



# The Disproportionate Impact of COVID-19 on Residents of Long-Term Care Homes

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The first reported case of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Canada was identified on January 25th of 2020.<sup>1</sup> By March 11th, 2020 the World Health Organization had declared a pandemic, and many countries, including Canada, had implemented stay-at-home orders.<sup>2</sup> At that time in March 2020, it was hard to imagine the tremendous impact this virus would have on Canadian citizens. With over 20,000 deaths to date, and millions of jobs lost, individuals all across Canada have been affected.<sup>3</sup> One population of individuals in particular that have been disproportionately

impacted by the COVID-19 pandemic are the residents of Long-Term Care (LTC). In Canada, during the first wave, more than 840 outbreaks were declared in LTC homes, and deaths in these homes accounted for 81% of the total deaths due to COVID-19.<sup>4</sup> An article published in the *Lancet* on January 16th, 2021 highlighted that even now, well into the second wave of this tragic pandemic, the situation has not changed in that residents in LTC remain particularly vulnerable.<sup>5</sup> This commentary will explore the reasons why this population has been so significantly and negatively impacted by this pandemic.

The purpose of long-term care is to provide support to those who can no longer perform activities of daily living and live independently. This loss of independence is commonly due to age-related processes such as cognitive decline, so it is not surprising that the vast majority of long-term care residents in Ontario are over the age of 65 (95%).<sup>6</sup> Unfortunately, one of the most robust risk factors for COVID-19 mortality is age,<sup>7</sup> and adults over 65 have accounted for 80% of the deaths since the start of the pandemic.<sup>8</sup> The propensity for COVID-19 to kill older individuals can be partly explained, at the molecular level, by the concept of immunosenescence.<sup>9</sup> As the immune system ages, the cells that first encounter SARS-CoV-2 in the lungs, alveolar macrophages, have a more difficult time recognizing the virus as a foreign pathogen. Due to delayed recognition, viral replication proceeds at an accelerated rate compared to what it might in a younger person.<sup>9</sup> When viral load cannot be controlled, this can result in the life-threatening consequences of COVID-19, such as acute respiratory distress syndrome.<sup>9</sup> Older individuals living in long term care also commonly meet the criteria for “frailty”, which has been shown to be an important prognostic factor when predicting COVID mortality.<sup>10</sup> Frail individuals have reduced physiologic function and reserve, often suffer from comorbid health conditions, and can rapidly decline after even a minor perturbation or insult, let alone the major insult of COVID-19, on their bodies.<sup>11</sup>

These susceptibilities, that are inherent to the majority of LTC residents, were compounded by vulnerabilities within the LTC system that existed before the COVID-19 pandemic struck. A report titled “Situation Critical”, published on January 21st, 2019, highlights these pre-pandemic vulnerabilities of the LTC system in Ontario, including, among other things, chronic underfunding and understaffing of LTC homes.<sup>12</sup> For example, although the evidence suggests that 4 hours of daily care per resident leads to the best health outcomes, levels of staffing currently sit at an average of only 2.71 hours of daily care per resident in Ontario.<sup>12</sup>

Once COVID-19 enters a vulnerable LTC home, where the most vulnerable residents in our society reside, it spreads quickly. Reasons for this are still being examined, but issues of understaffing seem to be a contributor. If staffing in the home is inadequate, then staff are rushed to provide

care, and improper donning and doffing is more likely to occur.<sup>13</sup> Additionally, personal support workers typically only make \$14 dollars an hour, often requiring them to work in multiple LTC homes to make ends meet.<sup>14</sup> This likely contributed to cross-transmission of COVID-19 between LTC homes in the first wave, and eventually forced the Ontario government, in April 2020, to institute a policy that prevents staff from working at multiple homes.<sup>15</sup>

Unfortunately, the chronic underfunding and understaffing of LTC wasn't the only issue that was exposed by the pandemic. In Ontario, the Long-Term Care Homes Act is the provincial legislation that sets the standards by which all LTC homes must abide by in order to be licensed and receive funding.<sup>6</sup> Under this model, a home can be privately managed and operated on a for-profit basis. In Ontario, of the 626 LTC homes, 57% of them are operated this way.<sup>16</sup> Some argue that the provision of care at these types of homes contributed to the disproportionate impact of COVID-19 on LTC residents.<sup>5</sup> A retrospective cohort study of all LTC homes in Ontario found that for-profit status was associated with an almost 2-fold increase in the extent of an outbreak at a home, when compared with non-profit homes.<sup>17</sup> The authors mention this relationship is largely due to the outdated design standards that exist more frequently in for-profit homes. Modern design favours private rooms for residents in comparison to the “ward-style” accommodations. Older homes with “ward-style” four-bed rooms made infection prevention and control (IPAC) measures more difficult to implement, and this likely contributed to increased COVID-19 spread in these homes.<sup>17</sup>

In conclusion, the impact that the COVID-19 virus has had on the residents of LTC has been absolutely tragic and heartbreaking. A vulnerable population (immunosenescence, frailty), compounded by a vulnerable system (underfunding/understaffing, for-profit LTC homes), explains why a disproportionate mortality rate has been seen amongst these individuals. Hopefully, this pandemic will serve as the impetus for our governments, at all levels, and our communities, to make changes to better protect this population in the future. In the meantime, infection control, screening, and swift vaccination must continue to be prioritized and delivered.

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