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Title	Communication of COVID-19 from Canadian provincial chief medical officers of health: a qualitative study
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Reviewer 1	Christopher Doig
Institution	Department of Critical Care Medicine, Foothills Hospital, Calgary, Alta.
General comments (author response in bold)	1. I'm not sure where/why we have started to call provincial/national MOH's our "top doctors"...perhaps it is appropriate in an research paper to avoid jargon. **We have replaced "top doctors" with CMOHs in all instances where it appeared. (P.1)** 2. I don't think they are "Canada's CMOH's"...they are provincially appointed and act independent of each other. I think the current language suggests a national scope/focus/role versus their actual provincial scope/focus/role. I appreciate this might have been a style of writing for simplicity, however, I think this will be results quickly picked up by media/non-experts and clarity and specificity of language is important. I would suggest something more specific such as "Each province's CMOH..." or similar. **Thank you for bringing this to our attention. We have clarified our manuscript to refer to "provincial CMOHs".** 3. I think it needs to be clear earlier that the CPHO of Canada is not included. I appreciate this is mentioned later. **We have moved this to the beginning of the methods section in keeping with the reviewer's suggestion. (P.3)**
Reviewer 2	Dena Schanzer
Institution	Infectious Disease and Emergency Preparedness Branch, Public Health Agency of Canada, Ottawa, Ont.
General comments (author response in bold)	I fully support the project idea of assessing the CMOHs' communications during the COVID-19 crisis. I agree with your observation that the messaging appeared overly coordinated, overly managed, and lacking in credible justification. In a word, what are they hiding? Having worked at PHAC, I often observed a tension between the evidence-based role and the political support role on most national issues. Consensus building is built into the public health decision-making process with the NACI structure being one of the more formal examples of decision making. A major reason for the tension is that public health funding (taxpayers money) is a political decision. However, I wouldn't agree that the decisions were made based on the best available evidence at the time. Typically, once a decision is made, it is human nature to look for supporting evidence and ignoring contradictory evidence, and this is very likely what happened during the crisis. The psychological literature is full of documentation of decision-making traps. (Why we make bad decisions.) Perhaps you could use these to evaluate the public health messages. It is these incidences that are more memorable, at least if one catches them. I'd also suggest focusing on the consequences of poor or misleading messages. **We would like to thank the reviewer for their thoughtful comments. These are important considerations for how the crisis has been communicated to the public. As discussed below, we have addressed the reviewer's points about the potential disadvantages of uncoordinated and shifting messaging. Given space constraints, however, we are not able to address all of the**

	reviewer's suggestions in the current study. As this is the first article in an ongoing study of the role of the CMOH during the COVID-19 crisis, we will be sure to keep these suggestions in mind throughout our future research. We greatly appreciate these insights and are confident they will strengthen our continuing study. A few examples follow. 1) Early reassurance messages: a) Was public health not aware of the back orders on N95 masks and the lack of PPE equipment at the time of these messages? They likely had a pandemic plan in place from post 2009, and did not check stockpile levels or had not yet tried to order additional supplies while they were reassuring us that everything was under control. This should have been on their check list. Did they know there were issues, or did they just not think it would be as bad here as in Wuhan? b) Was public health not aware of our limited capacity to ramp up testing? During the 2009 pandemic, the limited lab capacity became apparent during the smaller spring wave, forcing Ontario public health to limit testing to hospitalized cases only. Perhaps that was the plan this time too? However, many countries documented the need to quickly ramp up testing. Asymptomatic (or pre-clinical) cases were documented fairly early on along with super-spreading events related to non-clinical cases. I'm not sure why it took Doug Ford to scold public health into action? We may never know the real reason behind the foot dragging. Good chance it had something to do with money. c) Early reassurance messages claimed that there was no risk from travelers from China as they had been instructed to get tested and then self isolate and that there was no evidence of community level transmission. Only later did we learn that only people with a recent travel history or exposure to a known case could get tested. In this case, it was very misleading to suggest that there was no evidence of community level transmission in Canada. Where was the surveillance that could have detect community level transmission? All that it would take is for labs to test a random sample of specimens that were negative for all other viruses. At least then we could say we had some data. A bit of due diligence, was needed. d) And of course, there was the sudden switch from reassurance to issuing recommendations that all Canadians who wanted to come home should do so immediately. I don't call any rationale for this sudden change of mind. I was likely a good idea to cancel March break, but what triggered the sudden change? e) And the daily reporting system had serious problems as, at times, the cumulative number of cases or other events dropped from one report to the next. This was especially true for LTC numbers! 2) Public Action: a) The earliest public action I remember was the recommendation for seniors to shelter in place. This seemed reasonable as the mortality rate increased significantly with age, and the mortality rate from the Diamond Princess was 1% for a mix of elderly and younger staff. b) The recommendation to stock up on food and other necessities for a 2-week period seemed rather odd? This wasn't going to be over in 2 weeks. Perhaps there was more concern about empty shelves. I don't think anyone took this 2-week limit seriously? It just looked bad, as flattening the curve would need to be sustained for at least a couple of months. Two weeks later panic buying hit anyway. Grocers to

	the rescue, saying that the shelves would be restocked. Grocers seemed to have more credibility than public health, which ran out of N95 masks and other PPE. c) New interventions seemed to be announced almost ever day. Why cause this confusion? d) It was evident from the start that the degree of lock down initiated was not sustainable (due to economic costs). 3) Collective duty: The vision was that everyone needed to do their part to flatten the curve and accept these emergency restrictions. a) The vision must have changed as the rules for opening up the economy seem to be dependent on reducing the number of new cases, even though the number of hospitalizations are well below the health care capacity. What is the goal now? Did they think people wouldn't notice? Just look at the crowds at some of the parks. Other countries have done a better job bringing down their case counts. What is the problem in Canada, and why aren't we told what the issue is? Is public health slow on the contact tracing? 4) Other mis-matches: a) I seem to recall that Doug Ford made announcements that Ontario was at the peak over a period of at least 3 weeks while new cases continued to increase. Was he advised by CMOHs that this the an appropriate interpretation?? Of course, there was a backlog in reporting. As the surveillance plots posted on the web were by date of specimen or date of death without a correction for reporting delays, the epi curve would always look like the epidemic peaked a week ago. Was this what happened? b) Doug Ford announce on May 25th that there are some remaining hot spots and people in these hot spots need to get tested … among other things, but refused to identify the hot spots. Dr. David Fisman to the rescue again in the CBC article I saw, explaining that he likely did not want to create stigma. OK, time for some damage control! Obviously Public health needs to do more. Messaging seems to me to be too focused on blaming people rather than considering what the government could be doing. Better to say that public health takes this seriously and is going to do xyz, rather than blame the population in general. c) Missing as well is the message that the number of new cases and presumably the risk of active transmission is still higher than it was when the shut down started. I would presume that we are opening up the economy because the initial shutdown was too costly and not sustainable. Let's not blame people in general for the overcrowded parks. We need more park space. I really can't see a spin that would let people understand that the risk of outbreaks at large gatherings is still high. Model predictions have been well off the mark. And I just don't think anyone is listening anymore. d) One of the take home messages from the 2009 pandemic is that we need to do a better job communicating uncertainty. Or to be more comfortable communicating uncertainty in a way that better achieves our objectives. That still seems to be the case today. The problem is not just at the top. I have reviewed way too many model projections that were out of date and off the mark by the time I was asked to review them. Focusing on the best estimate is short sighted. We need to do a better job estimating and communicating uncertainty. Perhaps this too is counter to our human nature. My comments are as unusual as your manuscript type. I hope you can make use

	of some of these ideas to better communicate what you have learnt from reviewing the CMOH messages. I'd suggest trying to incorporate some of the literature on decision-making traps, and focus on the potential harms and benefits of the messages as you evaluate them. After all, public health decision-making, at least at a formal level, is all about developing guidelines after weighing the harms and benefits with voting by committee members! It's a group decision. We need to learn how to make better decisions and avoid the decision-making traps, especially in a time of crisis. As you remind us, it is not just about whether the CMOH messages were correct, in hind sight. Making decisions with so much uncertainty is a difficult and stressful process. It is more about identifying the traps and trying not to fall into them again. Risk communication is another subject area that could have provided guidance to the CMOH messages. Perhaps training in risk communication will be added to the future pandemic plans check list. Discussing other issues such as stating objectives, providing a brief rationale, outlining how public health is monitoring the situation to see if the intervention is working, outlining the harms and benefits, or discussing plan B or plan C and when they would be implemented, should help. In many cases, the decisions look to be myopic. Check lists may have helped the team consider the longer term. A failure of reporters (or anyone else who could get their attention) to ask to see the evidence that there was no community transmission, keeping in mind that lack of evidence is not evidence of no effect, likely could have contributed to a reduction in the delay in preparing for a significant increase in new cases. **We very much appreciate the reviewer's detailed examples of the unclear rationale behind changing messages and recommendations during the pandemic, and their potential consequences. We agree that these are important points to emphasize.** **We have now made clearer in the interpretation section of our manuscript the importance of transparency about the rationale behind different/changing messaging across jurisdictions and over time, particularly in a context like Canada's where diverse messaging across provinces can create confusion.** **We also have edited the paragraph in our interpretation section that discusses the role of evidence and the relationship between CMOHs and elected officials. We now make clearer that, as the reviewer notes, the scientific evidence underlying government decisions during the pandemic has been contested and that this has implications for the way the CMOH role is structured. (P. 8-9)**