFR was no longer severe?

14 A Well, it was within a couple months as we gathered more
15 data. By the end of the first wave, the idea of the
16 dramatic difference in mortality between the young and
17 the old was evident, and by the end of that first wave,
18 you know, within the first kind of three months, we had
19 a rough estimate at that point of what the IFR would
20 be, and then since then, it's been just trending down.
21 Again, as more and more people get infected, and,
22 unfortunately, the -- you know, the oldest, the
23 frailest have already died, the IFR has been trending
24 down.

25 Q Would you say the official definition of a pandemic is
26 objective or subjective?

1 A Well, I think any definition, you know, you can get
2 pedantic about it, but SARS-CoV-2 is clearly a
3 pandemic. Some people define it as, you know,
4 affecting multiple continents. Some people will argue
5 the first pandemic was the Antonine plague in the '160s
6 because it occurred in Africa, Europe, and Asia. And,
7 at least based on the records we have, we don't know of
8 any other infection before then that occurred on three
9 different continents. So it depends on how you define
10 your terms, but I think it's clear that SARS-CoV-2 is a
11 pandemic; there's no doubt about it.

12 Q Is it pandemic because it's "pan" because it's global?

13 A Well, yeah. It comes from -- you know, "pandemic" just
14 comes from the Latin root of "pan", which is all, and
15 "demos", which is people, and so it's all people.
16 We've seen that. Like it's even on Antarctica. I
17 think this is the first pandemic in history that's been
18 on all seven continents.

19 Q Is there no severability criteria for determining
20 something is or is not a pandemic?

21 A Yeah, you know, I think for something like seasonal
22 influenza, you have global infections every year, you
23 have waves every year, and so you would talk about
24 severity, so we would have a pandemic when -- in the
25 scientific literature about influenza, we talk about
26 antigenic drifts, which is the small changes that occur

1 year to year, and then antigenic shifts, which is the
2 major changes.

3 And, generally, when there's an antigenic shift,
4 we have a pandemic because we have a significant change
5 in the virus, which then you have a large proportion of
6 the population which don't have good cross-reactive
7 immunity. And so whether it's swine flu in 2009 or
8 previous pandemics in the 20th century, like 1968 and
9 there's been others, but at least in influenza, yeah,
10 it's not occurring on -- everywhere in the world,
11 because that occurs every year, but it's a major change
12 that increases the symptomatic infectivity, so
13 morbidity as well as mortality.

14 Q So some years, influenza is severe enough to be
15 pandemic and other years, it's not; do I have that
16 right?

17 A Correct, yeah.

18 Q So you said that COVID was severe enough in the
19 beginning to be, you know, at least as bad as a
20 pandemic influenza, but is it now at the point of
21 seasonal influenza? Is that a proper way to
22 characterize it?

23 A Yeah, once it becomes endemic, that's a good question.
24 Again, some of the definitions are going to be
25 arbitrary. You'll talk to some experts now who will
26 say, oh, COVID's already endemic, others will say no.

1 You know, a lot of people will say, okay, with Omicron,
2 that's what we're seeing now, it's endemic, we have so
3 many people infected. And others will say, well, no,
4 we can't call it endemic.

5 There's essentially uniform agreement that it will
6 be endemic, it's just kind of defining where that's
7 going to be is somewhat arbitrary. But, yes,
8 SARS-CoV-2 will be endemic, and whether you want to say
9 that that's now or whether it's going to be three, six
10 months from now, it's I think relatively arbitrary how
11 you say it. It was pandemic; it's going to be endemic.
12 Where you define that cutoff, I don't think it's easy
13 to kind of say one particular --

14 How I would define is that we start seeing a
15 different respiratory virus predominantly, because we
16 haven't seen massive waves of influenza, and that's not
17 unusual. So like in the hospital, we see different
18 respiratory viruses at different times, and so we have
19 a usual wave of influenza, say, in January, it's after
20 influenza leaves that we're going to see some of the
21 other important respiratory viruses in the waves of,
22 say, parainfluenza or human metapneumovirus.

23 And how I would define the endemic state of
24 SARS-CoV-2 is once we start seeing the return of waves
25 of other important respiratory viruses, maybe it's in
26 the spring with human metapneumovirus, I don't know,

1 but once that occurs, when we're having more cases of a
2 different respiratory virus, I think we can safely --
3 to me, that's an objective criteria of how to kind of
4 define the endemicity of SARS-CoV-2.

5 Q At what point in time did you become confident that
6 SARS-CoV-2 was going to be endemic?

7 A Once you have community transmission on every
8 continent, yeah. So it would have been within weeks of
9 the pandemic.

10 Q Okay, but just to clarify then, that would place you in
11 January 2020?

12 A No, no. Like early April 2020.

13 Q Okay, so just to clarify, by early April 2020, you
14 looked at the data and thought this is going to be
15 endemic?

16 A Yeah, absolutely.

17 Q So at that point, attempts to completely stop the virus
18 are futile?

19 A Yeah, absolutely.

20 Q At that point, were attempts to slow it down
21 theoretically possible to work?

22 A No. I think each different thing can be judged based
23 on the evidence, and that's what I do in my report. I
24 think most interventions had little or no effect, and
25 the evidence is bearing that out. We know that from
26 previous similar infections and -- but each different

1 intervention would have to be judged on its own merits,
2 so whether it's masking or lockdown, kind of
3 shelter-in-place, or, you know, testing in isolation,
4 each of those factors can be judged on its different
5 merits. But I think what we've clearly seen is that
6 the interventions put in place have not had a
7 significant effect.

8 Q And you do realize that many people say that they have
9 had a positive effect?

10 A Yeah.

11 Q And you disagree with them; is --

12 A I do.

13 Q -- that fair to say?

14 A Yeah.

15 Q And now, generally speaking, correct me if I'm wrong,
16 but at least in Canada, aren't the vast majority, if
17 not all, you know, public health agencies and
18 government bodies and medical officers of health saying
19 that, look, these measures did work over the last two
20 years; isn't that right?

21 A Yeah, there's lots of people claiming that, but it can
22 be debated endlessly as to what actual effect they did
23 or did not have.

24 Q Well, at least for you personally, is there a debate
25 happening?

26 A Yeah, there's actually really starting to be a debate

1 both in society generally but in the academic
2 literature as to what effect these different measures
3 had or didn't have, and again each one needs to be
4 judged based on the merits of each different
5 intervention.

6 But, yeah, both in the general public, I think,
7 globally, we're seeing an openness to debating and
8 seeing what the actual risk and downsides have been to
9 each individual intervention, but we're seeing that in
10 the academic literature as well.

11 Q In your experience, have the public health agencies and
12 medical officers of health in Canada been open to
13 having that debate.

14 A You know, I think most of the public health agencies in
15 Canada have had similar strategies and have not kind of
16 differed too much from themselves. I think if you look
17 at somewhere like Europe or the United States, which
18 have similar numbers of jurisdictions, a few dozen
19 jurisdictions in each of them and there's been wide
20 differences, and so looking at different states and
21 comparing them and looking at different countries in
22 Europe and comparing them can be helpful. But, again,
23 that has to be done carefully, because, as I mentioned
24 in my report, just doing that is the lowest level of
25 evidence, and it kind of commits the ecological fallacy
26 in statistics.

1 But, anyway, I do see quite a change in, you
2 know -- for instance, right now, a big debate, you're
3 seeing it in all sorts of media, whether it's the
4 New York Times or The Atlantic but also in the academic
5 literature just this week about, you know, masking
6 school age children. Like the New York Times and The
7 Atlantic, you know, having articles this week, it's
8 just been in the last few days, saying, yeah, the
9 evidence just isn't there, you know, we don't need to
10 be masking young school age children in schools. And
11 we're seeing these kind of studies come out in the
12 medical, the academic literature as well.

13 And I think what happened in the past is that, in
14 the absence of a lot of that evidence, assumptions were
15 made, and we -- you know, the term for that is called
16 medical reversal, and it's very difficult, once
17 assumptions are made, to reverse kind of course, and so
18 you're gathering a lot more information now and seeing
19 both the risks and benefits of various different
20 interventions.

21 Q You just talked about how, once assumptions are in
22 place, they're very difficult to reverse or change;
23 does that help to explain why the public health
24 agencies in Canada sort of refused to listen to experts
25 like you and cease the restrictions?

26 A Yeah, you know, there are many different reasons for

1 why things occurred, yeah. You know, that's a whole
2 other topic, why one group was listened to and one not.
3 But that evidence is accumulating now, and so that's
4 why you're seeing a lot of jurisdictions treat this
5 very differently. Once that evidence is becoming more
6 and more clear, more and more robust, you're seeing a
7 lot less restrictions.

8 Q Those assumptions you mentioned, are they, for the most
9 part, false or wrong or inaccurate?

10 A Well, again, it really depends on what you're talking
11 about I think. If you talk about, say, again masking
12 children, there's next to no studies in that. We can
13 talk about studies in masking adults. The masking of
14 healthy children, there was just no studies prior to
15 the pandemic, but the assumption is, well, masks are
16 good for health care workers in high-risk settings,
17 they must be good for children.

18 And as evidence accumulates, there should have
19 been more. There -- no randomized control trials of
20 children were done in the pandemic when they should
21 have been, they should have done cluster-randomized
22 trials of different schools and classrooms, just like
23 they did the cluster-randomized trial in Bangladesh,
24 and then we could have quantitated. But the assumption
25 was made, oh, they must be good, so we're going to do
26 it, but then as the evidence accumulates, we learn more

1 that there is no benefit, and so we shouldn't be doing
2 it.

3 In fact, there's lots of harms with regards,
4 particularly, with emotional and cognitive learning in
5 children if you mask both the children and the
6 teachers.

7 Q Now, I'm going to ask you a little bit about one of
8 those assumptions, and that's asymptomatic
9 transmission. So this is on page 3 of your report, the
10 third section. You say in your report that the rates
11 of transmission from asymptomatic persons is
12 substantially less than from symptomatic persons. So
13 the first question I have for you, of course, is has
14 the data or your opinion changed on that in the last
15 year?

16 A No, it has not changed.

17 Q Now, what do you mean by "substantially less"? Give us
18 an idea of how much less asymptomatic transmission is
19 than symptomatic.

20 A Well, I note a number of studies, but I think the most
21 important one would be study 53, because it's a
22 meta-analysis of household transmission, and household
23 transmission is, by far, the most important location of
24 transmission. So some estimates are as high as 80
25 percent of all transmission occurs within the
26 household, and that makes sense, this is where people

1 are in intimate contact with each other. So this study
2 I think is very helpful and very reliable.

3 So it's looking at household transmission, which
4 is the most important factor or place where
5 transmission occurs. It had a large number of
6 participants, close to 80,000, and the difference
7 between -- and it can be controlled. Like a household
8 is kind of like a unit, and so, again, I think this was
9 a very good study and very representative of the
10 literature and reliable, and it showed that the
11 difference between symptomatic transmission and
12 asymptomatic transmission was about 25 times. And so I
13 think that would be where I would -- you know, get that
14 word "substantial".

15 Q Thank you.

16 THE CHAIR: Mr. Kitchen --

17 MR. KITCHEN Yes.

18 THE CHAIR: -- I just wonder, is there a
19 point, a logical point in your approach where we could
20 take a short break?

21 MR. KITCHEN: Yes, I was planning to after I
22 finished asymptomatic transmission, and I don't think
23 I'm going to be on that very much longer --

24 THE CHAIR: Okay, thank you.

25 MR. KITCHEN -- so just a couple more
26 minutes.

1 Q MR. KITCHEN: Dr. Warren, you further say
2 that asymptomatic transmission does not warrant being
3 considered a significant contributor to the overall
4 transmission burden. Now, maybe that's obvious based
5 on what you just said, but can you just explain why
6 that's your opinion?

7 A So it can be -- my opinion can be considered in a
8 number of domains. The first is just the number
9 itself. So if we're talking about something that's 25
10 times less important, I think that's one domain. The
11 other domain, you know, relates to the point we've
12 already discussed, which is the fact that the virus is
13 going to be around forever, and kind of related to that
14 is the idea of treating an asymptomatic person as
15 diseased. I think that has huge, kind of moral,
16 philosophical, whatever implications. And so you have
17 something that's going to be around forever, you can't
18 treat the entire population, you know asymptomatic, as
19 potentially infected with regards -- just on a moral --
20 in my opinion, of course, but on a philosophical level,
21 you can't -- it's dangerous I think, societally, to be
22 treating everybody who otherwise looks healthy as a
23 potential germ carrier for an infection that's widely
24 prevalent and going to be around forever.

25 Q But is it, nonetheless, scientifically accurate?

26 A What's scientifically accurate?

1 Q That there are a large number of asymptomatic healthy
2 people going around that, you know, are harbouring
3 something that can make people really sick, and they're
4 likely to transmit it even though they're healthy?

5 A Well, I think it's just best to use numbers like I use
6 in my report. Like I think the best evidence that we
7 have is that asymptomatic transmission is 25 times less
8 than symptomatic transmission, and to me, that -- you
9 know, that's -- statistically that's a relatively large
10 number. I'm happy to call that substantially
11 different.

12 Q So it's not a good assumption that -- that most healthy
13 people could transmit this thing?

14 A No, I don't think it's justified, based on the
15 evidence, that we should be treating every healthy
16 asymptomatic person as a potential -- potentially
17 infected with SARS-CoV-2. You know, I think -- again,
18 everything to be qualified, if you're talking about
19 someone who is in very close contact, you know, of
20 course. And so, of course, there's going to be
21 exceptions to the rule, but it just proves the rule.
22 But I think, generally, at a population level, I don't
23 think the evidence warrants treating everybody in the
24 population who is asymptomatic as a potential
25 transmission risk for SARS-CoV-2.

26 Q Now, I'm going to come to masking after the break, but

1 just help me out, isn't that the assumption behind
2 mandatory masking of all healthy people? Like
3 (INDISCERNIBLE) --

4 A That's -- yeah, that's certainly one of the assumptions
5 for masking the healthy general public, absolutely.

6 Q Almost done before we break. Now, as you know, Dr. Hu
7 on page 6 of his report says your opinion regarding
8 asymptomatic transmission is, quote, contradicted by a
9 CDC report which says that 60 percent of COVID
10 transmission is asymptomatic. Now, Dr. Hu does not
11 provide the citation for this report, but are you aware
12 of what report he is referring to?

13 A No, I'm not aware.

14 Q Do you find that strange that he didn't cite to the
15 report?

16 A Well, I can't comment specifically on that, but
17 generally if you're going to cite a number or a
18 statistic or discuss a number or statistic in either
19 the academic literature or a formal document such as
20 this, you would provide a reference, like I did with
21 all of mine.

22 Q Well, do you think the -- I guess you've already
23 answered this, but, just to clarify, do you think the
24 balance of the scientific literature that is available
25 supports your opinion that symptomatic transmission is
26 way more prevalent than asymptomatic?

1 A Yes, that's what I state in my report, and I don't --
2 my opinion has not changed, that symptomatic
3 transmission is substantially more important than
4 asymptomatic transmission.

5 MR. KITCHEN: So that's it for me for the --
6 you know, we can break now, and then I'll have some
7 more when we come back. I'm, you know, probably
8 halfway through, maybe a little less, but close to
9 halfway through.

10 THE CHAIR: Okay. Thank you, Mr. Kitchen.
11 And, Dr. Warren, we're going to take a 15-minute break,
12 and you can put your connection -- you can mute and
13 turn your camera off during this period, but please
14 don't break the connection to the meeting and don't
15 speak with Mr. Kitchen, and we will see everybody in 15
16 minutes. 25 to 11 I think.

17 (ADJOURNMENT)

18 THE CHAIR: Mr. Kitchen, the floor is
19 yours once again; we'll resume your direct examination
20 of Dr. Warren.

21 MR. KITCHEN: Thank you.

22 Q MR. KITCHEN: Dr. Warren, from pages 3 to 5
23 of your report, you discuss the evidence for lockdown
24 measures, generally speaking, including physical
25 distancing. Prior to the year 2020, was there much
26 scientific evidence or academic literature in support

1 of the effectiveness of physical distancing?

2 A No, there was essentially none, and that -- I think I
3 gave a quote in -- yeah, there's a systematic review
4 published in -- it was a Cochrane systematic review,
5 and towards the end of page 4, I quote: (as read)

6 There was only one randomized controlled
7 trial of quarantine and no trials of
8 screening and (INDISCERNIBLE) or for physical
9 distancing.

10 So the highest level of evidence, as I discussed in
11 other parts of my report, are randomized controlled
12 trials or meta-analysis of randomized controlled
13 trials, and there was just none of that evidence with
14 regards to various lockdown measures prior to the
15 pandemic.

16 I can discuss that one randomized trial that they
17 discuss there, but -- in a quote. There was a
18 randomized controlled trial in influenza in Japanese
19 persons. What they basically randomized Japanese
20 workers to is that home quarantine while they were
21 symptomatic or not. And what it found is it had no
22 significant difference on overall rates of influenza.

23 So what happened is these Japanese workers, who
24 were quarantined at home, did -- their offices, their
25 co-workers had lower rates of influenza, but it was
26 counter-balanced by higher rates of influenza within

1 these quarantine workers' families. And so in the end,
2 it made no overall difference, because it just shifted
3 the number of infections from one place to the other.

4 And there are some interesting papers out there to
5 suggest the same thing happened in COVID-19, because
6 the household is already the highest -- or the most
7 likely case -- a place of transmission, when you have a
8 whole bunch of people sheltering in place, either
9 you're just transferring infections from one place to
10 the other, or, in fact, there's some people that would
11 argue that infections may have been increased because
12 of that.

13 Particularly in congregate settings, because
14 you're -- places like nursing homes, group homes, other
15 places where people are living but within close
16 proximity to others that we have these shelter-in-place
17 restrictions, it may actually increase the numbers of
18 infection.

19 But, again, the evidence there isn't clear.
20 There's lots of people kind of debating that, but prior
21 to COVID-19, there was essentially no evidence for the
22 positive effect of various different lockdown measures,
23 including physical distancing, isolation -- or, you
24 know, sheltering in place.

25 Q So is it basically there was a hypothesis that this
26 could work, and then that hypothesis was implemented;

1 is that sort of what happened back in the -- you know,
2 early 2020 in Canada?

3 A Yeah, there are a lot of different things going on
4 here, I'm happy to talk about that, but, number one, a
5 lot of the decisions were based on modelling. And as
6 part of my Masters, I've done some modelling courses.

7 And one of the key metrics in modelling is this
8 factor called Beta, which is just the average number of
9 interactions a person in the model is going to have
10 with other people. And by changing that one number in
11 modelling, at least, you can change the size of waves
12 or the number of infections and things like that.

13 So because a lot of decisions were based on
14 modelling, and that one factor is so important in the
15 modelling, the idea was if we can decrease the number
16 of interactions people have with other people, then
17 we're going to greatly decrease the number of
18 infections. Again, I think there's various problems
19 with that: Number one, the idea that most transmission
20 occurs in households and kind of really isn't
21 considered in that; number two, as I talked about in
22 population density, in very population-dense areas,
23 even sheltering at home, you're actually not reducing
24 the number of -- significantly reducing the number of
25 people, other people you are going to interact with,
26 because you're still going out to walk your dog, you're

1 still going to the grocery store. You know, if I'm in
2 downtown Toronto, and I'm walking two blocks to the
3 nearest grocery store, I'm interacting with a lot of --
4 I'm going by a lot of people, and -- anyway. So that's
5 one thing number one.

6 Then the other issue is that policies were
7 going -- at least early on, very early on, were going
8 to be heavily influenced by what happened with
9 SARS-CoV-1. And what happened with that infection is
10 that various different quarantine -- there were no
11 lockdowns, but that infection was able to be controlled
12 with various public health measures, mostly just the
13 usual stuff: Sick patients are kind of quarantined to
14 learn better; testing and tracing, so testing and
15 tracing all of their contacts. But that infection,
16 didn't last long, occurred -- recurred briefly in
17 various places like Singapore and different cities in
18 China and stuff.

19 But I think early on, because it wasn't that long
20 ago, it was I think only 16 years previous, a lot of
21 the policy was heavily influenced from that, and
22 pandemics have a deep kind of social history, right?
23 Like when you talk about things like the Black Death,
24 in a lot of places in Europe, you know 50 percent of
25 the population died from that pandemic and from plague,
26 and there have been many others and stuff as well.

1 So deep within the societal consciousness, you
2 know, there's fear of major infections. And in some
3 cases, in different infections historically, lockdown
4 or lockdown-like measures have worked, and you think of
5 things like smallpox and quarantine. So you had, you
6 know, a boat with -- you know, you think of 1720s
7 Boston, and there's evidence, you know, of this, you
8 have a -- and there's no smallpox in Boston, but you
9 have a boat coming in over from England where there's
10 people with smallpox on it, well, that boat is
11 quarantined, it's locked down in the harbour for
12 several weeks until there's no more transmission of
13 smallpox. And I can give many other examples from
14 history.

15 And so it's a complicated issue with regards to
16 lockdown, quarantine, things like that, so I think
17 those are kind of the three main ones that I just
18 addressed.

19 Q Thank you. I mean, I guess you've touched on this, but
20 just to be specific, has the evidence, you know, over
21 the last two years substantiated the theory that
22 physical distancing is effective?

23 A No, but, again, it's a hotly debated topic because we
24 don't have the best evidence. The best evidence is
25 randomized controlled trials, and those trials could
26 have been done. And, in fact, in small instances, they

1 have.

2 So most of the evidence, what we're doing is
3 ecological studies, so comparing one jurisdiction to
4 the other. And as I mentioned with regards to masks,
5 there's all sorts of statistical problems with that.

6 And, you know, debating various different lockdown
7 measures kind of with the type of evidence we have is a
8 whole other discussion, but the best evidence,
9 randomized controlled trials, which should be done for
10 everything, we just don't have that evidence.

11 But I give an example of one that was done, and
12 it's something that should have been done more, so in
13 Massachusetts, they did a randomized controlled trial
14 of school children of 3-foot distancing versus 6-foot
15 distancing, and there was no difference. Okay, so it
16 was a cluster-randomized trial, much like the
17 Bangladeshi mask study, so you randomized classrooms
18 versus -- rather than people. That's the standard way
19 of doing this type of intervention. And they showed
20 that there's no difference between 3 feet and 6 feet.

21 And so that study kind of proved the point that
22 that type of study can be done and should have been
23 done everywhere throughout the pandemic, looking at a
24 variety of different interventions. And when that type
25 of study is done, what it will show, and what it showed
26 prior to, as I talked about with that Japanese worker

1 study in influenza, which I think was 2010 or so,
2 somewhere around there, when those types of studies are
3 done prior to COVID and the very few that have been
4 done during, they don't show much of an effect of these
5 different lockdown-type procedures.

6 Q Thank you. Now, I want to ask you some questions about
7 masks. On page 5 of your report, your section on the
8 evidence regarding masks, you refer to, quote, healthy
9 people, and I think we've touched on this, but just to
10 be clear, for you is asymptomatic the same as healthy?

11 A Well, asymptomatic, I think you're -- yes, I guess.
12 Again, it's depends on how you define your terms. If
13 we're talking asymptomatic with regards to SARS-CoV-2,
14 they could be unhealthy otherwise. They could have
15 heart failure and diabetes and advanced-stage cancer; I
16 wouldn't call them healthy, but they're asymptomatic
17 with regards to respiratory symptoms.

18 Q So healthy in regards to not having cold flu symptoms?

19 A Right, yeah.

20 Q Okay. Is a mandate that all chiropractors wear a mask
21 at all times in their office, is that effectively a
22 mandate that all asymptomatic chiropractors wear a mask
23 at all times in their office?

24 MR. MAXSTON: I'm going to have to object to
25 that, Mr. Kitchen. I think that's a pretty central
26 question for the Hearing Tribunal to decide.

1 MR. KITCHEN: Well, you're going to have to
2 explain that.

3 MR. MAXSTON: Well, we can't ask this
4 witness to comment on the College's mandate and its
5 broader implications of it. I think your question is a
6 little too broad, Mr. Kitchen.

7 MR. KITCHEN: Well, I'll rephrase it again,
8 just -- not rephrase it, but say it again, because I'm
9 struggling with that. I'm asking him is it logically
10 accurate that a mandate that all chiropractors wear
11 masks at all times in their office is a mandate that
12 all asymptomatic chiropractors wear a mask at all times
13 in their office? I'm asking if those two things are
14 logically equitable. That's got nothing to do with any
15 determination that the Tribunal has to make.

16 MR. MAXSTON: I guess you can take this
17 witness to the Pandemic Directive, Mr. Kitchen, and you
18 could ask him to comment on that, but I'm not sure I
19 agree with you. I think that that's a broader question
20 that goes to I think one of the conclusions the
21 Tribunal is going to have to make based on the issues
22 you are raising.

23 MR. KITCHEN: That being --

24 THE CHAIR: Mr. Kitchen, the first part of
25 your question is all chiropractors, right?

26 MR. KITCHEN: Right. And I, you know -- I

1 thought this was not contentious. Maybe my friend can
2 tell me. I mean, as far as I know, there's no
3 disagreement here that the Pandemic Directive says that
4 all chiropractors must wear a mask at all times while
5 in their office.

6 Do you take issue with my characterization,
7 Mr. Maxston?

8 MR. MAXSTON: The Pandemic Directive says
9 what it says in terms of chiropractors having to wear
10 masks when they treat patients. But I think, in
11 fairness, you'd have to take this witness to the actual
12 wording in the Pandemic Directive and ask him what his
13 interpretation of it is, and I might have some
14 objections I suppose to that. But I think your
15 question, as it's framed, I just think is too
16 general --

17 MR. KITCHEN Okay.

18 MR. MAXSTON: -- or relates to one of the
19 issues this Tribunal's going to have to decide on.

20 I don't have a problem with you asking questions
21 about masking and asymptomatic patients, you know,
22 that's not -- I'm not going to object to that, of
23 course.

24 MR. KITCHEN: Well, do you have any
25 objections to me reading to him what the directive says
26 in that portion?

1 MR. MAXSTON: I don't think I would. I
2 think I would have objections to you asking him about
3 the -- I want to say it, how that applies in the
4 chiropractic office vis-à-vis a chiropractor and
5 patients.

6 MR. KITCHEN: Well, at least for this
7 question, I'm not asking.

8 MR. MAXSTON: Yeah. Well, as I said, I
9 think it's probably better to take him to the Pandemic
10 Directive if you want to ask questions about the
11 meaning and intent of the Pandemic Directive. That's
12 all I'm saying here is it just seems to me that this is
13 a little bit of a bigger picture issue that the
14 Tribunal's going to have to decide on.

15 THE CHAIR: Would it be possible to put
16 that directive up on the screen?

17 MR. KITCHEN: I don't know if Ms. Nelson can
18 do that quickly. The only reason I don't want to --
19 I'm just trying to save time.

20 MR. MAXSTON: And, Mr. Kitchen, you know, it
21 says what it says --

22 MR. KITCHEN: Yeah.

23 MR. MAXSTON: -- I'm not -- if you want to
24 ask your client about whether he thinks that directive
25 is, you know, scientifically supported, you've been
26 doing that already, I suppose, indirectly; I'm just a

1 little concerned about saying -- you know, asking him
2 to draw a conclusion about this specific directive in
3 the context of, I guess, the charges that are in front
4 of the Tribunal.

5 MR. KITCHEN: Well, let me ask a series of
6 open-ended questions, and maybe we can resolve this.

7 Q MR. KITCHEN: Dr. Warren -- my friend can
8 intervene if he thinks this is a problem -- but there
9 are approximately 1150 regulated chiropractors in
10 Alberta. That's somewhere in the record; I don't think
11 that's contentious. Is it possible that -- well, is it
12 possible that all of them are going to be symptomatic
13 at exactly the same time?

14 A I don't totally understand the question, but obviously
15 not; I don't think there would be 1100 people
16 symptomatic at the same time.

17 Q And I can tell you this because it's in the record, I
18 don't think it's contentious, chiropractors are not
19 actually in the directive. I can't say precisely right
20 now. Certainly in the relevant time period here which
21 we're talking about, which is about May 2020 to
22 December 2020, chiropractors weren't, in fact, allowed
23 to be in their office if they were symptomatic, okay?
24 So if there's a requirement -- and I'll read it to you
25 if I have to, but, again, I don't think I'm
26 mischaracterizing it -- if there's a requirement that

1 chiropractors wear a mask while in their office
2 treating patients, and that requirement is static or
3 universal, is that not a requirement that asymptomatic
4 chiropractors wear a mask at all times in their office
5 when they're treating their patients?

6 A So from what I understand from the question, I'm not
7 again entirely sure, but it sounds like the directive
8 says that chiropractors may not practice or be in their
9 office if they're asymptomatic [sic], and presumably
10 that's the same for their patients as well with regards
11 to COVID symptoms; and so I think the question then is
12 if they're not allowed to be in their office or
13 practicing -- seeing patients, if they're symptomatic,
14 then, by definition, they're wearing a mask as
15 asymptomatic persons while performing the chiropractic.
16 Is that correct? And so that's what you're asking?

17 Q That's what I'm asking, yes.

18 A Yes, okay.

19 Q I'm going to ask you a few questions about health care
20 settings and non-health care settings, but let's first
21 talk about non-health care settings. You say in your
22 report that when limited to the strongest types of
23 evidence, RCTs as we've discussed, there is no evidence
24 in support of healthy or asymptomatic people wearing
25 masks in non-health care settings. You've already
26 explained all that.

1 Just to clarify, because I know that, you know,
2 this is an issue with Dr. Hu, there are multiple
3 peer-reviewed publications that support your position
4 on that?

5 A Yes, so as I state in my report, pages -- and page 5
6 primarily, so prior to COVID, there was studies of
7 randomized controlled trials of masking asymptomatic
8 persons. Most of the studies were relatively small.
9 Some showed marginal benefit, others didn't. And when
10 those -- when randomized controlled trials are put
11 together and all of the evidence and all of the
12 patients are compared in one big group, it's called
13 meta-analysis. And there's three meta-analyses, all of
14 them done just prior to COVID, in fact, one of them,
15 the Cochrane review, done during COVID but was only
16 including studies done prior to COVID that showed there
17 was no difference.

18 And so that's what happens, when you have
19 randomized -- and the randomized controlled trials
20 looking at masking healthy people primarily to prevent
21 influenza were relatively small, and they're
22 contradictory. Some would say, yeah, there's some
23 marginal benefit, others no.

24 And so the standard way of kind of deciding the
25 issue is a meta-analysis. And three meta-analyses said
26 that the bottom line is that there is no evidence of

1 masking healthy persons in the community to prevent
2 respiratory tract infection, and that was primarily
3 influenza, but not -- see, that's tricky, it was
4 primarily influenza, but it was influenza-like illness,
5 ILI, which is a very standard, more or less symptomatic
6 definition than a laboratory based definition, because
7 never in history have we done such extensive testing on
8 a respiratory virus than we've done on SARS-CoV-2,
9 COVID-19.

10 Q Now, to your knowledge, have there been RCTs done since
11 writing your report, you know, on masking in the
12 context of COVID?

13 A Yeah, so in my report, I mention one randomized
14 controlled trial done early in Denmark --

15 Q Yeah.

16 A -- with regards to masking, and it showed no
17 significant difference. And since then, there has --
18 there's been two performed, one of -- so one was in
19 Africa, I forget the exact country, that has -- even
20 the preliminary results haven't been published, but it
21 just finished I think in November, Guinea-Bissau I
22 think is where it -- anyway, I don't want to say for
23 sure -- but it was a -- I think a large
24 cluster-randomized trial as well.

25 But there was a large study that's been discussed
26 in the media for the last few months, done in

1 Bangladesh. It was a cluster-randomized trial of over
2 300,000 persons in Bangladesh. And so what they did is
3 they randomized villages to wearing masks or not,
4 rather than persons, but the number of -- total number
5 of people was over 300,000.

6 It's interesting that study was finished last
7 summer and published on the study investigator's
8 website I think at least September 1st, but it hasn't,
9 as far as I'm aware, even appeared in a preprint form,
10 much less peer-reviewed literature, but it's widely
11 discussed in the media, and there are certainly some
12 conclusions that can be taken from the data that's
13 available.

14 Q And what would those conclusions be?

15 A So the bottom-line conclusions were that -- so they
16 cluster-randomized some villages to cloth masks and
17 some villages to medical masks, and the overall
18 benefit, if you include both those groups, was very
19 small. So the absolute risk reduction -- I can just
20 bring it up here -- the absolute risk reduction was
21 from .76 percent down to .69 percent, so a 0.7 percent
22 reduction. That's the absolute risk reduction.

23 So what that says is that -- and so there's some
24 important features to consider when we're talking about
25 this study. One of the most important things is what
26 was the primary end point. So the primary end point

1 was not death, was not hospitalization -- at least in
2 the initial report, they don't even mention that -- the
3 primary end point was serologically confirmed symptoms,
4 so people who had symptoms of COVID and then had a
5 serology test indicating that they had the infection.
6 Okay, so it's really produced -- it's really a study of
7 where the end point is infection, okay?

8 And in the control group, no masks. The rate of
9 infection was .76 percent, and in the treatment group,
10 overall, it was .69. So relatively low rates of
11 infection in both, but then we can compare them. So
12 that's important.

13 But then when they broke that down into the
14 treatment, and they broke it down into cloth masks
15 versus medical masks, the cloth masks actually had no
16 effect, no benefit whatsoever statistically. And then
17 when they look at surgical masks only compared to
18 control, which is no masks; in controls, again, it was
19 .76 percent, in surgical mask villages, it was .67
20 percent. So for an absolute risk reduction of .9
21 percent.

22 And in randomized controlled trials, the absolute
23 risk reduction is a very important number, because when
24 we take the inverse of it, so we just 1 divided by the
25 absolute risk reduction, we get what's called the
26 number needed to treat; so if we did the same thing in

1 the study that they did, how many people would we need
2 to treat without intervention to get one effect.

3 So if we take .09 percent and do the inverse of
4 it, it's approximately 1100, just over 1100. And so
5 what you need to do is take 0.009 and then take the
6 inverse. So 1 divided by 0.009, you get 1100, okay?
7 And so what that said -- and the study went on for
8 eight weeks; you can find that in the "Methods".

9 So what that tells us is we need to -- in a
10 general healthy population, we need to have 1100 people
11 wear a mask for eight weeks to prevent one infection,
12 not one death, not one hospitalization, but one
13 infection. So 1100 people wearing a mask for eight
14 weeks to prevent one infection, and that's a remarkably
15 high number. Like if there's any sort of intervention
16 that we're studying in cardiology or infectious
17 diseases or, you know, in my -- like with antibiotics
18 and bacteria or, you know, cardiology, that number is
19 remarkably high. Generally something over -- between
20 50 to 100 is high, but anything over that -- like
21 anything under 50 would be kind of low.

22 And it's not a hard outcome. It's always
23 important to say what's the outcome. And maybe it is
24 worth masking 1100 people for eight weeks to prevent
25 one death, but it's not; it's masking 1100 for eight
26 weeks to prevent one infection.

1 So that's the best evidence we have in SARS-CoV-2

2 Q Thank you. Now, on this vein, Dr. Hu compared
3 conducting RCTs on masking in the context of COVID and
4 health care workers to conducting RCTs on parachutes in
5 the context of people jumping out of airplanes. You're
6 aware of that, right?

7 A Yeah, I read that.

8 Q What's the likelihood that a person who jumps out of a
9 plane without a parachute will live?

10 A Presumably zero.

11 Q What's the likelihood that a person who contracts COVID
12 will live?

13 A Depends on the age group, but, overall, in all persons,
14 it's probably over 99 percent.

15 Q Is it reasonable to compare the strength of evidence in
16 support of the effectiveness of parachutes to the
17 strength of the evidence in support of the
18 effectiveness of masks?

19 A No, not at all. This is how we answer questions in
20 medicine; we do randomized controlled trials, and those
21 randomized controlled trials have been done with masks
22 and health care workers in lots of other contexts,
23 including other important infections like influenza.

24 Yeah, there have been randomized controlled trials
25 looking at is a cloth mask similar to a medical mask in
26 health care workers in influenza, and it showed cloth

1 masks -- and just that study too, I don't know, it was
2 done 10, 15 years ago, showed cloth masks are -- yeah,
3 cloth masks were useless for health care workers. The
4 medical mask was better for the health care worker
5 taking care of a patient with influenza.

6 We've looked at masks in a lot of surgical
7 contexts. So there's lots of places in the hospital,
8 especially -- like prior to COVID, there's a lot of
9 places in the hospital, a lot of contexts, where masks
10 were not indicated, and it was studied. Yeah, I think
11 a lot of surgical indications, they've tried to prevent
12 surgical site infections with wearing masks, and there
13 was no benefit.

14 We've looked at a lot of -- some pretty good
15 studies published in the New England Journal and JAMA I
16 think, again prior to COVID, in the context of
17 influenza or influenza-like illness, comparing N95s to
18 surgical masks for health care workers taking care of
19 persons with ILI, the most -- prime-most influenza, and
20 there was no difference, and so --

21 And I know that one of the main authors of that
22 study was at McMaster, Mark Loeb, and he tried to do a
23 randomized controlled trial in COVID, but just there
24 was such a default assumption that N95s would be better
25 for treatment of COVID that, as far as I'm aware, that
26 they were not able to actually do that study, because

1 the assumption was made, even though I think in the
2 absence of evidence, what you do look at is similar
3 context, and in this case, similar context done by the
4 same authors, looking at N95s versus surgical masks in
5 the context of influenza showed that there was no
6 difference. And so I think it was very reasonable,
7 from a clinical equipoise, statistical equipoise to
8 ethics to do that study in SARS-CoV-2 as well.

9 So there's been lots of randomized controlled
10 trials in health care workers to define who and who
11 does not need to wear a mask, and who and who does not
12 need to wear certain types of masks, lots of areas
13 where masks are not needed for health care workers,
14 including in infections, think of things like
15 c. difficile or MRSA, we don't mask health care
16 workers, but we make them gown and glove because of the
17 route of transmission is not the respiratory tract.

18 Q Dr. Hu is adamant that mandatory masking in a health
19 care setting prevents the spread of COVID, although
20 he's less certain about community settings. You refer
21 to a large body of evidence in your report that
22 mandatory masking of healthy people does not work at
23 all in community settings, we've been discussing that,
24 but do you have any reason to think that although
25 masking of healthy people is completely ineffective in
26 community settings, it might, nonetheless, be highly

1 effective in health care settings as Dr. Hu says?

2 A Sorry, I was looking at my report. Can you just
3 restate that?

4 Q Sure. So, you know, Dr. Hu says, look, they're really
5 effective in health care settings, probably effective,
6 but less effective in community settings. That's
7 basically his position. Your position, in your report,
8 is that, well, look, it's completely ineffective in the
9 healthy community, in the non-health care setting. So
10 even though that's your opinion, and you have all this
11 scientific evidence to back it up, do you, nonetheless,
12 think that Dr. Hu might be right in that, even though
13 it's not effective at all in the community setting, it
14 could be really effective in the health care setting?

15 A Well, yeah, masks are effective in the health care
16 setting, if that's what you're asking. Masks are
17 effective in a health care setting, yeah, because it's
18 been studied, but, again, it's totally
19 context-dependent. And everything is context-dependant
20 and should be studied with regards to its context. So
21 we know, because we did the studies, that for taking
22 care of influenza patients, health care workers should
23 wear a medical mask, which is a three-ply mask. It was
24 compared in a randomized controlled trial to cloth
25 masks, and it was superior, and it was control -- and
26 it was compared in multiple randomized controlled

1 trials to N95s, and there was no difference. So an N95
2 was not needed, so a medical mask, no worse than an N95
3 medical mask, no -- certain better than cloth, and so
4 that context is clearly established. Health care
5 workers taking care of patients who have influenza-like
6 illness should wear a medical mask.

7 And so -- and there is definitely context in the
8 health care environment where masks have shown, through
9 randomized controlled trials, which are the highest
10 level there is, that they're helpful, they're
11 beneficial, but that evidence just does not exist in a
12 community setting.

13 And also prior to COVID, studies have been done in
14 other health care settings within the hospital with
15 other types of infections that show that masks aren't
16 universally necessary all the time, and it's totally
17 context dependent.

18 Q Right, so the effectiveness of the masks is dependent
19 on the context of there being interactions between a
20 symptomatic patient and a health care worker?

21 A That's correct.

22 Q Let me ask you a few questions about, you know, the
23 issue with health care settings and non-health care
24 settings, and I know we've touched on this, but in a
25 health care setting like a hospital, are there a large
26 number of symptomatic people expected to be present?

1 A Yeah, absolutely. That's -- hospitals are -- have
2 lots, very high rates of symptomatic persons, and,
3 again, it depends on what you're talking about.
4 Just unhealthy, yeah, they have all sorts of aches and
5 pains, and, you know, heart attack, stroke, the -- but
6 also symptoms from respiratory virus, and, again, it's
7 going to depend on the season, because, in the middle
8 of the summer, we don't really see much viral
9 respiratory -- viral respiratory tract illness, but we
10 do see that, you know, in the winter months. So,
11 again, it's going to depend on those other factors that
12 I talked about as well.

13 Q And that's been your experience working at the hospital
14 you work at?

15 A Yeah.

16 Q And, forgive me, but hospitals are -- are they designed
17 to receive patients symptomatic with a potentially
18 infectious illness?

19 A Yeah, there are other factors other than masks,
20 obviously, there's ventilation, there's how rooms and
21 wards are designed, there's cleaning, so lots of
22 evidence about different cleaning things. So, you
23 know, we have three main types of cleaners:
24 Ammonium-type cleaners and bleach-type cleaners and
25 peroxide; we talk about each of the different pros and
26 cons of those, so -- and then different types of

1 ventilation systems: You have negative-pressure
2 ventilation for certain infections like tuberculosis
3 that are not required for other important respiratory
4 infections like influenza.

5 Yeah, you have kind of distance between patients,
6 whether they're in their own room or whether they can
7 be divided by, you know, just a screen; you have other
8 personal protective equipment like gloves or gowns.
9 Yeah, there's a variety of different factors that are
10 built into kind of the design and how a hospital works.

11 Q Are there any important differences between a setting,
12 a health care setting or any setting, where symptomatic
13 people are regularly present and then a setting where
14 symptomatic people are not present and only
15 asymptomatic people are present?

16 A Yeah, I think so. Like, you know, there's -- I think
17 of something like a hospital, even in that case, you
18 know, there would be scenarios where it doesn't make
19 sense to have everybody masked, even in the context of
20 COVID. Like if you have an outpatient clinic, say a
21 mental health clinic, where you have a psychiatrist,
22 who is obviously healthy, he or she is not allowed to
23 come to work if they have symptoms, and a healthy
24 patient, you know, let's say with some anxiety issues,
25 and there's cognitive behavioural therapy, which is --
26 you know, they're talking, you have a context like

1 that, it's occurring in a hospital, but really that
2 context, from a transmission risk point of view, can be
3 considered like any other context within the
4 population; and so you have them sitting 3 feet apart,
5 they're just talking, they're both healthy, the risk of
6 transmission, I would say it's even less than, say,
7 that patient after discussing anxiety issues with the
8 psychiatrist, going and getting their hair cut, because
9 the person trimming their hair or giving them a haircut
10 is actually closer to them than the psychiatrist.

11 And so even within the hospital, it's completely
12 context-dependent. Even in kind of health care
13 settings, it can be a relatively arbitrary definition.
14 Yeah, it occurs in a hospital, but what's the actual
15 risk, like how are these people physically relating to
16 each other, what are their symptoms, and what's the
17 actual risk?

18 So I would argue that the actual risk for the
19 scenario I provided, you know, would be the same as
20 essentially a similar type of scenario within the
21 general public. Whereas it's completely different if
22 you have symptomatic people on a ward that then -- the
23 benefit of masking is theoretically there but then also
24 proven by previous randomized controlled trials and
25 influenza disease.

26 Q Thank you. Dr. Warren, where you work, are you

1 currently required to where a mask because of COVID
2 even when you're asymptomatic?

3 A Yes.

4 Q And are there any similar or extra requirements from
5 the CPSO to wear a mask because of COVID even when
6 you're asymptomatic?

7 A I'm not sure. I'm not sure entirely what you're
8 asking, but I think most of the policies that I would
9 follow, because I'm in infectious diseases, so I'm
10 taking care of COVID patients and stuff, so I think
11 most of the policies would be from my hospital rather
12 than the CPSO. Yeah. Sorry, I'm just not entirely
13 sure what you're asking there.

14 Q Well, I mean, certainly the general understanding is
15 that most regulatory bodies, health professional
16 regulatory bodies across the province have fairly
17 sweeping requirements that their members wear masks
18 regardless of their symptoms. You know, the College of
19 Chiropractors has it, the College of Physicians and
20 Surgeons of Alberta has it. So I'm just asking if
21 you're aware if the College of Physicians and Surgeons
22 of Ontario has a requirement like that.

23 A Oh, I'm sure they do, yeah. Yeah, and it probably
24 doesn't really impact me because I'd be doing it
25 anyway, taking care of patients with infections, so --
26 but, yes, I'm sure they do. I haven't read it in

1 detail, but it wouldn't impact me like it might impact
2 some other people who wouldn't routinely be wearing a
3 mask anyway in the course of their work.

4 Q Okay, so do you now wear a mask a whole lot more now
5 than you used to prior to COVID just because of the
6 type of work you do?

7 A Yeah, absolutely. Yeah, I have to wear a mask in all
8 contexts now, whereas before, it was context-dependent.

9 Q And do you think the requirements now are equally
10 rational or equally logical to what they were before
11 when they were context-specific?

12 A Well, as I discussed earlier, the evidence base is not
13 there. And as I discussed earlier prior to COVID, the
14 requirement or need for masking, different types of
15 masking was based on the context. And in many of those
16 scenarios, it was actually studied, the most important
17 scenarios, things like TB and influenza. So now
18 there's a requirement for masking in every context, but
19 it's not substantiated by evidence.

20 Q In the new context, where you are required to wear a
21 mask, do you, in fact, wear a mask even though you
22 didn't used to before COVID?

23 A Yes, I wear a mask at all times when I'm in the
24 hospital. But the type of mask I wear is still
25 different based on the context. So it can be a Level 1
26 mask in certain areas. When I'm actually in my office

1 with my door closed, I'm by myself, I don't wear a mask
2 because I don't have to. But in other areas, if I'm
3 just going to Tim Hortons to get a coffee, I just wear
4 a Level 1 mask. In many clinical contexts, I can wear
5 a Level 3 and then an N95 in certain clinical contexts.

6 Q When you wear a mask to go to Tim Hortons, do you do so
7 because there's a law that requires you to do so?

8 A Yes.

9 Q Do you disagree with that law?

10 A I would say it's not based on evidence, universal
11 masking. And so I would say when I'm standing in line
12 at Tim Hortons, I would say that's similar to like a
13 community setting. Presumably, you know -- well, yeah,
14 people who have symptoms are not allowed to be in line
15 at the Tim Hortons as you are at the hospital. If
16 they're symptomatic patients, they need to, you know,
17 reside in the rooms, and symptomatic staff are not
18 allowed to come, not allowed to have symptomatic
19 visitors, that kind of stuff. And so that would be
20 considered community context, so as I've kind of argued
21 in and out of places, the evidence base just is not
22 there to say that that is required.

23 Q I'm nearing the end, believe it or not. I just have
24 some more questions about Dr. Hu.

25 Now, from your observations, has the transmission
26 of COVID decreased in jurisdictions of mandatory

1 masking as compared to jurisdictions with no masking?

2 So, you know, the classic example would be California

3 and Florida. Have you seen COVID transmissions

4 decrease in California because of mandatory masking?

5 A Yeah, again, so this is a huge other wide body of

6 literature and fraught with all sorts of methodological

7 and statistical problems, but what work there is out

8 there, there is no difference with regards to masking.

9 You know, I think people can know that intuitively.

10 Like we've had in Canada all of these mask mandates for

11 15 -- yeah, probably 15, 16 months before Omicron hit,

12 and then, you know, it just blew through the society,

13 didn't make any difference.

14 I think intuitively no, but when we do ecological

15 studies, which, again, have all sorts of methodological

16 problems, I would argue that the evidence shows that

17 there is no effect on transmission. And the best ones

18 are, you know, looking at the different states, because

19 you have 50 different states or Europe, because you

20 have a similar health care systems, relatively similar

21 population, things like that. And, no, I would argue

22 that it does not.

23 Q Dr. Hu has stated that every country that has imposed

24 masking has experienced decreased transmission of

25 COVID. Do you disagree with him?

26 A Yeah, I don't know what that assertion is based on.

1 I'd love to kind of know what study he's referring to
2 in that.

3 Q Well, that's my next question. So you're not aware of
4 any academic literature that would support such a
5 claim?

6 A No. Again, there's a wide literature in that, but it's
7 fraught with all types of problems, and so one of the
8 kind of classic fallacies is the progression toward the
9 mean, and we see this all the time where in the middle
10 of a wave, stuff is done, and then the cases come down,
11 and then it's attributed to whatever was done, but
12 that's just statistically wrong because there's always
13 going to be a regression toward the mean. A wave is
14 going to go up, and then it's going to come down, and
15 you have to have a control group to decide whether your
16 intervention -- those are kind of before/after
17 ecological studies, which are even lower than, you
18 know, ecological studies with regards to the value of
19 the evidence. It's essentially -- it's
20 hypothesis-generating at most, but very low quality of
21 evidence.

22 And whatever -- what evidence there is out there,
23 can be -- because it's some very low methodological
24 quality, it can often be twisted all sorts of different
25 ways. And there is -- and there is hundreds of
26 publications in that area with low methodological

1 qualities, so ecological studies or before/after
2 studies, which, by definition, are low methodological
3 quality, showing both sides.

4 So there's lots showing one side, lots showing the
5 other, but the best evidence is randomized controlled
6 trials and meta-analysis that there's no benefit in
7 masking a healthy general population.

8 Q Well, I'm going to ask you if that's what Dr. Hu has
9 done. I'm going to tell you what he said. He said
10 that the lockdown restrictions imposed in Alberta in
11 November and December of 2020, he said that those
12 lockdown restrictions did not cause the initial rise in
13 cases during the lockdown but did cause the eventual
14 drop in cases. So did Dr. Hu do there what you just
15 described?

16 A Yeah, there's no statistical epidemiologic way of
17 making that conclusion, because there's all sorts of
18 problems with it, but -- before/after, like you have
19 all sorts of bias and confounding, especially
20 confounding, and that conclusion just can't be made
21 statistically, it's just not good practice, that that
22 is not a high level of evidence because there's so many
23 confounding factors.

24 And we just know, and we've seen this all over the
25 world now for two years that you have waves that go up
26 and waves that come down, in many cases no matter what

1 you do. We've seen that in different provinces in this
2 wave. You know, provinces like Quebec who had the most
3 extreme measures are having more per capita cases than
4 places like Saskatchewan, which are having many fewer
5 restrictions.

6 And I would argue I know exactly why Quebec is
7 having more cases than Saskatchewan because the
8 population weighted density in Quebec is much higher.
9 You have a lot of people living in a relatively small
10 area in Quebec. So it's predictable why they're going
11 to have more cases than Saskatchewan. And every
12 jurisdiction in Ontario follows the same pattern we're
13 seeing in other places, which is that the most
14 important factor for number of cases is population
15 weighted density.

16 And it's not just overall area divided by the
17 people. So you look at places like Ontario, most
18 people don't live up in the north; it's population
19 weighted density, which is a specific measure. So you
20 take -- so the idea is you take any random person in
21 that population, how many people live near them. It's
22 not take the whole area of Ontario and divide it by the
23 people. That's just population density. But the
24 people of Ontario are not evenly spread over the entire
25 province.

26 Population weighted density is a statistical

1 method of determining if you take a random Ontarian,
2 how many, on average, people is that person near within
3 like, say, a square kilometre. And that measure is, by
4 far, the best predictor of how many cases you're going
5 to have. And we see that -- you have provinces that
6 have low population density have lower numbers of
7 cases. Populations with high -- provinces with high
8 population density, like Quebec, having very large --
9 Ontario as well, most people in Ontario live in the
10 corridor between Windsor and Ottawa, and it's
11 relatively population dense.

12 Q You said earlier something about reversal. You said it
13 was very difficult to reverse (INDISCERNIBLE) trend.
14 Does that help to explain that even though this data
15 you're talking about is so obvious, does that help to
16 explain why Quebec continues to do something that is
17 very obvious doesn't work?

18 A Yeah. So it's difficult once there's an established
19 practice, and we know this from thousands of years of
20 history in medicine, it's very difficult once there's
21 an assumed standard of practice to change practice.
22 Now, I deal with that on a daily basis, and I have been
23 for almost 11 years of practice now in antimicrobial
24 stewardship, because my main role is to convince
25 people, okay, we don't need to treat people with
26 pneumonia with 14 days of antibiotics anymore. We've

1 had lots of randomized controlled trials that say three
2 to five days is okay. But people are still practicing
3 what they learned in med school 25, 30 years ago.

4 And so effecting that change is very challenging,
5 and there's all sorts of books written about that and
6 things like that. And so once a practice is assumed to
7 be beneficial, even early on in the -- when there's
8 clear evidence to the contrary, it's very difficult for
9 medical practitioners, it's a psychological thing, you
10 know, just part of humans and who we are as well, to
11 change practice.

12 Q Is that what's going on generally with COVID now?
13 We've got this practice in place, you know, revolving
14 lockdowns must be effective because we thought they
15 were going to be in the beginning, even though the data
16 shows they're not, we must keep doing them because we
17 thought they were effective. Is that -- you know, the
18 example that you gave with treating pneumonia, is that
19 what's going on with COVID?

20 A Well, you know, it's a very complicated topic. As I
21 mentioned before, it needs to be looked at in the
22 historical context as well, because as a -- you know,
23 as human populations, we have gone through massive
24 events that have decimated our populations that is
25 still historically remembered in our social
26 consciousness. And as I said, so you think of things

1 like the Black Death, as I said before, historically
2 some sorts of quarantine, especially for things like
3 smallpox and plague, frankly, have worked. Like when
4 you kind of cut yourself off from the world, that
5 actually saves a lot of lives with regards to smallpox
6 and plague.

7 And so a lot of these things have very deep-rooted
8 factors that come into play, but one of them is this
9 medical reversal idea, and others kind of -- you know,
10 the idea of some costs, like once you've invested
11 billions or whatever dollars in something, you know,
12 you really want that to work.

13 And it's political, right? Like it just comes
14 down to politics, a philosophy of how things are done,
15 whether you're interventionist or not, and people are
16 interventionists in the economy, people are
17 interventionists in the climate, people are
18 interventionists in medicine, and to some degree,
19 that's a political question as well. So there's many
20 different factors.

21 I think there's a few problems that have occurred
22 over the -- I think everybody will admit this that
23 there's been some major problems that occurred over the
24 last couple years. One is that, you know, we haven't
25 subjected or made decisions based on enough evidence,
26 and I think many people would agree on that, but I

1 think also that it's things are oversimplified. So I
2 don't want to be one person that says, well, people do
3 this because of one reason; I think it's very complex.

4 Q Right. Dr. Hu said quite a few times in his report and
5 in questioning that the evidence supporting the
6 effectiveness of masks is, quote, overwhelming and,
7 quote, there's heaps and mounds of evidence. Do you
8 find these statements to be reasonable?

9 A If he's referring to in the community, then, no,
10 absolutely not, but I -- quite the opposite actually.
11 So I don't have that direct quote in front of me, but
12 if he's referring to masking healthy persons in the
13 community, no, I would completely disagree with him.

14 Q Well, you know, to be fair, he's saying it in the
15 context of health care settings --

16 A But, again, it's context-dependent, so, yes, for health
17 care providers taking care of patients with influenza
18 or influenza-like illness or tuberculosis or, you know,
19 certain -- the context, then, yes, there is lots of
20 evidence, but there's also lots of evidence for the
21 fact that masks are not required in lots of health care
22 contexts as well.

23 Q On page 7 of his report, Dr. Hu says that the issues of
24 asymptomatic transmission, of symptomatic transmission,
25 and the severity of COVID are not salient to the issue
26 of the effectiveness of masking.

1 A Sorry, can you say that again?

2 Q Sure. And you might want to have it in front of you,
3 on page 7 of his report, it's actually in the bold text
4 in the third paragraph there of page 7, he says: (as
5 read)

6 The severity of COVID-19 right through
7 transmission of --

8 A His report, sorry, Dr. Hu's report?

9 Q Yeah.

10 A Okay. Let me just bring it up. Page 7?

11 Q Page 7, yeah, there's the bold text.

12 A Okay, got it here.

13 Q So he says: (as read)

14 The severity of COVID-19 rates of
15 transmission amongst asymptomatic infected
16 individuals, testing, et cetera, none are
17 salient to the question at hand around
18 whether or not masks provide benefit in a
19 health care setting.

20 Do you disagree with him?

21 A I just have to look at this.

22 Q Now, mind you, we don't have a definition of "health
23 care setting" of course, but ...

24 A No, I wouldn't agree at all. Like whenever we decide
25 or whenever we're thinking conceptually about whether
26 health care workers should wear masks, the severity of

1 the infection, the rates of transmission of the
2 infection, whether asymptomatic persons can transmit,
3 all of those are very important as to whether masks
4 should be used in that context. I'm not arguing that
5 masks shouldn't be used in a health care context. I
6 would define that like as a hospital, you know, but
7 health care providers should wear a mask when taking
8 care of a patient who is symptomatic with COVID-19.
9 I'm not disagreeing with that at all.

10 But this statement is not true, like whenever we
11 think of, even in the health care environment, whether
12 someone should be masked, we think of the severity of
13 the infection, we think of the rates of transmission,
14 we think of whether someone who is asymptomatic can
15 transmit, absolutely.

16 Q I want to take you back to your comparison of a year of
17 COVID death numbers to a year of vehicle fatality
18 numbers. I think you do this on the bottom of page 2
19 and the top of page 3 of your report.

20 A Right.

21 Q Now, the first question I have for you is, and you may
22 not know this, but when did COVID-related deaths in
23 people under the age of 60 first start occurring in
24 Canada in 2020?

25 A Oh, it would have started occurring very early, yeah.

26 Q "Very early" being?

1 A April.

2 Q So I'm going to ask you some obvious questions, bear
3 with me. How many months are there between April 2020
4 and April 2021?

5 A 12.

6 Q And how many months were in the year 2019?

7 A 12.

8 Q Now, in your report, you say that there were 1,010
9 COVID-related deaths in people under 60 years of age as
10 of April 16th, 2021, and that there were 1,191 motor
11 vehicle fatalities in 2018 in people under 55 years of
12 age. Do you still hold the opinion that the risk of
13 death from COVID to people under the age of 60 between
14 April 2020 and April 2021 was less than the risk of
15 dying from a motor vehicle accident?

16 A Yeah, absolutely. And, in fact, the first -- when I
17 kind of look at the number -- what you need to do is
18 look at basically the average number of deaths per day,
19 and in this analysis, I'm actually being generous,
20 because the first death in Canada I think was around
21 March 9th, 2020, and so what you're talking about is
22 over 13 months of data until April 16th, 2021, and
23 there were less deaths in that age group than just 12
24 months of persons -- and, again, it's under the age of
25 55. So not only am I doing it longer with regards to
26 COVID deaths, I'm -- have a slightly larger age group.

1 So the number -- and if you continue that on, and
2 you always have to -- the denominator is important,
3 like you always have to divide it by the number of
4 days, and I counted from the day of the first COVID
5 death in Canada, and this holds today, so the number of
6 deaths in Canada in persons under 60, if we divide it
7 by almost two years, the number of deaths per day on
8 average is less than what we would expect in that same
9 age group, persons under 60, the number of deaths due
10 to motor vehicle accidents.

11 Q Thank you. On page 6 of his report, Dr. Hu stated that
12 you committed a, quote, factual error. He said your
13 comparison was fallacious and unscientific. He went on
14 to say that no scientist, doctor, or epidemiologist
15 with a basic understanding of disease patterns would
16 make this comparison.

17 Now, on cross-examination, Dr. Hu retracted his
18 accusation that you have no basic understanding of
19 disease patterns, but how do you respond to his claim
20 that you made a factual error?

21 A Well, the mistake he made is he continued to accrue
22 patient numbers without dividing -- without changing
23 the denominator. So he changed the numerator without
24 changing the denominator. What I was saying was that
25 in a year, and it was actually more, the numerator was
26 1,000 -- what did I have -- 1,010, that was my

1 numerator, and my denominator would have been about a
2 year, it was actually 13 months, but it was a year. In
3 his report, he continues to increase the numerator, so
4 1,475 as of June 29th, but then he has to increase the
5 denominator as well. And if you change the denominator
6 to the June 29th, so approximately 16 months, you're
7 finding the same thing: You're finding the average
8 numbers of death per day in that age group is still
9 less. So it's --

10 And, you know, saying it's fallacious and
11 unscientific, well, it's very important, we do this all
12 the time in medicine; like if we're talking to people
13 that have a potential rare effect of a drug or, you
14 know, a particular intervention, like my obligation is
15 to provide the patient with informed consent, and part
16 of that informed consent is providing a contextual
17 risk. This is done all the time. It's done all the
18 time at population health bubbles as well, because
19 everything in life has a risk, you know. Me walking
20 into my bathtub or shower has a risk, you know; there
21 are certain numbers of people that die every year
22 because of that. And getting struck by lightning or
23 whatever and --

24 In fact, driving a car is one of the riskiest
25 things in, you know, persons under a certain age that
26 they can do in Canada. It's one of the major

1 preventable causes of death. And so it's always
2 used -- not always, but often used as a way of
3 contextualizing a risk of death, and I think it is very
4 helpful in COVID-19. If you have people under 60,
5 that's all persons under 60, all persons under 60,
6 their risk of dying of COVID is actually lower than
7 their historical risk of dying in a car accident.

8 And, again, you can talk about sub groups and
9 things like that if you have -- if you're talking about
10 healthy people under 40 with no risk factors, like
11 you're talking about a phenomenally lower risk actually
12 with no kind of comorbidities and lowering the age
13 group and stuff. But it's routinely done in many areas
14 of life, not only medicine, to contextualize a risk.

15 Q Just a couple more questions. In your experience as an
16 infectious disease specialist, do government bodies
17 tend to be more factually accurate than non-government
18 bodies regarding scientific issues?

19 MR. MAXSTON: Mr. Kitchen, I'm sorry to
20 interrupt, but I struggle with how that falls within
21 the efficacy of masking and other qualifications. I
22 think that's almost political, sociological. I know
23 where you're going, but I wonder if you could think
24 about rephrasing that, because that's awfully broad and
25 really doesn't speak to efficacy of masking; that's
26 governmental society.

1 MR. KITCHEN: No, I'm simply asking if the
2 evidence he's seen for government bodies and the
3 evidence he's seen from non-government bodies, if the
4 scientific evidence -- if governments tend to be more
5 right than non-government bodies.

6 MR. MAXSTON: Well, it's pretty open-ended,
7 which governments, what evidence, provincial, federal,
8 municipal. I mean, that's a pretty broad question,
9 Mr. Kitchen. That's my concern.

10 MR. KITCHEN: I can narrow it down to
11 specific governments, if you let me do that.

12 Q MR. KITCHEN: Well, Dr. Warren, I'm not
13 going to ask you about the Alberta government because
14 you're not in Alberta, but the Ontario government,
15 generally speaking, in your -- and you've only be doing
16 this for 11 years, so in your 11 years of infectious
17 disease experience, do governments tend to be more
18 factually or scientifically accurate in Ontario, the
19 Ontario government, does the Ontario government tend to
20 be more factually or scientifically accurate than
21 non-government bodies?

22 A What do you mean by "non-government bodies"; like what
23 would be the comparative group?

24 Q Independent scientists, private universities, people in
25 bodies that are clearly unrelated to government.

26 A Yeah, again, that is a hard question to really answer,

1 because it all depends. Like I've seen it every single
2 different way. Sometimes I've seen how the
3 Government's just way behind the times. Other times,
4 they're way more accurate than a different -- like,
5 again, it's completely context-dependent, so I really
6 can't answer that question, to be honest with you.

7 Q Do you think a scientific or medical proposition or
8 theory is likely to be more accurate because it comes
9 from a government source?

10 A I don't personally think that, no. I always look at
11 the underlying data, so the primary evidence. So, you
12 know, if you talk about historical analysis, the
13 primary evidence is people who were there in that part
14 of history or the archeological evidence or whatever.

15 You know, in scientific stuff, it's the studies,
16 it's the bench research or the randomized controlled
17 trials, yeah. So that's how I would form my opinion.

18 So what different bodies say, governments,
19 whatnot, like that would be part of kind of how I think
20 about things, but it's certainly not the most
21 important, but I would want to look at the primary
22 evidence, and that's what I did in my report.

23 Q So is the most important thing what the evidence and
24 the data says?

25 A Absolutely.

26 Q What if government disagrees with that evidence and

1 data?

2 A Well, governments have, you know -- throughout the
3 history of medicine, there's all sorts of examples of
4 when governments got it wrong, different medical bodies
5 got it wrong. You know, data is always accumulating,
6 and so -- but, you know, lots of times they get it
7 right, but, of course, they're going to get it wrong.
8 Governments or any sort of political body or
9 educational institution or even scientific community
10 are not going to be infallible. Like there's lots of
11 people that make mistakes, and evidence is going to
12 change, you know, and they're influenced by a variety
13 of factors. They are -- and things are influenced by
14 cultural factors, things are influenced by political
15 factors, so, yeah, it's a very complex thing.

16 (AUDIO/VIDEO FEED LOST)

17 THE CHAIR: Can we just --

18 MR. KITCHEN We've lost --

19 THE CHAIR: Yeah.

20 MR. KITCHEN I only have one more question,
21 so if we get Dr. Martens back, then I'll be done.

22 THE CHAIR: Okay, we'll just wait a
23 moment; I'm sure she'll be reconnecting.

24 (DISCUSSION OFF THE RECORD)

25 Q MR. KITCHEN: Dr. Warren, thank you, you've
26 been very patient with me. My last question for you

1 is, as a medical professional working with infectious
2 diseases, have you found the information or opinions
3 regarding COVID restrictions coming from government
4 sources such as the Public Health Agency of Canada to
5 be well supported by real scientific evidence or not so
6 well supported by real scientific evidence?

7 A So with regards to COVID-19?

8 Q With COVID restrictions.

9 A Yeah, I -- again, it's a complex question, but, in
10 general, I would disagree with a fair amount of what my
11 Provincial government has done. Like they've
12 admitted -- you know, they were taping up children's
13 playgrounds in two different waves, it just makes no
14 sense.

15 But, again, it all depends on what we're talking
16 about. Some things I do agree with, certain quarantine
17 and testing and various treatment things I do agree
18 with, other things I don't, but anything that I would
19 have had issue with would have been found in my report.

20 Q So you don't agree with the masking and physical
21 distancing, I take it?

22 A Yeah, my position is as it is in the report, and that
23 would be quite different than what has occurred in my
24 jurisdiction.

25 MR. KITCHEN: Well, those are all my
26 questions.

1 Now, I know it's getting close to lunch, but I
2 suspect Mr. Maxston's going to be quite brief, and so I
3 propose that we go until lunch, but I leave that with
4 Mr. Maxston.

5 THE CHAIR: I was just going to ask you,
6 Mr. Maxston, if you have some idea of how long you
7 might be.

8 MR. MAXSTON: I think I'll be 15 minutes, I
9 don't know, depending on how, you know, again
10 Dr. Warren might respond, I might have some follow-up
11 questions. My sense is, and I leave this up to you to
12 decide, but people would probably, and I invite
13 Dr. Warren's comments and your colleagues', we probably
14 want to plow through into the lunch hour and maybe try
15 to finish any redirect and any questions from the
16 Tribunal before we break for lunch. Now, that's -- I
17 don't want to see us going till, you know, 1:25 and
18 missing lunch for everybody, but my sense is maybe we
19 should try to press ahead here for 15 or 20 minutes,
20 see where we're at. Mr. Kitchen may have some
21 follow-up. Let's just try to make as much progress as
22 we can before maybe 12:30 or something like that.

23 THE CHAIR: I agree with you, and I see a
24 very vigorous nod from Dr. Warren; I think he's
25 supportive of that. I'm going to suggest that we just
26 take a 5-minute stretch, bio break now, and we'll come

1 back, and we'll -- nose to the grindstone and try and
2 see where that takes us, okay?

3 MR. LAWRENCE: Sorry, can I just -- Amber,
4 can you stick us in a break-out room? I just want to
5 chat with Blair for a few minutes.

6 THE CHAIR: Think we'll be back at 10
7 after 12, because I do anticipate there's going to be
8 some discussion, so we'll see everybody in 15 minutes.

9 (ADJOURNMENT)

10 THE CHAIR: So we're back in session, and
11 Mr. Maxston has some questions on cross-examination for
12 you, Dr. Warren.

13 A Okay.

14 Mr. Maxston Cross-examines the Witness

15 Q MR. MAXSTON: Afternoon, Dr. Warren.

16 A Afternoon.

17 Q It's noon here now as well, so that's universal. Thank
18 you for taking your time out of a Saturday. I don't
19 have a lot of questions for you.

20 I just wanted to start off by confirming a few
21 things you said to Mr. Kitchen, and the first was that
22 the, I think, the infection fertility ratio varies over
23 time; is that correct?

24 A Infection fatality ratio, yes, not fertility.

25 Q Thank you, not -- yes, thank you. And the IFR for
26 COVID, I think you said exceeded a bad influenza year

1 when COVID-19 first began in Canada; is that correct?

2 A Yeah, so what I was saying is that very early on,
3 because it was really only symptomatic cases being
4 detected and tested for, and there was still a very
5 vulnerable population, the IFR was quite high. But
6 over time, as COVID has infected more and more people,
7 there have been different strains, including especially
8 Omicron, the IFR has continued to drop over the past 21
9 months or so --

10 Q Yeah.

11 A -- so --

12 Q I think that --

13 A -- I think it's graphed out in a number of places, and
14 it's declining over time.

15 Q I think you might have said that in April or May of
16 2020, that was the first wave for COVID-19, and that's
17 when the IFR would have been its highest; is that fair
18 to say?

19 A Correct, yeah.

20 Q You had a discussion with Mr. Kitchen about the word
21 "pandemic", and I think you said that COVID-19 is
22 definitely a pandemic, and you supported that by saying
23 that this is the first time we've seen a virus on all
24 seven continents; is that correct?

25 A Correct.

26 Q You also said that there's going to be some debate

1 about when it's becomes endemic, and I think you said
2 the decision about when it's going to become endemic is
3 arbitrary, is that your evidence?

4 A Well, yeah, different people are -- you see some people
5 saying now that it's endemic, others are going to say,
6 well, there's these and these criteria. There's no
7 established criteria. I gave kind of what I think is a
8 reasonable thing, which is that once it's replaced with
9 a different virus, not entirely, because COVID-19 or
10 SARS-CoV-2 will continue to circulate indefinitely, but
11 once the predominant virus is something else in most
12 regions, I think that's a good place to say, well, it's
13 now endemic.

14 Q You're kind of leading --

15 A There's no established -- sorry, there's just no
16 established definition as to when the pandemic ends and
17 when the endemic phase begins.

18 Q And you're kind of leading me to my next question,
19 which was inasmuch as it's going to be arbitrary, it's
20 probably going to be subjective as well, isn't it?

21 A Yeah, you can use whatever term you want, arbitrary,
22 subjective, yeah.

23 Q You had, a number of times, interactions with
24 Mr. Kitchen about how science has evolved with respect
25 to each virus or pandemic, and that there is discussion
26 and debate within the scientific community, and I think

1 you referred to different studies, and Mr. Kitchen took
2 you through that. While that debate is occurring --
3 and I'll be more specific, while that debate was
4 occurring in Canada when COVID-19 started and is still
5 continuing, it's up to governments to make decisions
6 though and orders in terms of how we respond to the
7 pandemic; is that fair?

8 A Yeah, that's the role of government is to make
9 decisions.

10 Q Yeah, and what I'm getting at there, I believe this is
11 consistent with what you said, the CMOH, and I'll use
12 Ontario, for example, but it's the same here, it's the
13 CMOH that issues those public health orders that the
14 public is required to follow; is that fair to say?

15 A Yes, the CMOH does have an important role -- or
16 that's -- the CMOH has had an important role in Canada
17 in different jurisdictions and provinces, but, yeah,
18 it's still the government itself as well making certain
19 things mandatory and usually will do so with
20 consultation of the CMOH.

21 Q And I'm not trying to be cagey here, I'm just trying
22 to -- I want to be clear that there's a distinction
23 between the scientific debate, which has people on both
24 sides or multiple sides of an issue, versus the
25 decision-making, which is done by government and other
26 government entities, I suppose. That's really what I'm

1 getting at.

2 A Yeah, I would agree with that. I would agree with that
3 a hundred percent, because policy is always very
4 different than scientific rationale, and so --

5 Q Right.

6 A -- there's lots of policy decisions that have been made
7 that are not justified by science.

8 Q Yeah, and I think -- you know, I was talking with you
9 about CMOH orders, but I'm thinking in Alberta, and I
10 know -- I'm pretty sure they had these in Ontario, we
11 had various re-opening requirements issued by
12 government. If you wanted to open your gym, your
13 salon, what have you, there were certain requirements
14 that have to be followed, and I think you probably
15 agree that, despite the scientific debate going on,
16 businesses had to follow those requirements if they
17 wanted to re-open?

18 A Yeah, that would be their decision, but, yeah.
19 Absolutely.

20 Q You had a very I think fulsome discussion with
21 Mr. Kitchen about you and wearing of masks, and I think
22 you said to him that you are required to wear a mask at
23 work when you're asymptomatic regardless of, you know,
24 symptoms; that was your evidence, I think?

25 A Yeah, when I'm working in the hospital, I'm required
26 to -- except when I'm in my own private office --

1 Q Right --

2 A -- with the door closed.

3 Q -- right. And in fairness --

4 A (INDISCERNIBLE)

5 Q -- I'm really concerned about the situation where
6 you're treating patients, because that's what our
7 hearing is talking about, and I think you were pretty
8 candid about that. Mr. Kitchen mentioned to you CPSO,
9 College of Physicians and Surgeons of Ontario,
10 requirements for masking, and I think you said -- he
11 asked you whether you knew whether they had any, and
12 you said, I'm sure they do. And I think you indicated
13 you would follow them if they applied to you, and in
14 fact, I think you said you are following them when you
15 wear a mask in the hospital. Is that fair to say?

16 A That's correct.

17 Q Would you agree that, as a member of the CPSO, you
18 can't pick and choose which of their requirements for
19 your practice applies or doesn't apply for you?

20 A I don't have a choice in the matter, no. The CPSO and
21 various other regulatory bodies can make requirements,
22 my hospital can make requirements of something that I
23 don't agree with or I think is not based on evidence --

24 Q That was going to be my next -- sorry, were you
25 finished?

26 A Yeah.

1 Q Yeah. That was going to be my next question was, you
2 know, there's situations, and I think masking might be
3 one of them, where you would disagree with your
4 regulator or maybe a hospital policy where you're at,
5 but your evidence I think is that you, nonetheless,
6 would follow those requirements?

7 A That's correct.

8 Q Mr. Kitchen and you engaged in a discussion about
9 government and non-government bodies, and he asked you
10 some questions about that. I just want to be clear,
11 you gave some answers about your knowledge of the
12 Ontario experience, but you don't have any knowledge of
13 the Alberta experience in terms of how CMOH orders were
14 issued or weren't issued; that's correct?

15 A I have some knowledge of Alberta, but certainly nothing
16 like I would have here in Ontario, because -- like you
17 know, this case or whatever else, I've got some
18 knowledge of Alberta, but not nearly as much as I would
19 have of Ontario.

20 Q And I think, again, and I'm not trying to be critical
21 here, I just think it's factual, Dr. Hu, in his
22 testimony and his expert report, was directly involved
23 in working with the CMOH office on certain aspects of
24 their orders in Alberta; is that your understanding?

25 A I know nothing about Dr. Hu.

26 Q You had a discussion about, and Mr. Kitchen can correct

1 me if I'm paraphrasing his words incorrectly, but I
2 think generally he asked you about whether government
3 or non-government entities can be -- are more accurate,
4 or less accurate, or more correct or less accurate, you
5 know, when we compare them, and I think you were pretty
6 candid in saying that it's fairly divergent, and lots
7 of times government gets it right, and lots of times
8 non-government entities get it right; is that fair to
9 say?

10 A Yeah, it's a very complex issue, and it's such a broad
11 question that I don't think any kind of sweeping
12 statements can be made.

13 MR. MAXSTON: Those are all my questions,
14 Dr. Warren. Thank you for your time.

15 A Thank you.

16 MR. KITCHEN And I --

17 THE CHAIR: Thank you.

18 MR. KITCHEN: -- just have two in redirect.

19 THE CHAIR: Okay.

20 Mr. Kitchen Re-examines the Witness

21 Q MR. KITCHEN: Dr. Warren, you said there's
22 no established criteria for establishing an endemic.
23 Is there any established criteria for establishing a
24 pandemic?

25 A I think the -- yes, there would be, you know,
26 established -- you know, the WHO, different

1 organizations would have definitions for a pandemic,
2 however you want to define a pandemic. SARS-CoV-2 is a
3 pandemic, and there are certainly more definitions or
4 clearer definitions for when there is a pandemic and
5 when it's been established than when an infection
6 transitions from pandemic to endemic.

7 Q How come only some flu years are pandemic and some
8 aren't? I don't want you to -- I don't want to rehash
9 what we did earlier. You said something about --
10 something I didn't, frankly, understand. I think
11 something about how the virus has changed. That's what
12 I'm trying to get at. Is there --

13 A Yeah. So year to year, influenza changes, it mutates,
14 we have different strains. It's equivalent to
15 SARS-CoV-2, how we have different variants. They're
16 both very -- they're similar viruses; they're RNA
17 viruses; they mutate at approximately the same rate.

18 So in influenza, year to year, there's something
19 called antigenic drift, which are minor changes that
20 produce the seasonal yearly influenza. Every few
21 decades, there's an antigenic shift, so not drift but
22 shift, and that's a major reassortment of a virus,
23 which generally causes more widespread illness, more
24 severe illness, because many people in the population
25 do not have sufficient immunity, and so that's, you
26 know, swine flu 2009 would be kind of the last example

1 of that. The Spanish flu from a hundred years ago is
2 another example. And there were I think three or so
3 other pandemic influenza years in the 20th century.

4 Q When we go from variant to variant in COVID, is that a
5 similar thing, or is that different?

6 A So that would be, if you want to make it analogous to
7 influenza, that would be the antigenic drift part of
8 influenza, and so that would be the -- kind of the
9 yearly fluctuations, and we'll continue to have that,
10 there'll be a new wave after Omicron, something of a
11 new variant. In influenza, we called it the yearly
12 strain. And so that's what the analogy would be with
13 influenza. The variants are new -- are analogous to
14 influenza antigenic drift.

15 Q And that's what we referred it to, COVID-19 or
16 SARS-CoV-2, is one big long event, they don't -- we
17 haven't chopped it up; we refer to it as one big long
18 thing, that's -- because there's only drifting not
19 shifting?

20 A That's correct.

21 Q Last question I think, if government has a role to
22 impose measures to protect the public, do they also
23 have a corresponding role to remove those measures once
24 it's clear that they don't work or cause more harm than
25 good?

26 A I think any policy decision needs to be based on

1 evidence, and I think the more significant a policy
2 decision is, the more evidence should be behind it,
3 because if you're going to make a policy decision that
4 significantly impacts people's lives, there should be a
5 lot of good evidence for that.

6 And so same with changing policy decisions, any
7 time a policy decision is changed, it should be based
8 on evidence. And again, I think the burden of proof,
9 the more significant the policy decision, the more the
10 higher burden of proof is on the evidence that that
11 policy decision is based on.

12 Q And are you seeing that evidentiary burden being met
13 for things like masking and distancing?

14 A Yeah, yeah, for sure. With regards to masking for
15 sure. Like a lot of places -- a lot of places like
16 Denmark, the UK, Ireland, many places in the States, a
17 lot of jurisdictions are getting rid of masking because
18 there's no -- like the evidence just isn't there.
19 There was an assumption, and so the policy decision was
20 based on an assumption, that I would argue flawed
21 assumptions, but as evidence accumulates, jurisdictions
22 are now starting to get rid of mask mandates, for
23 example.

24 Q Logically speaking, if the virus is the same and the
25 scientific evidence is the same between Florida and
26 Alberta or between Canada and Denmark, then can it

1 logically be said that Canada's decision to keep
2 masking in place is based on science, or is it based on
3 something else?

4 A Well, I argue in my report I don't think that -- I
5 would argue in my report that there was never a
6 justification to mask healthy persons in the general
7 public. That evidence base was never there. I argued
8 that from the meta-analyses and studies in flu, and
9 that evidence continues to be accumulating specifically
10 for SARS-CoV-2.

11 Q So is it fair to say that places that are removing mask
12 restrictions are following the science, and places that
13 aren't are ignoring it?

14 A Yeah, I think the word "the science" has been way
15 misused in --

16 Q (INDISCERNIBLE)

17 A -- this last two years, so I won't use that term, but I
18 would say the --

19 Q How about the evidence?

20 A The evidence, I would say the evidence never has --
21 there has been no evidence that masking the general
22 public is of any benefit, the healthy general public.

23 Q So at some level, isn't it required of governments that
24 are continuing to impose mask mandates that they're
25 ignoring the evidence?

26 A Again, policy and evidence-based decision-making are

1 often very different things. Policy is informed by
2 many other factors other than evidence.

3 MR. KITCHEN: Thank you. Those are my
4 questions in redirect.

5 THE CHAIR: Okay. Dr. Warren, the Members
6 of the Tribunal may have questions for you. We're just
7 going to take a 5-minute break while we discuss what
8 questions, if any, we have for you. So if you can just
9 bear with us for 5 minutes, I don't think we'll be any
10 longer. Thank you.

11 (ADJOURNMENT)

12 THE CHAIR: The Hearing Tribunal is back
13 in session. And, Dr. Warren, we'd like to thank you
14 very much for your time and your expertise and your
15 testimony today. Members of the Tribunal do not have
16 any additional questions for you. We appreciate you
17 participating in this process, and Mr. Kitchen will
18 discharge you, unless there's anything else.

19 There's just one matter I would like to ask of the
20 College. Ms. Nelson, we are concerned over finding two
21 consecutive dates, and we would really appreciate
22 seeing the Doodle poll go out as soon as possible,
23 knowing how much pressure there is on various people's
24 calenders, so we'll look forward to getting that in the
25 near future.

26 And unless there's anything else, I'll declare the

1 hearing closed until we meet again, and we will meet
2 again sometime in the spring.

3

4 PROCEEDINGS ADJOURNED

5

6 CERTIFICATE OF TRANSCRIPT:

7

8 I, Karoline Schumann, certify that the foregoing
9 pages are a complete and accurate transcript of the
10 proceedings, taken down by me in shorthand and
11 transcribed from my shorthand notes to the best of my
12 skill and ability.

13 Dated at the City of Calgary, Province of Alberta,
14 this 22nd day of February, 2022.

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Karoline Schumann

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Karoline Schumann, CSR(A)

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Official Court Reporter

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