

## Letter to the Editor

# Medical knowledge about COVID-19 is travelling at the speed of mistrust: why this is relevant to primary care

Tharmegan Tharmaratnam<sup>1</sup>, Anthony D'Urzo<sup>2,\*</sup>, Mario Cazzola<sup>3</sup>

<sup>1</sup>Toronto General Hospital, University Health Network, Toronto, ON, Canada

<sup>2</sup>Department of Family and Community Medicine, Temerty Faculty of Medicine, University of Toronto, Toronto, ON, Canada

<sup>3</sup>Department of Experimental Medicine, University of Rome Tor Vergata, Rome, Italy

\*Corresponding author: Department of Family and Community Medicine, Temerty Faculty of Medicine, University of Toronto, Toronto, ON, Canada. Email: [tony.durzo@utoronto.ca](mailto:tony.durzo@utoronto.ca)

### The spread of mistrust

In 2005, the International Health Regulations (IHR) were established by the World Health Organization (WHO) and endorsed by 196 countries. This legally binding framework aimed to improve pandemic preparedness to detect, assess, and respond to public health events through international coordination and collaboration.<sup>1</sup> Regrettably, even the most advanced countries have had a difficult time grappling with COVID-19 due to nonadherence to IHR<sup>2,3</sup> and world leaders undermining the science of managing COVID-19. This has led to increased deaths due to a lack of testing, contact tracing, vaccine hesitancy, and adherence to public health recommendations. Additionally, the ability to adhere to IHR on pandemic management has been impacted by circulating misinformation (the unintentional dissemination of false information) and disinformation (intentional dissemination of false information with nefarious intent) through social and traditional media platforms.<sup>4</sup> Over a 4-month period in 2020, conventional media outlets circulated over 1.1 million (1,116,952) individual English-language articles containing COVID-19 misinformation.<sup>5</sup> It is important to speculate that the sidelining of family physicians from the pandemic response in relevant areas would make it more difficult to prevent and address the challenges related to the public mistrust that has flourished during COVID-19.

### Primary care is positioned to play a leading role in combating mistrust

Primary care physicians (PCPs) are often the first point of contact for patients in the healthcare system who cultivate longitudinal relationships, are the most trusted source on COVID-19 and other vaccines, and have historically been involved in immunization counselling and vaccine delivery.<sup>6</sup> This position enables PCPs to serve as a unique resource for patients and caregivers, in not only helping to address misinformation<sup>7</sup> related to the pandemic and vaccine hesitancy,

but also to be involved in the public health and preventive responses, which are generally composed of subspecialist experts of various scientific technical committees, with little to no primary care representation.<sup>8</sup> This preventive response entails providing accurate information and physician-led education to patients such as recognizing warning signs of COVID-19, importance of self-assessment, timely triage through risk stratification, concerns about vaccine safety and follow-up. Due to pandemic restrictions, many PCPs have had to largely transition to telemedicine and remote management of chronic disease. One study reported a 79.1% decline of in-person primary care visits, and a 56-fold increase in virtual care in the first wave of the pandemic.<sup>9</sup> The barrier to vaccination that has resulted from fear driven by misinformation (often fuelled by news and social media outlets) is something that many family physicians and public health officials could not have anticipated given the lethality of this virus in some parts of the world.<sup>3</sup> Given the blatant assault of misinformation on public awareness and opinions around COVID-19 management, family physicians have had to deal with confusion among patients by utilizing the trust and confidence that forms the fundamental fabric of the patient-physician relationship. Helping patients to understand the difference between misinformation and disinformation is a challenge that requires timely ongoing reinforcement of evidence-based recommendations and effective communication. For example, this approach becomes particularly relevant when a physician encounters a patient who is adamant that they should be given a letter of exemption from receiving the COVID-19 vaccine when they do not qualify on medical grounds. It is important to note that the patient-centred communication PCPs have developed in addressing misinformation is rooted in overcoming past challenges related to vaccination barriers. These include dispelling the linkage between the MMR vaccine, thiomersal, and autism. They have also helped clarify misconceptions such as a link between the DTaP vaccine and Sudden Infant Death Syndrome, multiple vaccinations administered

at the same time and increased risk of side effects, and vaccines that are implicated in causing diseases they are meant to prevent.<sup>10,11,12</sup> At present, family physicians can combat misinformation through effective patient-centred communication, patient education, and forging effective partnerships with public health.

### **What can family physicians learn from how this pandemic has evolved?**

A harmonious partnership between public health and primary care has been lacking during COVID-19 in many parts of the world. The focus of vaccination campaigns at large medical centres, instead of a familiar setting such as a patient's PCPs office, has contributed to the sidelining of family physicians from the pandemic response.<sup>13</sup> The latter may represent an important missed opportunity since numerous studies have demonstrated that PCPs may enhance uptake of childhood vaccinations, influenza, pneumococcal, and HPV vaccines through educational and communication-based interventions.<sup>14,15,16,17</sup> For example, a recent randomized trial demonstrated that an educational intervention consisting of information provided to patients in primary care clinics and lecture session improved uptake of influenza vaccination rates by 26%, compared to a control group. The educational intervention was able to address patients who felt there was not a need to be immunized.<sup>14</sup> Additionally, data demonstrate that this is not only limited to seasonal influenza vaccination campaigns. Another recent study that focussed on HPV vaccination demonstrated that an age-appropriate communication intervention across 147,294 patients in 175 primary care practices resulted in a 17% greater likelihood of initiating and completing the HPV vaccination series amongst adolescents.<sup>15</sup> In the current context, a recent study suggests that the uptake rate of COVID-19 vaccination is much higher among COPD patients who had ever received influenza vaccination in the previous influenza season or received pneumococcal vaccination in the past year.<sup>18</sup> The same report also highlights that almost half of the patients who did not receive COVID-19 vaccination were not encouraged by their clinicians to do so; a finding that is believed to have driven the overall low COVID-19 vaccination rates in their study.<sup>18</sup>

Indeed, data from the Ontario College of Family Physicians (OCFP) show that those who are hesitant or resistant to receiving the COVID-19 vaccine would be up to 61% more inclined to do so if recommended and administered by a family physician. This is particularly relevant since a recent survey revealed that only 27% of parents of 5–11 year olds would be keen to immunize their children against COVID-19, while 30% indicated that they would definitely not vaccinate their children. This is despite recent evidence that demonstrates the safety and efficacy of the COVID-19 vaccine in this 5- to 11-year-old age group.<sup>19,20</sup> Additionally, when asked about the location patients would like to receive their vaccine, OCFP data demonstrated that 46% would get the vaccine from their PCPs office, followed by pharmacies (25%) citing reasons such as the fact that PCPs know their patients and their histories best and can offer reassurance, trust, and sound advice regarding vaccines.<sup>21</sup>

While limitations in logistic and administrative capacities (i.e. office space for post-vaccination monitoring, vaccine storage requirements, and manpower) limit the opportunity for mass vaccination campaigns in some primary care settings, certain

populations such as homebound community-dwelling seniors, marginalized communities, and vaccine-hesitant individuals may benefit from a more targeted family medicine approach. These groups may want the comfort and care from their family doctor with whom they have an established relationship. Recent changes to cold chain vaccine requirements for mRNA vaccines (storage at 2–8°C [35–46°F] for up to 31 days) could contribute to increase accessibility and allow family physicians to administer more doses.<sup>22</sup> These changes in transportation and storage requirements could make the vaccine more easily transportable outside of urban centres and into marginalized communities thereby benefiting these specific populations.<sup>23</sup> Additionally, with increasing vaccine supplies and plateauing vaccination rates, primary care has an important role to play in administering booster doses of the COVID-19 vaccine given emerging evidence that this approach may prove effective in preventing immune escape from new variants, including Omicron.<sup>24,25</sup> These efforts will require strong collaboration with public health agencies to target vaccine complacency and hesitancy,<sup>24</sup> such as synergistically linking patient vaccination status automatically to PCPs through electronic medical records. This has been adopted in certain jurisdictions and could help to address plateaus in vaccination rates and improve uptake.<sup>26</sup> This may have been more effective if family physicians were integrated into the vaccination response earlier on in the pandemic as they are with Influenza vaccination programs, which have been reported to have increased uptake due to primary care involvement.<sup>27</sup> However, the above comments must be balanced around the reality that some PCPs provided and continue to provide virtual care to patients such that direct participation in vaccination programs may not be feasible on a widespread scale under these circumstances. One might suggest that further research is warranted to better understand how patients perceive the care they received from their family physician using a virtual care platform. Other issues relating to the length of time to provide solely virtual care, and the approach to implement a transition strategy from virtual to live care should be addressed in preparation for future pandemics, including specific studies to address whether mass vaccination programs at large community sites are less likely to result in disease spread compared to vaccination programs offered through local family physician clinics where possible. Recent data from Fall 2021 demonstrates certain jurisdictions have reported a decline in the use of telemedicine, with 20% of consultations with a provider occurring through telemedicine. This enables greater opportunities for in-person care and opportunities for primary care to become involved in the vaccination response.<sup>28</sup>

### **The potential to engage primary care in the current and future pandemics should be exploited**

Given the emergence of new COVID-19 variants such as Omicron,<sup>29</sup> it seems likely that restrictions related to public activities may increase in order to mitigate spikes in infection rates, but this should not limit the family physician's role as a vaccine advocate. Increasing case rates will result in a greater need for primary care engagement in a timely vaccination process particularly for the administration of booster doses as well as new and more targeted vaccines that may be developed in the many months to come. This may provide the opportunity for primary care to play an important leadership role in collaboration with public-health units and

other coordinating authorities for managing the transfer of information accurately and reliably at the community level.

Most PCPs around the world are linked to hundreds if not thousands of patients in individual or collaborative care practices which lend themselves very well to networking opportunities between various healthcare pathways, including secondary care. Regrettably, as documented by an Italian study, PCPs are often not part of a coherent strategy that prepares the primary care service for epidemic outbreaks.<sup>30</sup> Optimizing the collaborative efforts among PCPs, public health authorities, and our specialist colleagues may represent a valuable and underutilized strategy when managing a pandemic such as COVID-19<sup>31</sup> since it would provide primary care with an important early voice in the dissemination of evidence-based information that is often changing and evolving quickly and at times confusing to the public.

A surveillance system where COVID-19-positive patients can be identified quickly either at the primary care or at a public health level is desirable because this provides the earliest opportunities to identify close contacts and begin the process of contact tracing, risk mitigation, education, and early outpatient treatment of high-risk patients. This could contribute to easing the burden on overwhelmed hospital capacity given that a majority of patients present with mild to moderate disease that can be managed in the community. Family physicians are also integral to disease surveillance systems in relaying communicable disease cases to public health. For example, PCPs commonly identify seasonal spikes in influenza earlier than emergency departments.<sup>32</sup> Therefore, integrating PCPs into COVID-19 surveillance can help better identify epidemiological trends in community-based transmission and post-peak surveillance<sup>33</sup> and facilitate the sharing of local information in a timely manner. The hope is that this type of coordinated information sharing may be less likely to create the spread of information that is inaccurate and misleading.

Public health also has an important role in combating infodemics and avoiding the normalization of misinformation, which may be accomplished through synergistic linkage of spikes in misinformation categorizations (i.e. transmission, diagnosis, infection, treatment, vaccinations, miracle cures, public health preventive measure such as masks) and conspiracy theories (i.e. 5G, Democratic party hoax, Bill Gates, vaccines causing infertility) with confirmed COVID-19 infections through real-time surveillance data<sup>34</sup> that could be shared with family physicians quite readily.

## Summary

While the pandemic has raised concerns about the exclusion of primary care from the pandemic response, we are still advocates for our patients and families, and in many ways, we can operationalize this advocacy role at both the political and health system levels to encourage greater meaningful change. The growing participation of family medicine in research at many levels will provide valuable opportunities to investigate strategies to optimize the role of primary care in pandemic preparedness, vaccination efforts, and the outpatient management of COVID-19 in high-risk groups at the community level.<sup>35,36,37</sup>

We sincerely encourage our colleagues to offer suggestions as to how these goals can become actionable at both the patient and health system levels, so that primary care (in collaboration with our specialty and allied health care colleagues)

does not remain an underutilized resource in the next pandemic.

## Conflict of interest

AD has received approval for research funding from GlaxoSmithKline Canada to carry out an investigator initiated proposal relevant to this manuscript.

## Author contributions

TT, MC, and AD conceptualized the manuscript and were involved in all aspects drafting the text. All authors revised the manuscript critically for important intellectual content, gave final approval of the version to be published, and agree to be accountable for all aspects of the work.

## Data availability

No new data were generated or analysed in support of this research.

## References

1. World Health Organization. *International Health Regulations*. 2nd ed. 2008. [Accessed 2021 Oct 27]. <https://www.who.int/health-topics/international-health-regulations>.
2. Habibi R, Burci GL, de Campos TC, Chirwa D, Cinà M, Dagron S, Eccleston-Turner M, Forman L, Gostin LO, Meier BM, et al. Do not violate the International Health Regulations during the COVID-19 outbreak. *Lancet*. 2020;395(10225):664–666.
3. Bilinski A, Emanuel EJ. COVID-19 and excess all-cause mortality in the US and 18 comparison countries. *JAMA*. 2020;324(20):2100–2102.
4. Brennan JS, Simon FM, Howard PN, Nielsen RK. Types, sources, and claims of COVID-19 misinformation. 2020. [Accessed 2021 July 11]. <https://reutersinstitute.politics.ox.ac.uk/types-sources-and-claims-covid-19-misinformation>.
5. Evanega S, Lynas M, Adams J, Smolenyak K. Coronavirus misinformation: quantifying sources and themes in the COVID-19 ‘infodemic’. 2020. [Accessed 2021 Aug 14]. <https://allianceforscience.cornell.edu/wp-content/uploads/2020/09/Evanega-et-al-Coronavirus-misinformationFINAL.pdf>.
6. Wilkinson E, Jetty A, Petterson S, Jabbarpour Y, Westfall JM. Primary care’s historic role in vaccination and potential role in covid-19 immunization programs. *Ann Fam Med*. 2021;19(4):351–355.
7. Abbasi J. COVID-19 conspiracies and beyond: how physicians can deal with patients’ misinformation. *JAMA*. 2020;325(3):208–210.
8. Fraser S. Family physicians can counter misinformation. *Can Fam Phys*. 2021;67:227.
9. Glazier RH, Green ME, Wu FC, Frymire E, Kopp A, Kiran T. Shifts in office and virtual primary care during the early COVID-19 pandemic in Ontario, Canada. *CMAJ*. 2021;193(6):E200–E210.
10. Middleton DB, Wolfe RM. The Vaccine misinformation landscape in family medicine. In: Chatterjee A, editor. *Vaccinophobia and vaccine controversies of the 21st century*. New York, NY: Springer; 2013.
11. Shen SC, Dubey V. Addressing vaccine hesitancy: clinical guidance for primary care physicians working with parents. *Can Fam Phys*. 2019;65(3):175–181.
12. Tanner RM, Safford MM, Monda KL, Taylor B, O’Beirne R, Morris M, Colantonio LD, Dent R, Muntner P, Rosenson RS. Primary care physician perspectives on barriers to statin treatment. *Cardiovasc Drugs Ther*. 2017;31(3):303–309. doi: [10.1007/s10557-017-6738-x](https://doi.org/10.1007/s10557-017-6738-x)
13. Ratzan S, Schneider EC, Hatch H, Cacchione J. Missing the point—how primary care can overcome Covid-19 Vaccine ‘Hesitancy’. *N Engl J Med*. 2021;384(25):e100.

14. Abramson ZH, Avni O, Levi O, Miskin IN. Randomized trial of a program to increase staff influenza vaccination in primary care clinics. *Ann Fam Med*. 2010;8(4):293–298.
15. Cates JR, Crandell JL, Diehl SJ, Coyne-Beasley T. Immunization effects of a communication intervention to promote preteen HPV vaccination in primary care practices. *Vaccine*. 2018;36(1):122–127.
16. Ho HJ, Tan YR, Cook AR, Koh G, Tham TY, Anwar E, Hui Chiang GS, Lwin MO, Chen MI. Increasing influenza and pneumococcal vaccination uptake in seniors using point-of-care informational interventions in primary care in singapore: a pragmatic, cluster-randomized crossover trial. *Am J Public Health*. 2019;109(12):1776–1783.
17. Pinaka O, Spanou I, Papadouli V, Papanikolaou E, Gioulekas F, Mouchtouri V. The role of local primary healthcare units in increasing immunization uptake among children in vulnerable social groups through vaccination campaigns. *Public Health In Pract*. 2021;2:100185.
18. Song Z, Liu X, Xiang P, Lin Y, Dai L, Guo Y, Liao J, Chen Y, Liang Y, Sun Y. The current status of vaccine uptake and the impact of COVID-19 on intention to vaccination in patients with COPD in Beijing. *Int J Chron Obstruct Pulmon Dis*. 2021;16:3337–3346.
19. Suran M. Why parents still hesitate to vaccinate their children against COVID-19. *JAMA*. 2022;327:23–25. doi:10.1001/jama.2021.21625
20. Walter EB, Talaat KR, Sabharwal C, Gurtman A, Lockhart S, Paulsen GC, Barnett ED, Muñoz FM, Maldonado Y, Pahud BA, et al. Evaluation of the BNT162b2 Covid-19 vaccine in children 5 to 11 years of age. *N Engl J Med*. 2022;386(1):35–46. doi:10.1056/NEJMoa2116298
21. Ontario College of Family Physicians. With vaccines coming, family doctors could jab millions more if fully involved. 2021. [Accessed 2021 July 17]. <https://www.ontariofamilyphysicians.ca/advocacy/positions,-discussions-reports/ocfp-docs-to-vaccinate-2021-03-24.pdf>.
22. FDA in brief: FDA authorizes longer time for refrigerator storage of thawed Pfizer-BioNTech COVID-19 vaccine prior to dilution, making vaccine more widely. 2021. [Accessed 2021 Dec 14]. <https://www.fda.gov/news-events/press-announcements/fda-brief-fda-authorizes-longer-time-refrigerator-storage-thawed-pfizer-biontech-covid-19-vaccine>.
23. Canada's change to Pfizer vaccine storage temperature has major implications on rollout. 2021. [Accessed 2021 Dec 14]. <https://www.cbc.ca/news/health/pfizer-vaccine-canada-storage-temperature-1.6031823>.
24. Pfizer and BioNTech provide update on omicron variant. 2021. [Accessed 2021 Dec 14]. <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-provide-update-omicron-variant>.
25. Basile K, Rockett R, McPhie K, Fennell M, Johnson-Mackinnon J, Agius J, Fong W, Rahman H, Ko D, Donavan L, et al. Improved neutralization of the SARS-CoV-2 Omicron variant after Pfizer-BioNTech BNT162b2 COVID-19 vaccine boosting. *MedRxiv*. 2021. doi:10.1101/2021.12.12.472252
26. Public Health Ontario. Building confidence in vaccines. 2021. [Accessed 2021 July 17]. <https://www.publichealthontario.ca/-/media/documents/ncov/vaccines/2021/04/covid-19-building-confidence-in-vaccines.pdf?la=en>.
27. Ontario Health. Aggregate primary care vaccination report. 2021. [Accessed 2021 July 14]. [https://www.afhto.ca/sites/default/files/documents/202107/oh\\_memo\\_for\\_primary\\_care\\_-\\_access\\_your\\_covaxn\\_aggregate\\_primary\\_care\\_vaccination\\_report-final\\_july\\_15\\_20215837.pdf](https://www.afhto.ca/sites/default/files/documents/202107/oh_memo_for_primary_care_-_access_your_covaxn_aggregate_primary_care_vaccination_report-final_july_15_20215837.pdf).
28. Hothersall E, de Bellis-Ayres S, Jordan R. Factors associated with uptake of pandemic influenza vaccine among general practitioners and practice nurses in Shropshire, UK. *Prim Care Respir J*. 2021;21:302–307.
29. Telemedicine use household pulse survey. 2021. [Accessed 2021 Dec 14]. <https://www.cdc.gov/nchs/covid19/pulse/telemedicine-use.htm>.
30. Song Y, Masaki F. Preparation for the challenge of heavily mutated Omicron variant. *Clin Transl Med*. 2021;11(12):e679.
31. Kurotschka PK, Serafini A, Demontis M, Serafini A, Mereu A, Moro ME, Carta MG, Ghiorotto L. General practitioners' experiences during the first phase of the COVID-19 pandemic in Italy: a critical incident technique study. *Front Public Health*. 2021;9:623904.
32. Gray R, Sanders C. A reflection on the impact of COVID-19 on primary care in the United Kingdom. *J Interprof Care*. 2020;34(5):672–678.
33. Kearon J, Risdon C. The role of primary care in a pandemic: reflections during the COVID-19 pandemic in Canada. *J Prim Care Community Health*. 2020;11:2150132720962871. doi:10.1177/2150132720962871
34. Scales D, Gorman J, Jamieson KH. The Covid-19 infodemic—applying the epidemiologic model to counter misinformation. *N Engl J Med*. 2021;385(8):678–681. doi:10.1056/NEJMp2103798
35. Kidd M. Five principles for pandemic preparedness: lessons from the Australian COVID-19 primary care response. *Br J Gen Pract*. 2021;70(696):316–317.
36. Mathews M, Spencer S, Hedden L, Marshall EG, Lukewich J, Meredith L, Ryan D, Buote R, Liu T, Volpe E, et al. Development of a primary care pandemic plan informed by in-depth policy analysis and interviews with family physicians across Canada during COVID-19: a qualitative case study protocol. *BMJ Open*. 2021;11(7):e048209. doi:10.1136/bmjopen-2020-048209
37. Department of Family and Community Medicine University of Toronto. UTOPIAN. [accessed 2021 Nov 1]. <https://www.dfc.utoronto.ca/landing-page/utopian>.