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OPEN LETTER

April 28, 2021

Premier Jason Kenney
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Dr. Deena Hinshaw
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Minister of Health Tyler Shandro
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Dear Premier Kenney, Dr. Hinshaw and Minister Shandro:

Re: **Allegations of the Negligent Practice of Public Health Medicine by Dr. Deena Hinshaw**

Please be advised that our office has been retained with regard to concerns raised by citizens of Alberta, including numerous members of the medical profession regarding the allegations of the negligent practice of public health medicine by Dr. Deena Hinshaw.

Please also be advised that we have been retained to pursue a complaint to the College of Physicians and Surgeons regarding the allegations of the negligent practice of Public Health Medicine by Dr. Deena Hinshaw.

We are aware of the letter forwarded to Dr. Hinshaw and your Government with regard to the MATH+ protocol of the East Virginia School of Medicine, which includes Vitamin D for use in radically improving COVID-19 outcomes.

We bring to your attention a recent Information Circular published by the Mayo Clinic and William F. Marshall III, M.D. This Information Circular provides astonishing information with regard to a randomized study that found:

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"that of 50 people hospitalized with COVID-19 who were given a high dose of a type of vitamin D (calcifediol), only one needed treatment in the intensive care unit. In contrast, among the 26 people with COVID-19 who weren't given calcifediol, 13 needed to be treated in the intensive care unit".

We are also aware of numerous studies that have been conducted that indicate that there is an extremely strong correlation between Vitamin D deficiency, poor COVID-19 outcomes, including death, in patients with dark skinned pigmentation, who typically have even lower Vitamin D levels than the "White, Non-Hispanic" population. The mortality rate in the United States for citizens with dark skin colouring is more than 2 times higher than citizens with lighter skin colouring.

Notwithstanding the numerous press conferences held by Dr. Hinshaw with regard to the COVID-19 outbreak in Alberta, we are not aware of Dr. Hinshaw providing any public guidance whatsoever with regard to the beneficial effects of Vitamin D and the need for citizens of Alberta to increase their Vitamin D intake if they wish to avoid either hospitalization or progression to the ICU as a result of COVID-19 infection.

This failure in the practice of public health medicine by Dr. Hinshaw is culpable.

1. Given that your Government's ongoing devastation of the Alberta economy, creating restaurant, gym, nightclub, other service business, business and personal bankruptcies, is repeatedly justified on the basis of both the number of "cases" in the Province of Alberta, hospitalizations, and ICU capacity, the incompetence inherent in not advising citizens of Alberta, who test positive with COVID-19, to immediately take a recommended daily dose of Vitamin D borders on gross negligence.

2. Dr. Hinshaw has failed to warn citizens of Alberta that according to the CDC, COVID-19 kills darker skinned people at rates double than that of lighter skinned people (attached for reference CDC report "Risk for COVID-19 Infection, Hospitalization, and Death by Race/Ethnicity"), due to the strong correlation with Vitamin D deficiency and poor COVID-19 outcomes, has the appearance of a complete disregard for the health of darker skinned citizens of Alberta.

3. The statistics generated by the CDC on Hospitalization and Death by Race and Ethnicity indicate that Indigenous peoples die from COVID-19 infection at a rate 2.4 times higher than that of "White, Non-Hispanic persons". Dr. Hinshaw's failure to make this information public, along with a recommendation for daily Vitamin D supplements being provided to Indigenous populations is unjustifiable.

We request that Premier Kenney confirm that the Alberta Government's failure to warn "non-White" citizens of Alberta of the strong correlation between Vitamin D deficiency and poor COVD-19 outcomes on the part of Dr. Hinshaw or the Alberta Government is not based on either unconscious bias or systemic racism.

As Ms. Ingram stated to your Government in her open letter to you, Dr. Hinshaw filed a materially-misleading Affidavit in the Court of Queen's Bench in response to the injunction application that was brought following your Government's announcement of the draconian Christmas lockdown measures. In that Affidavit, in response to materials that were filed pointing out that Dr. Hinshaw had taken no steps to advise high risk COVID-19 positive patients placed on home quarantine of available prophylactic treatments, such as Vitamin D, she swore under oath that there was no effective "cure" for the virus or any known treatment to "stop the spread".

In the Ingram case, no one alleged Vitamin D was either a cure or a mechanism to stop the spread of a virus that is not lethal or that even results in extremely negative outcomes, including death, for 99.93% of citizens of Alberta under the age of 60.

What was expected was a rational explanation as to how anyone could be harmed by being advised to take Vitamin D at a recommended dose following a positive COVID-19 test, with a view towards decreasing hospitalizations, ICU uptake and deaths. This explanation has NEVER been provided by Dr. Hinshaw, who appears to adopt Health Minister Hadju's views that the Mayo Clinic is a purveyor of "fake news".

The Alberta Government continues to use "case" numbers, hospitalizations, and ICU admittance as an excuse for the devastation of the Alberta economy through lockdowns.

Please be advised that absent your Government recommending Vitamin D as a resource to lower hospitalizations and ICU admittance that you cannot justify the gross infringements of civil rights under the *Charter of Rights* as required by *R. v. Oakes* in the Supreme Court of Canada.

On a related note, Dr. Phillipe Poliquin, Director of the National Microbiology Laboratory recently admitted in the *Colvin* case regarding airport incarceration, that the COVID PCR test cannot distinguish between people who HAVE COVID and are infectious and people who HAD COVID, who are not infectious.

Dr. Hinshaw's continued references to COVID "cases" in Alberta, based on PCR testing, is accordingly inaccurate and highly misleading, given the high number of asymptomatic people who test "positive" for COVID being counted as "cases".

All that was required from your Government from the outset with regard to the outbreak of COVID-19 in the Province of Alberta was to bring in common sense-based measures to isolate and protect long term care homes, health care facility workers and elderly citizens with multiple co-morbidities, including promoting the administration of Vitamin D, given that the correlation between Vitamin D deficiency and poor COVID-19 outcomes has been well known for over a year.

The fact that your Government continues to fail to advise citizens of Alberta, including but especially darker skinned citizens of Alberta, of the correlation between Vitamin D deficiency, ICU admission and death, is demonstrative of a callous disregard for the lives of the citizens of this Province and underlines your Government's complete failure to responsibly respond to this completely manageable public health issue.

On behalf of the numerous citizens of Alberta represented by our office with regard to your Government's mismanagement of the Alberta COVID-19 outbreak, we respectfully request Premier Kenney's immediate response to this letter, along with his assurances that Dr. Hinshaw will be terminated from her position as Chief Medical Officer of Health for the Province of Alberta.

Regards,

RATH & COMPANY

Jeffrey R. W. Rath
Barrister and Solicitor

cc: Registrar, College of Physicians and Surgeons

Attachments

Can vitamin D protect against the coronavirus disease 2019 (COVID-19)?

Can taking a vitamin D supplement prevent infection with the virus that causes the coronavirus disease 2019 (COVID-19)?

Answer From William F. Marshall, III M.D.

There isn't enough data to recommend use of vitamin D to prevent infection with the virus that causes COVID-19 or to treat COVID-19, according to the National Institutes of Health and the World Health Organization.

Several recent studies have looked at the impact of vitamin D on COVID-19. One study of 489 people found that those who had a vitamin D deficiency were more likely to test positive for the virus that causes COVID-19 than people who had normal levels of vitamin D.

Other research has observed high rates of vitamin D deficiency in people with COVID-19 who experienced acute respiratory failure. These people had a significantly higher risk of dying. And a small, randomized study found that of 50 people hospitalized with COVID-19 who were given a high dose of a type of vitamin D (calcifediol), only one needed treatment in the intensive care unit. In contrast, among the 26 people with COVID-19 who weren't given calcifediol, 13 needed to be treated in the intensive care unit.

In addition, vitamin D deficiency is common in the United States, particularly among Hispanic and Black people. These groups have been disproportionately affected by COVID-19. Vitamin D deficiency is also more common in people who are older, people who have a body mass index of 30 or higher (obesity), and people who have high blood pressure (hypertension). These factors also increase the risk of severe COVID-19 symptoms.

However, in recent years two randomized clinical trials that studied the effects of vitamin D supplementation had less hopeful results. In both trials, high doses of vitamin D were given to people who had vitamin D deficiencies and were seriously ill — not with COVID-19. Vitamin D didn't reduce the length of their hospital stays or their mortality rates when compared with those given a placebo.

Further research is needed to determine what role, if any, vitamin D and vitamin D deficiency might play in the prevention of and

treatment of COVID-19.

In the meantime, if you have a vitamin D deficiency, talk to your doctor about whether a supplement might be right for you. If you're concerned about your vitamin D level, ask your doctor about getting it checked.

With

William F. Marshall, III M.D.

Contact tracing and COVID-19: What is it and how does it work?

COVID-19: How can I protect myself?

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Feb. 10, 2021

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Other Topics in Patient Care & Health Info

Risk for COVID-19 Infection, Hospitalization, and Death By Race/Ethnicity

Updated Apr. 23, 2021 Print

Rate ratios compared to White, Non-Hispanic persons	American Indian or Alaska Native, Non-Hispanic persons	Asian, Non-Hispanic persons	Black or African American, Non-Hispanic persons	Hispanic or Latino persons
Cases[1]	1.6x	0.7x	1.1x	2.0x
Hospitalization[2]	3.5x	1.0x	2.8x	3.0x
Death[3]	2.4x	1.0x	1.9x	2.3x

Race and ethnicity are risk markers for other underlying conditions that affect health including socioeconomic status, access to health care, and exposure to the virus related to occupation, e.g., frontline, essential, and critical infrastructure workers.

How to slow the spread of COVID–19

Wear a mask

Stay 6 feet apart

Avoid crowds and poorly ventilated spaces

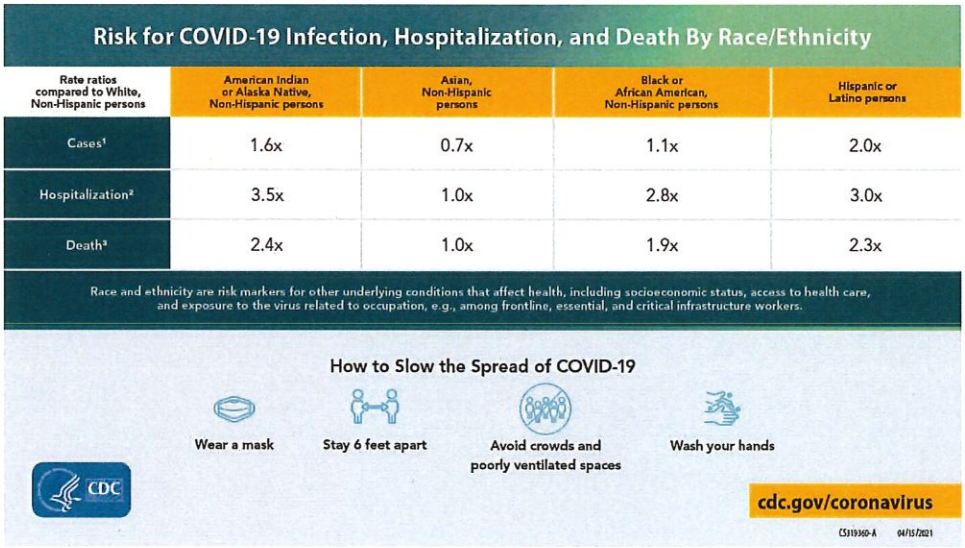
Wash your hands

[1] Data Source: Data reported by state and territorial jurisdictions (accessed 04/11/2021). Numbers are ratios of age-adjusted rates standardized to the 2019 US intercensal population estimate. Calculations use only the 61% of case reports that have race and ethnicity data available; this can result in inaccurate estimates of the relative risk among groups.

[2] Data source: COVID-NET (https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covid-net/purpose-methods.html, accessed March 1, 2020, through April 3, 2021). Numbers are ratios of age-adjusted rates standardized to the 2019 US standard COVID-NET catchment population.

[3] Data source: National Center for Health Statistics (NCHS) provisional death counts (https://data.cdc.gov/NCHS/Provisional-Death-Counts-for-Coronavirus-Disease-C/pj7m-y5uh, data through April 3, 2021). Numbers are ratios of age-adjusted rates standardized to the 2019 US intercensal population estimate.

Note: Adjusting by age is important because risk of infection, hospitalization, and death is different by age, and age distribution differs by racial and ethnic group. If the effect of age is not accounted for, racial and ethnic disparities can be under- or over-estimated.



Review Nutrients. 2020 Oct 31;12(11):3361. doi: 10.3390/nu12113361.

Evidence Regarding Vitamin D and Risk of COVID-19 and Its Severity

Joseph Mercola [1], William B Grant [2], Carol L Wagner [3]

Affiliations

PMID: 33142828 PMCID: PMC7692080 DOI: 10.3390/nu12113361

Free PMC article

Abstract

Vitamin D deficiency co-exists in patients with COVID-19. At this time, dark skin color, increased age, the presence of pre-existing illnesses and vitamin D deficiency are features of severe COVID disease. Of these, only vitamin D deficiency is modifiable. Through its interactions with a multitude of cells, vitamin D may have several ways to reduce the risk of acute respiratory tract infections and COVID-19: reducing the survival and replication of viruses, reducing risk of inflammatory cytokine production, increasing angiotensin-converting enzyme 2 concentrations, and maintaining endothelial integrity. Fourteen observational studies offer evidence that serum 25-hydroxyvitamin D concentrations are inversely correlated with the incidence or severity of COVID-19. The evidence to date generally satisfies Hill's criteria for causality in a biological system, namely, strength of association, consistency, temporality, biological gradient, plausibility (e.g., mechanisms), and coherence, although experimental verification is lacking. Thus, the evidence seems strong enough that people and physicians can use or recommend vitamin D supplements to prevent or treat COVID-19 in light of their safety and wide therapeutic window. In view of public health policy, however, results of large-scale vitamin D randomized controlled trials are required and are currently in progress.

Keywords: 25-hydroxyvitamin D; COVID-19; IL-6; MMP-9; SARS-CoV-2; cathelicidin; endothelial dysfunction; immune system; inflammation; vitamin D.

Figures

Figure 1 The cascade of events by...

Figure 2 The role of vitamin D...

Related information

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NCI CPTC Antibody Characterization Program

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NCI CPTAC Assay Portal

February 3, 2021

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Dear Sirs:

Re: Treatment Protocols for COVID-19

Please find attached a short form copy of the MATH + Hospital Treatment Protocol for COVID-19.

The basis of this protocol is "EARLY INTERVENTION" to treat inflammatory response and clotting caused by the COVID-19 virus.

I am aware of the evidence that has been filed in the case of *Rebecca Ingram et al v. Alberta* and am aware that evidence of the MATH + Protocol and its effectiveness in treating COVID-19 patients is before the Court.

Dr. Deena Hinshaw's response to this evidence was to file a misleading Affidavit with the Court stating that she was not aware of any treatment protocol that "cured" or "stopped the spread" of COVID-19.

The point of these protocols is that numerous US studies indicate that ASA, Zinc, Vitamin D, Ivermectin and other readily available well known drugs and treatments greatly reduce COVID-19 mortality. In fact, a University of Maryland study has demonstrated that even simply having patients take aspirin daily reduces COVID-19 mortality by as much as 43%. The question I have for you, as Premier of Alberta, is why are these treatment protocols not being published by Alberta Health Services (AHS) and why are Alberta physicians not being recommended to prescribe Ivermectin, Vitamin D, Zinc and ASA immediately to their patients upon confirmation of a positive COVID test.

For your information, the Government of India is distributing over 1 Billion "Ziverdo" packages to the citizens of India for treatment of COVID-19. These packages of pills consist of Ivermectin, Zinc, Vitamin D and Doxycycline, which citizens of India are advised to take in the event that they develop any symptoms of COVID-19 or test positive for COVID-19. The medications in question are largely or completely safe for human consumption and have been utilized in the treatment of various conditions for decades without ill effect.

On the basis of the scientific literature, it is likely that were AHS to do this, that it would greatly reduce hospitalizations for COVID-19, as well as reducing the number of patients requiring either hospitalization or admission to an intensive care unit.

The continued failure of Dr. Hinshaw and the Alberta Government to make these treatments available to the citizens of Alberta appears on its face to be negligent. To the extent that a modified home-administered MATH + Protocol could have the effect of drastically reducing hospitalizations and deaths.

It is completely incomprehensible that the AHS protocol for citizens of Alberta testing positive for COVID-19 consists of simply telling patients to go home and self-isolate until such time as their symptoms become so severe that they require hospitalization.

On a related note, the Government of Alberta's complete mishandling of the protection of long term care homes needs to be addressed.

Until such time as every long term care home resident and long term care home worker can be vaccinated, the Province of Alberta needs to completely isolate these facilities and their workers. Long term care home workers can be requested to work 30 days on 30 days off with isolated accommodation, such as designated hotels, being provided to them during the period of time that they are working, with pay incentives and appropriate rapid testing protocols being administered to ensure zero infection of long term care home patients by long term care home workers.

If the Alberta Government will allow the NHL to operate in the province, subject to restricted protocols that have been 100% effective, it is incomprehensible that steps cannot be taken to reduce long term care mortality or infection rates to zero.

Having the Government double the pay of long term care home workers for the remaining duration of this emergency would be far cheaper from an economic perspective than the complete devastation of the Alberta economy over which Dr. Hinshaw is currently presiding.

As a citizen of the Province of Alberta, I respectfully request your immediate reply to this letter, along with a cogent explanation as to why the Government of Alberta has felt it appropriate to abrogate the Charter Rights of 3.5 Million people as opposed to taking such steps as are reasonably necessary to protect the most vulnerable in our society, as well as ensuring that hospital capacities are not exceeded by providing in-home TREATMENT rather than simply in-home isolation to all citizens testing positive for COVID-19. Were you to follow the steps outlined in this letter, the Province of Alberta could completely re-open tomorrow without restriction.

Finally, as it pertains to the opening of gyms, please explain why you have continued to punish working class Albertans by denying them gym usage, other than with certified personal trainers that they cannot afford.

Your recent decision in this regard is both illogical and discriminatory of Albertans who cannot afford the $35 - $100/hour charges of "certified trainers". Given the lack of evidence of any spread under the October 2020 gym protocols, your explanation in this regard is respectfully requested.

I respectfully request your immediate response to this letter.

Yours very truly,

Rebecca Ingram

MATH+ HOSPITAL TREATMENT PROTOCOL FOR COVID-19

MATH+ **v7**
2021-01-07

MEDICATION	INDICATION/INITIATION	RECOMMENDED DOSING	TITRATION/DURATION
Methylprednisolone	A. *Mild hypoxemia: requires O_2 via NC to maintain saturation > 92%*	40 mg IV bolus then 20 mg IV twice daily	A1. Once off O_2, then taper with 20 mg daily × 3 days then 10 mg daily × 3 days, monitor CRP response. A2. If FiO_2, or CRP increase move to B.
	B. *Moderate–severe hypoxemia (High Flow O_2, NIPPV, IMV)*	COVID-19 Respiratory Failure protocol (see flccc.net/respiratory-support-c19/) Preferred: 80 mg IV bolus, followed by 80 mg / 240 ml normal saline IV infusion at 10 ml/hr Alternate: 40 mg IV twice daily	B1. Once off IMV, NPPV, or High flow O_2, decrease to 20 mg twice daily. Once off O_2, then taper with 20 mg/day × 3 days then 10 mg/day × 3 days. B2. If no improvement in oxygenation in 2–4 days, double dose to 160 mg/daily. B3. If no improvement and increase in CRP/Ferritin, move to "Pulse Dose" below.
	C. *Refractory Illness/ Cytokine Storm*	"Pulse" dose with 125 mg IV every 6–8 hours	Continue × 3 days then decrease to 80 mg IV/daily dose above (B). If still no response or CRP/Ferritin high/rising, consider "Salvage Therapy" below
Ascorbic Acid	*O_2 < 4 L on hospital ward*	500–1000 mg oral every 6 hours	Until discharge
	O_2 > 4 L or in ICU	1.5–3 g intravenously every 6 hours	Sooner of 7 days or discharge from ICU, then switch to oral dose above
Thiamine	*ICU patients*	200 mg IV twice daily	Sooner of 7 days or discharge from ICU
Heparin (LMWH)	*Hospital ward patients on ≤ 4 L O_2*	0.5 mg/kg twice daily Monitor anti-Xa, target 0.2–0.5 IU/ml	Until discharge then start DOAC at half dose × 4 weeks
	ICU patients or > 4 L O_2	1 mg/kg twice daily Monitor anti-Xa levels, target 0.6–1.1 IU/ml	Later of: discharge from ICU or off oxygen, then decrease to hospital ward dosing above
Ivermectin *(should be considered a core medication)*	*Upon admission to hospital and/or ICU*	0.3 mg/kg per dose – one dose daily, minimum of 2 days	continue daily until recovered (max 5 days)
Vitamin D	*Hospital ward patients on ≤ 4 L O_2*	Calcifediol preferred: 0.532 mg PO day 1, then 0.266 mg PO day 3 and 7 and weekly thereafter Cholecalciferol: 10,000 IU/day PO or 60,000 IU day 1, 30,000 IU days 3 and 7 and then weekly	Until discharge
	ICU patients or on > 4 L O_2	Cholecalciferol 480,000 IU (30 ml) PO on admission, then check Vitamin D level on day 5, if < 20 ng/ml, 90,000 PO IU/day × 5 days	Until discharge from ICU
Atorvastatin	*ICU Patients*	80 mg PO daily	Until discharge
Melatonin	*Hospitalized patients*	6–12 mg PO at night	Until discharge
Zinc	*Hospitalized patients*	75–100 mg PO daily	Until discharge
Famotidine	*Hospitalized Patients*	40–80 PO mg twice daily	Until discharge
Therapeutic Plasma Exchange	*Patients refractory to pulse dose steroids*	5 sessions, every other day	Completion of 5 exchanges

Legend: CRP = C-Reactive Protein, DOAC = direct oral anti-coagulant, FiO_2 = Fraction of inspired oxygen, ICU = Intensive Care Unit, IMV = Invasive Mechanical Ventilation, IU = International units, IV = Intravenous, NIPPV = Non-Invasive Positive Pressure Ventilation, O_2 = oxygen, PO (per os) = oral administration

Court File Nos. T-340-21, T-341-21, T-366-21, T-480-21

FEDERAL COURT

BETWEEN:

BARBARA SPENCER, SABRY BELHOUCHET, BLAIN GOWING, DENNIS WARD, REID NEHRING, CINDY CRANE, DENISE THOMSON, NORMAN THOMSON, JORDAN HAMMOND and MICHEL LAFONTAINE

APPLICANTS

and

THE ATTORNEY GENERAL OF CANADA

RESPONDENT

AND:

FEDERAL COURT

BETWEEN:

DOMINIC COLVIN

APPLICANT

and

THE ATTORNEY GENERAL OF CANADA.

RESPONDENT

AND:

FEDERAL COURT

BETWEEN:

STEVEN DUESING AND NICOLE MATHIS

APPLICANTS

and

THE ATTORNEY GENERAL OF CANADA

RESPONDENT

AND:

FEDERAL COURT

BETWEEN:

REBEL NEWS NETWORK LTD. AND KEENAN BEXTE

APPLICANTS

and

THE ATTORNEY GENERAL OF CANADA

RESPONDENT

AFFIDAVIT OF DR. PHILIPPE GUILLAUME POLIQUIN
(Sworn March 30, 2021)

different assays have different inherent cycle threshold ranges because of the individual chemistry of their assays. So there's no universal CT cutoff unless you are in a condition where everyone uses the same assay, which is not the situation in Canada nor is it globally. So there's universal CT value range. It would have to be indexed to the assay that's being run.

85 Q Right. Now, sir, and again I'm trying to understand how these tests work. You agree, sir, that the PCR test in essence in layman's terms is in effect trying to detect three dimensional shapes when it identifies RNA and RNA fragments?

A Not generally, no. In fact, one of the steps of the steps is to denature the RNA so that it's in its linear confirmation.

86 Q Okay. But even then, in its linear confirmation, you agree that the PCR test wouldn't be necessarily finding an entire strand of RNA; it could be finding broken fragments of RNA; is that correct?

A Yes. So the primers and the probes target their region. And whether it's in one complete strand or it's fragmented is not material to the PCR test.

87 Q Well, other than you'd agree, sir, wouldn't you, that one of the reasons of the PCR test can detect COVID RNA in people that have been sick, have recovered and are no longer infectious because it's incapable of detecting strands of RNA that are broken down and they're no longer live virus and capable of passing on infection?

A Yes. Well so -- yes. The terminology would be infectious virus. But yes, it is unable to detect. And so RNA -- PCR testing does not distinguish between infectious or non-infectious virus, correct?

88 Q Right. So when you talk about these cases, right, of COVID that are being counted as COVID cases simply because of a positive COVID case, right, a number of these socalled cases could be, by definition, nom-infectious cases; correct?

A Correct.

89 Q And do you have any sense as to what percentage of the PCR testing data that comes in is as a result of non-infectious RNA?

A As of this morning, no, I would not be able to tell you.

90 Q What about as of last week or the week before or the month before? Is the data available, that's

my question, just generally speaking?

A Generally speaking -- so provinces and territories do make a distinction generally speaking between active cases, so which are considered infectious versus inactive or recovered cases.

91 Q Right.

A A proportion of that breakdown would be dependent on the province and territory in question and the time of the query.

92 Q Right. But with regard to the matter at issue in these proceedings that being, you know, the airport -- we call it the airport incarceration program. I believe the Government of Canada calls it the government-approved accommodation program.

But in any event, with regard to the program that's at issue in these proceedings, do you know whether any negative or positive tests that are obtained either out of the country or in the country are done with regard to any reference to whether or not any positive test may be with reference to non-infectious RNA? Do you know has there been any data obtained with regard to, you know, how many of the positive cases obtained through the airport program are a result of non-infectious RNA?

A No. It was identified through the quality control system.

219 Q Okay. So is it your evidence,then, that the RNA sequencing efforts have yet to identify a sample that was a false positive; is that your evidence?

A That is correct.

220 Q Okay. And with regard to the RNA sequencing tests that are being done, is the RNA sequencing test sensitive enough to identify the differences between active infectious viral samples and samples of inactive or non-infectious RNA?

A Sequencing cannot result infectious versus non-infectious virus.

221 Q Okay. Fair enough. So at this time we have no -- we don't have any data available to us with regard to all the tests that have been provided as to which test samples are positive active infectious virus and which samples are positive non-infectious virus; is that correct?

A That is correct.

222 Q So getting back to that number that we were referring to earlier of the 518,000 cases approximately. Again, I don't remember the exact number. But north of half a million cases. Those cases could also include non-infectious samples,