

## **COVID-19 and Long-Term Care in Canada and Other High-Income Countries; A Scoping Systematic Review**

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### **Abstract**

The pre-pandemic Long-Term Care (LTC) structure varied from country to country as the impact of the COVID-19 spread across the globe. There have been international comparisons among organization for economic co-operation and development (OECD) countries on strength of baseline LTC systems and response strategies. By the end of COVID-19's first wave, specific changes in funding, workforce and infection control measures, will be a great education foundation for the first wave which could be discussed for permanent policy changes to improve quality in LTC structure. We conducted a systematic scoping review on LTC and COVID-19 in Canada and other international constituents, to determine existing LTC health system that impacted COVID-19 outcome, changes in LTC structure during COVID-19 and policy changes from the lessons learned from the first wave of COVID-19.

**Keywords:** Long Term Care; COVID-1 Workforce; Policy; Funding

### **Introduction**

In 2019, the Wuhan province of China became an outbreak spot of a new strain of severe respiratory syndrome coronavirus (SARS-CoV<sub>2</sub>) [1]. This new strain declared a pandemic in January, 2020 and termed CoVID-19 in February, 2020 by WHO [2]. The elderly population is one of the most vulnerable and this is particularly true for seniors living in long care facilities [3-5]. After the first reported death of a resident in a Vancouver nursing home in the British Columbia province of Canada, there have been several LTC COVID-19 fatalities across Canada [6]. Among the OECD countries, Canada had 81% COVID-19 LTC mortality rate, compared to 38% OECD average by May 25, 2020 [7].

Undeniably the pandemic has exposed and amplified particularly, the marginalized long-term cares health system internationally [8-10], which differs significantly country by country [7]. This begs the question of the relative strength of baseline LTC systems to combat the pandemic across countries and how different response strategies impacted the outcome. There have been different response strategies worldwide, with ongoing publications to appropriately confront infection and mortality rates in LTC centers in different countries [7]. The stronger workforce, continuum of care and national health insurance coverage in model countries are the major areas for LTC policy change considerations in Canada. Beyond policies to combat COVID-19 spread and mortality in the first wave, is the question of whether there are plans for LTC policy changes in Canada and other international regions, impacted by the first wave of COVID-19. Interestingly,

a scoping review on effective quality improvement LTC strategies was published by UK authors in September 2020. This involved data obtained pre-pandemic from 2000 - 2019 mainly from US and from Canada, UK, Australia and the Netherlands. Most of the authors measured health outcome of residents in care home as an index of quality improvement in LTC, and the review also identified help that was received from outside institutionalized care staff [11].

### Purpose of Study

We sought to review data on COVID-19 and long-term care internationally to identify areas of improvements in existing long-term structures.

### Research Questions

The authors consider the following questions to navigate this systematic scoping review on COVID-19 and long-term care (LTC) structures:

1. What existing LTC funding capacity or gaps impacted the COVID-19 outcome?
2. Are there any changes in the LTC system structure during COVID-19 pandemic among selected countries that impacted outcome?
3. Are there any plans of LTC policy changes from lessons learnt from the first wave of COVID-19?

### Selection of relevant studies

For the systematic search, all six authors searched Cochrane library, PubMed and Google Scholar. The detailed search strategy was started on Oct 25<sup>th</sup>, 2020 and included "COVID-19\*" AND "Long term care\*". Using an open published date, the articles reviewed ranged from March 2020 to December 2020.

### Study selection criteria

Citation and abstracts were screened, then full articles (n = 66) reviewed to select relevant articles (n = 38). Articles on provincial response strategies, developing world and unrelated research topics were excluded.

### Data extraction process

A Google sheet accessible to all authors was created. Data on general information, methodological data and content of the articles that corresponds to the research questions of this review were included without critical appraisal.

### Presenting Results

Results are illustrated based on our research objectives derived from the research question. From 66 articles we selected 30 relevant papers to this systematic scoping review on COVID-19 and LTC among developed countries and included 8 additional related articles. Using the preferred reporting items for systematic review (PRISMA), the study flow chart illustrated in figure 1.

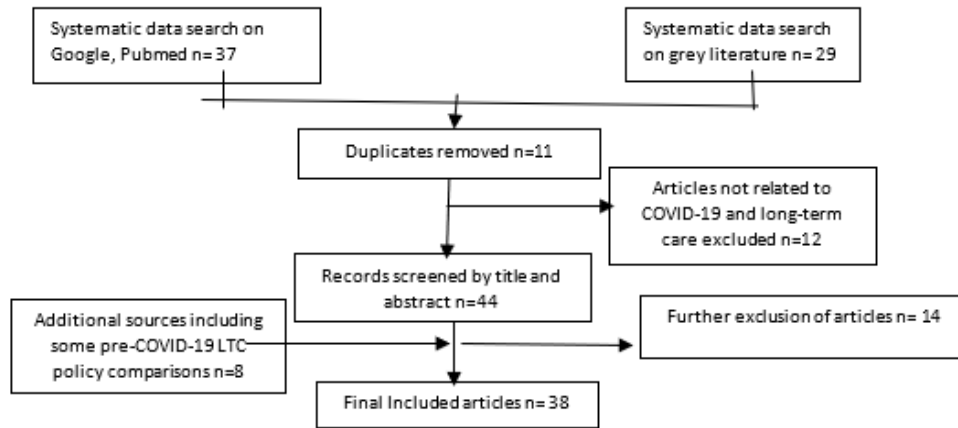


Figure 1: PRISMA flow diagram of articles retrieved from search, screened and selected for review.

Results

| Type of Article              | Number of articles | Authors  | Brief Description   |
|------------------------------|--------------------|--|---|
| Policy review                | 8                  | WHO July 2020,<br>OECD policy response, June 2020<br>Working group on LTC,<br>Amy Hsu., et al. April 2020, Canada<br>Hewko., et al. Sept 2020 CALTC,<br>CDC Nov 2020 US<br>Karlsson., et al. 2007 Providence HC (BC)<br>Aug 2020 | COVID-19 policy brief for LTC<br>Workforce and safety<br>Canada COVID-19 policy brief<br>Canada COVID-19 policy change<br>Future Canada LTC policy changes<br>Update of Core IPC practices<br>Comparison of LTC financing in 4 OECD countries |
| Systematic Literature review | 2                  | Chadborn., et al. Aug, 2020 UK<br>WHO policy brief, June 2020  | Effective QI strategies in LTC system in US Can UK Australia and Netherlands<br>A living systematic WHO policy review   |
| Discussion Paper/Opinion     | 1                  | Werner., et al. sept 2020, US  | Perspective COVID-19 crisis in the US   |
| Cohort study                 | 2                  | Belmin., et al. 2020 France<br>Fisman., et al. July 2020 Canada  | Staff confinement outcome measure<br>Risk factor analysis   |

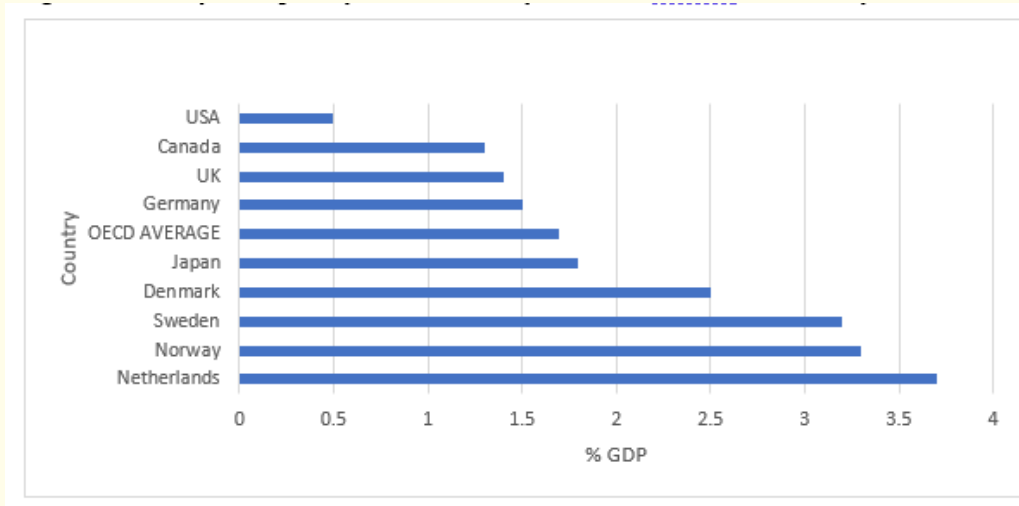
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|                                 |    |   |  |
|---------------------------------|----|---|--|
| Narrative review (Rapid review) | 2  | CIHI, June 2020<br>Boekel., <i>et al.</i> Apr 2020, The Netherlands   | International comparisons of LTC & COVID-19<br><br>A rapid review of disaster crisis   |
| Survey/Qualitative data/ Report | 11 | CIHI 2020 Canada<br>OECD LTC, May 2020<br>OECD Maisonneuve., <i>et al.</i> Apr 2014<br>David N., <i>et al.</i><br>Nathan M, Rosby <i>et al.</i> ,<br>Tine Rostgard<br>Muh-Yong Yeh., <i>et al.</i><br>Kosta DAnis., <i>et al.</i><br>Coe <i>et al.</i> , 2018 US<br>O’Niell., <i>et al.</i> June 2020<br>McMichael., <i>et al.</i> Feb 2020 Washington US | LTC number and types in Canada LTC estimates under health joint account questionnaire.<br><br>Future of LTC spending<br><br>Estimated cost of informal geriatric care.<br><br>COVID-19 and the need for universal adoption of medical standard<br><br>A report on rapid spread of COVID-19 across homes in King County |
| Grey literature                 | 12 | Globe and Mail, The Hill Times, Policy Options, Healthcare Now blog, The New York Times-Goldstein <i>et al.</i> , Apr 2020, CALTC blog, Science Daily<br><br>International LTC network, BBC news, CBC news, Ottawa local news, Wikkinews  |  |

**Table 1:** Summary of reviewed and included articles.

### Long term care funding model and epidemic preparedness

Germany, Japan and Denmark serve as models of strong LTC system in advanced countries in terms of implementing universal mandatory insurance policy for seniors, in both home-based and institutionalized care [12-14]. In Sweden and Denmark, seniors have the option to receive funded care at home around their spouse or close family members [15,16]. Healthcare funding for senior Canadians, is outside the universally insured health services and under provincial and territorial jurisdiction. Private nursing homes constitute 56% of LTC facilities across the country, with relatively less budget on care compared to public institutions which are rather provincially funded [17]. Furthermore, the private-for-profit homes which have not been refurbished were associated with higher outbreak rates [18]. Total government/compulsory spending on LTC (including both the health and social care components) accounted for 1.7% of GDP on average across OECD countries in 2017 [19].



**Figure 2:** Source OECD Data: Long-term care expenditure by Government and compulsory insurance schemes, as a share of GDP, 2017.

**Reactionary changes in LTC health system impacting outcome**

We found a common immediate response strategy, such as, triaging and screening, large scale LTC testing, designated isolation areas, staffing support, providing IPC supplies and restricting visitors [9,20-23]. A unique rapid response in French nursing homes, was voluntary staff confinement with LTC residents [20]. Table 2 shows rapid response strategies and recommendations.

**LTC policy changes post first wave crisis of COVID-19**

Several authors recommended improving, short term and long term, LTC health policies in terms of funding, staffing and structure after the pandemic hit. The Canadian Association for LTC (CALTC) has conceptualized pre-federal 2021 budget submission of 2.1 billion dollars to address chronic staff shortage, infection control experts independent of healthcare teams, expand infrastructure and implement a universal data collection on LTC cost and quality across provinces (standardized management information system -MIS) [29]. Table 3 illustrates other recommendations.

**Discussion**

We found 66 articles using our search criteria of which 38 were reviewed for baseline LTC structure and funding, response strategies and LTC policy changes from lessons learnt from the first wave of COVID-19. There were 28% (n=11) articles on LTC structure, expenditure and proposed funding for infection prevention. About 21% articles (n = 8) were on existing policies in LTC infection control measures and workforce structure; 2 articles were reviewed for impact of poor data collection in LTC in Canada and 2 articles were reviewed for lessons learned from the Covid-19 crisis in long term care.

For decades, in terms of LTC funding and structure, some countries were better prepared ahead of the pandemic than Canada, which had the highest LTC mortality among OECD’s [7]. Most authors of the articles reviewed, reported either a comprehensive funding model for LTC as seen in Japan, Germany, Denmark and Sweden or a structure that allows close relatives to spend time with seniors who needed support with activities of daily living; even if it meant receiving care at home with family as in the case with Sweden [12-16]. The history of Long-term care system establishment in Canada understandably explains the significant lag in structure and funding of LTC as compared to international countries.

Infection control is key in COVID-19 pandemic. Among LTC homes in Canada, COVID-19 unraveled gaps in IPC policy implementations [24]. Countries like Australia, Austria, the Netherlands, Hungary and Slovenia had relatively less COVID-19 LTC mortality as compared to Canada and US due to concurrent implementation of IPC and lockdown measures [7]. Canada's low LTC budget allocation, undersupply of PPE and lack of effective IPC measures were the major cause of mortality [26]. An important step to reducing infection prevention by a Canadian province during the early period of the first wave was increasing the wages of staff to limit them to only working in one facility, rather than working in multiple locations due to low wages [24]. In fact, IPC policies like limiting family visits, staff working in multiple facilities, increasing staff income, swift redeployment, recruitment and training of temporary staff and relief funding packages, had actually helped in control the spread of infection and decreasing death among residents of LTC in other developed countries [24-26]. To ensure that infection prevention among LTC is implemented and followed, a single authority should monitor standard among LTC in Canada. From what happened during the pandemic and how it affected us, infection control measure and policies should be strictly followed. The budget allocating authorities, should make sure that obstacles in the implementation should be removed in the public and especially, the private sector.

There is a focus on finding solutions for the gaps in the LTC system like never before and not just for this pandemic but to improve the overall quality of care. Infectious diseases experts from Europe recently updated guidelines on nursing home care with globally useful recommendations, including sufficient funding, comprehensive care plan for LTC, communication between different levels of healthcare, public health, policy makers, family and caregivers [10]. A quality improvement systematic review by Chabborn., *et al.* justified the need to increase the number of LTC workers by 60% across OECD countries, in anticipation of the 10% increase in the aging population by the end of 2050 [11]. Recruitment of elderly care physicians and geriatricians to support and lead the improvement of care in homes during the pandemic in the United Kingdom and the Netherlands were not enough; owing to long lasting issues like chronic staff shortages and weak infrastructure [23]. Providing care in LTC is demanding and warrants multidisciplinary team of expert careers, including an infectious disease consultant in the clinical team to provide quality of care [23,30]. A universal guideline for improving staffing ratios and skill mix for PSWs, nursing staff and allied health professionals are long overdue. It is important to motivate LTC staff to choose this as a rewarding career path and support them by arranging gerontological and palliative care training on a regular basis and by providing job security with standard hourly wage like hospital workers with the same occupation [31].

Our study is not without limitations. Our search results were dated up to December 2020 and only PubMed, Google Scholar and grey literature resources were included.

## Conclusion

Undeniably, COVID-19 has disproportionately affected seniors particularly in long term homes in countries with non-uniform LTC funding systems; while concurrent IPC and lock down measures have been helpful in most countries, the policy modifications and implementations to include infection prevention experts in healthcare workforce and specific quality improvements in nursing homes, targeting not only funding but increasing the workforce and structure are in order.

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