

The next push in preventing COVID-19 outbreaks due to Omicron in long-term care homes in Canada

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By the first week of September 2022, the World Health Organization (WHO) reported that SARS-CoV-2, the causative agent of COVID-19, had infected over 600 million people worldwide and caused over 6.5 million deaths [1]. In Canada, by the same period, over 4 million persons were infected resulting in 44,600 deaths. It should be noted, however, that most of the deaths occurred during waves 1 and 2 and once the primary series of the mRNA and viral vector vaccines were initiated in January 2021, deaths significantly reduced in the general population [2]. The Public Health Agency of Canada estimated that nursing and seniors' homes account for the greatest proportion of outbreak-related cases and deaths, representing more than 50% of all deaths [3]. Indeed, residents of long-term care and retirement homes are at increased risk for negative outcomes of the virus (such as hospitalization or death) as they are older and more likely to have other complex chronic comorbidities. Mueller *et al.*, in their article titled "Why does COVID-19 disproportionately affect older people?" further suggested that adults over 65 years of age represent 80% of hospitalizations, and have a 23-fold greater risk of death than those under 65 [4]. Therefore, considering that the majority of residents in long-term homes are over 65 years of age, this sector deserves careful attention in the overall COVID-19 control strategy. This editorial examines the evolution of the virus and discusses the usefulness of the recently approved bivalent COVID-19 vaccine in light of previous vaccination efforts for the prevention of COVID-19 outbreaks in long-term care homes.

The SARS-CoV-2 virus has evolved significantly over time. Starting with the wild-type and then the Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1), Delta (B.1.617.2), and Omicron (BA.1). The transmission of these so-called variants of concern (VOC) with significant mutations created opportunities for immune evasion with potential implications for reinfection [1]. Since the designation of Omicron as the latest VOC by WHO in November 2021, the virus has continued to evolve, leading to descendent lineages (such as B.1.1.529, BA.1.1, BA.2, BA.3, BA.4 and BA.5) with slightly different genetic constellations of mutations. Currently, the subvariants BA.4 and BA.5 make up the majority of new COVID-19 cases in Canada replacing Delta,

which was the dominant variant by October 2021 [5]. The surge in infections, caused in part by the increased transmissibility of Omicron BA.4/BA.5, has had a substantial impact on health systems causing more infections, emergency department visits, and hospitalization than any other variant during the pandemic [6]. This high volume of hospitalization can cause a strain on the health system affecting other primary healthcare goals. In fact, by November 2021, when the highly transmissible Omicron variant emerged, cases skyrocketed in the general population. Because the Omicron and its subvariants undergo immune escape, infection occurred even among the vaccinated, although the risk of severe disease, hospitalization and death was significantly lower in those who were vaccinated with boosters [7, 8].

In light of the widespread transmission of the Omicron variants and the expected increased viral diversity, these lineages may continue to pose a significant threat to global public health. Evidence has shown a reduced vaccine effectiveness (VE) of the primary COVID-19 vaccines against Omicron compared to the effectiveness observed with previous VOC. In fact, it has been suggested that VE against Omicron infection shortly after a first booster dose of the original mRNA COVID-19 vaccine is approximately 60% and decreases over time [7, 9]. Therefore, the authorization of an updated version of Moderna and Pfizer-BioNTech COVID-19 bivalent booster vaccines by Health Canada is yet another milestone in preventing COVID-19 infections and outbreaks in vulnerable settings. These bivalent vaccines are able to elicit a broad neutralizing antibody response against the more recent Omicron sub-variants (BA.4 and BA.5), as well as the original SARS-CoV-2 virus strains [10].

Together, as the epidemiology of COVID-19 continues to evolve, vulnerable populations, such as seniors in long-term care settings, may continue to be disproportionately affected. Therefore, a good strategy in slowing virus evolution is by preventing transmission in this population. As various jurisdictions roll out the bivalent booster dose vaccination campaign, it is important that those living and working in these settings are prioritized. But authorities need to be aware of the fact that the healthcare sector is historically associated with high

vaccination hesitancy. In a previous issue of this journal, we discussed the issue of the *right to choose* by healthcare workers when it comes to vaccination, and the obligation to protect their patients or residents [11]. Finding the right balance has often been a challenge. Others have suggested that governments should put in place rules for mandatory vaccination of healthcare workers and should not leave this to the discretion of individual employers [12].

In conclusion, enforcing vaccination in healthcare workers will not only mitigate risk of infection to workers and vulnerable patients or residents (reducing the burden of the disease), but will also ensure that the health workforce does not become dangerously depleted due to infection or disease from the highly transmissible variant. With this in mind, it should be noted that in a large, diverse, UK-wide study, only one in six of the healthcare workers favoured mandatory vaccination [13]. Therefore, building trust, educating, and supporting healthcare workers who are hesitant about vaccination may be the most effective approach in promoting the much-needed uptake. This is yet another period in the pandemic when healthcare organizations need to continue to push the campaign for COVID-19 vaccination among team members. Vaccination, not a vaccine is indeed required to reduce the burden of COVID-19 in vulnerable settings.

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