When misinformation goes viral: access to evidence-based information in the COVID-19 pandemic

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While most social media platforms did not yet exist during the 2003 severe acute respiratory syndrome (SARS) outbreak, the 2015 Ebola outbreak cast a first glimpse of the risks of social media during global outbreaks because of the rapid spread of politically oriented misinformation. Misinformation, which refers to false information spread often without the intention to harm, is ironically harmful. “When the next pandemic strikes, we’ll be fighting … the deluge of rumours, misinformation and flat-out lies that will appear on the internet”, as eloquently said by Bruce Schneier from the Harvard Kennedy School after the Ebola outbreak, depicts one of the most vital actions to take in the current pandemic.1 The first months of 2020, sadly, can only confirm this.

In January 2020, when the West was merely a spectator of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) hitting China and its neighbouring countries, Chinese social media platforms such as WeChat and Weibo were already exploding with case reports of the viral disease. Misinformation about prevention and treatment of coronavirus disease-19 (COVID-19) infected pages of local influencers and group chats, promising the elimination of viral transmission through taking hot baths, smoking, or drinking liquors with high alcohol content. Although online exchanges of non-evidence-based information may have been harmful to China’s population health, the government’s initial response to censor information about an impending epidemic was not helpful in containing the virus. Since March 2020, as the epicentre of the pandemic has shifted west to Europe and North America, countries quickly realize that they are not immune to misinformation. In the United States, a disbelief about the severity of the epidemic from the government consequently delayed widespread COVID-19 testing, buying more time for the virus to spread within various communities.

All social media platforms are faced with their share of unvalidated information. On Twitter, hashtags related to COVID-19, such as #COVID, #COVID-19, and #coronavirus, soared overnight, with over 100 million tweets a day ranging from alarmist, armchair epidemiology predictions to personal stories of individuals fighting the infection to jokes and home-stay challenges about social isolation.2 Claims, later debunked as flawed conspiracy theories, suggesting that SARS-CoV-2 was intentionally bioengineered to serve as a political weapon soon spread like wildfire. Similarly, erroneous COVID-19 self-diagnosis methods, such as holding your breath for 10 seconds to verify for lung fibrosis, were popularized from one
circle to another. So, too, has been the focus on fearmongering projections and downplaying the gravity of the disease and the pandemic. A purely utilitarian-economic argument to strive for herd immunity—as initially envisioned in the United Kingdom, for example—and President Trump’s ambitious goal to re-open the economy earlier than advised are tangents on the role of health in modern economies. Health is wealth, and economists project a larger economic backlash if population health and health system resilience is not protected, than early stock market wins.

As health care professionals, we witness and experience the daily challenge of equipping our entourage and our patients with accurate medical information without worsening to their anxiety. Among the many debates, the use of masks has been a heated one, as health care experts worldwide shared contradictory opinions on the indications of mask wearing. As every medical student and hospital worker learns in their training, masks are essential for protecting oneself and others from acquiring airborne or droplet-transmission diseases when caring for patients. However, unlike several Asian countries, mask-wearing is not commonplace whenever the general population gets sick in the West, and even socially frowned upon. While streets flooded with half-covered faces before lockdowns evacuated the cities’ arteries in China, masks were only seen sparsely on North American roads when COVID-19 entered the continent. Here, mask-wearers induced, at best, some confused looks from bypassers, and, at worst, panic about the possibility of crossing paths with a COVID-19 vector.

In both online and offline communities, contradictory information was spread from one group to another, often evoking ambiguous opinions from health care professionals as to contexts in which masks are acceptable protection against COVID-19 infection. The World Health Organization (WHO) was quick to recommend against home-made masks and developed audiovisual references on correct mask usage and disposal, emphasizing specific situations where surgical masks or N95 respirators are useful: when taking care of people with COVID-19 or when the wearer has respiratory symptoms. Nevertheless, it could not prevent shelves from being emptied of their masks in a matter of days. N95 masks, despite its appeal as one of the best particle-filtering barriers on the market, are not meant for public use, as a specialized fitting test is required in order to determine the correct size for one’s face. Misinformation about N95 masks, along with the circulating panic, have contributed to the current equipment shortage for the health care personnel. As patient numbers reach new records daily, personal protective equipment, including N95 masks, and protective gowns and gloves, are becoming scarce resources in hospitals worldwide, putting the health of the medical staff in peril.

Treatment of COVID-19 is another tug-of-war of controversial facts. While some researchers focus on prevention through seeking to create a safe and effective vaccine, others brainstorm for a cure in those who were already infected. The initial consensus was symptomatic treatment, which translates to a constellation of methods to relieve the symptoms in the hopes that the body will recover with time; however, several protocols have since emerged as candidates in treating the disease itself. In the early days of the disease, Chinese doctors experimented with combinations of antiretroviral drugs for HIV/AIDS, antibiotics, and corticosteroids, supplemented by traditional Chinese medicine, with various reported degrees of success in the medical literature. While promising clinical trials with tocilizumab, remdesivir, and other pharmacological treatments are ongoing, more recently, a new but potentially dangerous treatment regimen made its way to the Twitterverse: the combination of hydroxychloroquine, an anti-malaria medication also used for some autoimmune
conditions, with azithromycin, a common antibiotic. A pre-print stemming from France showed promising results of COVID-19 patients treated with the combination; however, it failed to acknowledge that deaths and rapidly progressing cases were conveniently considered “lost-to-follow-up”. Moreover, in the days since the release of the pre-print, further concern arose: unedited, rapid publication in a peer-reviewed journal, which was later condemned by the journal’s associated society itself for not adhering to previously held standards. Nevertheless, picked up without context by media, individual stories of patients self-medicating with this treatment have become popular threads on Twitter, whilst President Trump further popularized this therapy through a tweet that “went viral”.

Even if communicated with the best intentions of the people at heart, information shared by high-ranking authorities have a significant influence on the beliefs and behaviours of the public. While news about investigating this drug spread only weeks ago, several states already started struggling with a spike in hydroxychloroquine prescriptions in the days that followed, to be hoarded in a similar way that N95 masks were, by doctors for their demanding families, friends, and coworkers. Potentially more concerning, this drug also displays complex interactions with other medications, such as causing fatal heart rhythm issues when mixed with azithromycin. Since, the first reports of fatal poisoning by chloroquine have occurred in the United States and Nigeria, emphasizing the risk of such messages by prominent figures. These recurrent panic behaviours, often ignited by an improper communication of accurate or erroneous information, will lead to difficult strains on the health care system and collateral damage on patients with other conditions that also require medical attention.

Beyond the desolating numbers, this pandemic should be the prime opportunity for health care professionals, epidemiologists, and infectious disease experts to assert their duty to equip their governments, industry, and communities with evidence-based information. Like Dr. Anthony Fauci, who, as part of the White House Coronavirus Task Force, has been combatting the spread of misinformation, many clinicians and scientists are working hard on and beyond the frontlines to hold on to the truth. Carl Bergstrom, Professor of Biology at the University of Washington, has gained further popularity through dissecting viral blog posts and articles through informative Twitter threads. Dr. Ashish Jha, Director of the Harvard Global Health Institute and incoming Dean of the Brown University School of Public Health, vehemently counters rumours threatening social distance measures and politically-heated debates through appearances on television and in media, to serve in the best interest of the public. Emergency doctors give an inside look to “ground zero” in battling COVID-19, and highlight the challenges they face and what the public can do to help. Epidemiologists have been fiercely trying to withstand the political pressures coming from state and federal levels, as models pop up one after another. Furthermore, journals and societies have collated the latest news, resources, and publications, and developed rapid access point-of-care guidelines and recommendations in the treatment of patients with COVID-19 that are open access for all to learn.

Outside of North America, several governments have taken major steps in fighting misinformation. In the United Kingdom, a collaboration between social media platforms and the governmental rapid response team is established to fight fake news online. In Taiwan, high fines have been implemented to discourage the spread of inaccurate, “sensational” news. The WHO recently implemented a “myth busters” page aiming to fight false information on COVID-19 in a language that is accessible to the general population. In China, physicians—some with thousands of followers on Weibo—leverage their influence to validate
or dismiss the circulating information online. Meanwhile, giants such as Facebook, Google, and Twitter have committed to fighting false information on COVID-19 on their platforms.

Regardless of our background, each of us have the duty to engage in combatting this infodemic, both as producers and consumers of information. We recommend our medical colleagues and fellow citizens to engage in discussions with experts to listen and better understand the rapidly evolving situation and issues faced.\textsuperscript{5,7} This translates to establishing platforms, such as webinars or online discussion groups, to bring evidence-based knowledge to the general public. We encourage the community to think critically of any information they receive, whether from a family member or a major news channel. We call for everyone to use proper vocabulary when addressing the COVID-19 pandemic, and condemn the use of discriminatory terms such as, for example, “Chinese virus”, particularly by public figures. We believe that correct information will not only empower our communities to protect themselves and others but also to learn what they can do to assist health care workers in overcoming the pandemic—together, as humanity. If we are to beat a pandemic, we cannot beat it with silence; however, we do need accurate information. We are confident that a collective “infodemic patrol”, informed by evidence-based practice and expert consensus, will eventually help us regain trust of media outlets, scientific agencies, and governments.

REFERENCES