

CADTH Reference List

Vitamin D Supplementation for the Prevention and/or Treatment of COVID-19 in Residents of Long-Term Care Facilities

June 2021

Authors: Shannon Hill, Hannah Loshak

Cite As: *Vitamin D Supplementation for the Prevention and/or Treatment of COVID-19 in Residents of Long-Term Care Facilities.* (CADTH reference list: summary of abstracts). Ottawa: CADTH; 2021 Jun.

Disclaimer: The information in this document is intended to help Canadian health care decision-makers, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. While patients and others may access this document, the document is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose. The information in this document should not be used as a substitute for professional medical advice or as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not endorse any information, drugs, therapies, treatments, products, processes, or services.

While care has been taken to ensure that the information prepared by CADTH in this document is accurate, complete, and up-to-date as at the applicable date the material was first published by CADTH, CADTH does not make any guarantees to that effect. CADTH does not guarantee and is not responsible for the quality, currency, propriety, accuracy, or reasonableness of any statements, information, or conclusions contained in any third-party materials used in preparing this document. The views and opinions of third parties published in this document do not necessarily state or reflect those of CADTH.

CADTH is not responsible for any errors, omissions, injury, loss, or damage arising from or relating to the use (or misuse) of any information, statements, or conclusions contained in or implied by the contents of this document or any of the source materials.

This document may contain links to third-party websites. CADTH does not have control over the content of such sites. Use of third-party sites is governed by the third-party website owners' own terms and conditions set out for such sites. CADTH does not make any guarantee with respect to any information contained on such third-party sites and CADTH is not responsible for any injury, loss, or damage suffered as a result of using such third-party sites. CADTH has no responsibility for the collection, use, and disclosure of personal information by third-party sites.

Subject to the aforementioned limitations, the views expressed herein do not necessarily reflect the views of Health Canada, Canada's provincial or territorial governments, other CADTH funders, or any third-party supplier of information.

This document is prepared and intended for use in the context of the Canadian health care system. The use of this document outside of Canada is done so at the user's own risk.

This disclaimer and any questions or matters of any nature arising from or relating to the content or use (or misuse) of this document will be governed by and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein, and all proceedings shall be subject to the exclusive jurisdiction of the courts of the Province of Ontario, Canada.

The copyright and other intellectual property rights in this document are owned by CADTH and its licensors. These rights are protected by the Canadian *Copyright Act* and other national and international laws and agreements. Users are permitted to make copies of this document for non-commercial purposes only, provided it is not modified when reproduced and appropriate credit is given to CADTH and its licensors.

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

Questions or requests for information about this report can be directed to requests@cadth.ca

Key Messages

- One non-randomized study was identified regarding the clinical effectiveness of vitamin D supplementation for the prevention and/or treatment of coronavirus disease in elderly patients residing in long-term care facilities.
- No evidence-based guidelines were identified regarding vitamin D supplementation for the prevention and/or treatment of coronavirus disease in elderly patients residing in long-term care facilities.

Research Questions

1. What is the clinical effectiveness of vitamin D supplementation for the prevention and/or treatment of coronavirus disease (COVID-19) in elderly patients residing in long-term care facilities?
2. What are the evidence-based guidelines regarding vitamin D supplementation for the prevention and/or treatment of COVID-19 in elderly patients residing in long-term care facilities?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE and Embase via OVID, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were vitamin D, COVID-19, and long-term care or older adults. No filters were applied to limit the retrieval by study type. Conference abstracts were excluded. When possible, retrieval was limited to the human population. The search was also limited to English-language documents published between January 1, 2019, and June 6, 2021. Internet links were provided if available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications. Open-access, full-text versions of evidence-based guidelines were reviewed when abstracts were not available, and relevant recommendations were summarized.

Table 1: Selection Criteria

Criteria	Description
Population	Geriatric patients (i.e., age 65 and older) residing in long-term care facilities
Intervention	Vitamin D supplementation in any formulation and dose, with or without calcium supplementation
Comparator	Q1: No vitamin D supplementation; different dosing of vitamin D Q2: Not applicable
Outcomes	Q1: Effectiveness (e.g., COVID-19–related symptom severity, requirement for invasive mechanical ventilation, mortality, rates of transmission); safety (e.g., adverse events or adverse health outcomes related to supplementation) Q2: Recommendations regarding the prevention and/or treatment of COVID-19 (e.g., optimal use of vitamin D supplementation; optimal vitamin D supplementation; optimal dosing; who should and should not be supplemented)
Study designs	Health technology assessments, systematic reviews, randomized controlled studies, non-randomized studies, evidence-based guidelines

Results

One non-randomized study was identified regarding the clinical effectiveness of vitamin D supplementation for the prevention and/or treatment of COVID-19 in elderly patients residing in long-term care facilities.¹ No health technology assessments, systematic reviews, randomized controlled trials, or evidence-based guidelines were identified.

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.

Overall Summary of Findings

One non-randomized study was identified in the literature.¹ The purpose of this study was to determine if vitamin D3 supplementation taken before or during COVID-19 was effective in improving survival outcomes among elderly individuals in a nursing-home setting who contracted COVID-19.¹ Individuals with COVID-19 who received vitamin D3 supplementation in the month preceding or during COVID-19 were compared with those who did not receive supplementation.¹ The authors found that vitamin D3 supplementation before or during COVID-19 infection was associated with less severe symptoms and a better survival rate in elderly individuals.¹ No evidence-based guidelines were identified regarding vitamin D supplementation for the prevention and/or treatment of COVID-19 in elderly patients residing in long-term care facilities; therefore, no summary can be provided.

References

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-Analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Annweiler C, Hanotte B, Grandin de l'Eprevier C, Sabatier JM, Lafaie L, Celarier T. Vitamin D and survival in COVID-19 patients: A quasi-experimental study. *J Steroid Biochem Mol Biol*. 2020 11;204:105771. [PubMed](#)

Guidelines and Recommendations

No literature identified.

Appendix 1: References of Potential Interest

Systematic Reviews and Meta-Analyses

Alternative Population: Geriatric Patients Residing in Long-Term Care Facilities

Not Specified

2. Drame M, Cofais C, Hentzien M, et al. Relation between Vitamin D and COVID-19 in Aged People: A Systematic Review. *Nutrients*. 2021 Apr 17;13(4):17. [PubMed](#)

Non-Randomized Studies

Alternative Population: Long-Term Care Facility Not Specified

3. Annweiler G, Corvaisier M, Gautier J, et al. Vitamin D Supplementation Associated to Better Survival in Hospitalized Frail Elderly COVID-19 Patients: The GERIA-COVID Quasi-Experimental Study. *Nutrients*. 2020 Nov 02;12(11):02. [PubMed](#)

Guidelines and Recommendations

Expert Opinion Position Statement

4. Tarazona-Santabalbina FJ, Cuadra L, Cancio JM, et al. VitaminD supplementation for the prevention and treatment of COVID-19: a position statement from the Spanish Society of Geriatrics and Gerontology. *Rev Esp Geriatr Gerontol*. 2021 May-Jun;56(3):177-182. [PubMed](#)