

COVID-19 CADTH REFERENCE LIST

Prone Positioning for the Management of COVID-19: Clinical Effectiveness and Guidelines

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To produce this report, CADTH used a modified approach to the selection, appraisal, and synthesis of the evidence to meet decision-making needs during the COVID-19 pandemic. Care has been taken to ensure the information is accurate and complete, but it should be noted that international scientific evidence about COVID-19 is changing and growing rapidly.

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Research Questions

1. What is the clinical effectiveness of prone positioning in the management of coronavirus disease (COVID-19) in adults?
2. What are the evidence-based guidelines regarding hospital bed positioning for the management of coronavirus disease (COVID-19) in adults?

Key Findings

One evidence-based guideline was identified regarding hospital bed positioning for the management of coronavirus disease (COVID-19) in adults. No literature was identified regarding the clinical effectiveness of prone positioning for the management of coronavirus disease (COVID-19) in adults.

Methods

A limited literature search was conducted by an information specialist on key resources including PubMed, the Cochrane Library, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were COVID-19 and patient positioning. No search filters were applied to limit retrieval by publication type. Where possible, retrieval was limited to the human population. The search was also limited to English-language documents published between January 1, 2018 and May 1, 2020. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Adults with coronavirus disease (COVID-19) requiring respiratory support
Intervention	Q1: Prone positioning (i.e., lying on the stomach, bed flat); prone Trendelenburg position (i.e., lying on stomach, head lower than heart) Q2: Patient positioning in hospital beds (e.g., prone, supine)
Comparator	Q1: Prone positioning (i.e., lying on the stomach, bed flat); Trendelenburg position (i.e., lying on back, head lower than heart); reverse Trendelenburg (i.e., lying on back, head higher than heart); elevated seated positions Q2: Not applicable
Outcomes	Q1: Clinical effectiveness (e.g., oxygenation, hemodynamic status, airway management, mortality) and safety (e.g., aspiration) Q2: Recommendations regarding patient positioning
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, and evidence-based guidelines

Results

One evidence-based guideline¹ was identified regarding hospital bed positioning for the management of coronavirus disease (COVID-19) in adults. No relevant health technology assessments, systematic reviews, randomized controlled trials, or non-randomized studies were identified.

References of potential interest that did not meet the inclusion criteria are provided in the appendix.

Overall Summary of Findings

One evidence-based guideline¹ was identified regarding hospital bed positioning for the management of COVID-19 in adults. The European Society of Intensive Care Medicine and the Society of Critical Care Medicine suggest 12 to 16 hours of prone ventilation for mechanically ventilated patients with COVID-19 and moderate to severe acute respiratory distress syndrome.¹

No relevant literature was found regarding the clinical effectiveness of prone positioning for the management of COVID-19 in adults; therefore, no summary can be provided.

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-Analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Guidelines and Recommendations

1. Alhazzani W, Moller MH, Arabi YM, et al. Surviving Sepsis Campaign: guidelines on the management of critically ill adults with coronavirus disease 2019 (COVID-19). *Crit Care Med.* 2020 Mar 27. Available from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7101866/pdf/134_2020_Article_6022.pdf. Accessed 2020 May 15
[PubMed: PM32224769](https://pubmed.ncbi.nlm.nih.gov/332224769/)

Appendix — Further Information

Non-Randomized Studies

Pre-Post Intervention Studies

2. Caputo ND, Strayer RJ, Levitan R. Early Self-proning in awake, non-intubated patients in the emergency department: a single ED's experience during the COVID-19 pandemic. *Acad Emerg Med*. 2020 Apr 22. [Epub ahead of print]
[PubMed: PM32320506](#)
3. Scaravilli V, Grasselli G, Castagna L, et al. Prone positioning improves oxygenation in spontaneously breathing nonintubated patients with hypoxemic acute respiratory failure: a retrospective study. *J Crit Care*. 2015 Dec;30(6):1390-1394.
[PubMed: PM26271685](#)

No Comparator

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[PubMed: PM32000806](#)

Preliminary Reports

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Clinical Practice Guidelines

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See: Routine management of COVID-19 associated respiratory failure, 5. Prone positioning, page 29

10. Bamford P, Bentley A, Dean J, Whitmore D, Wilson-Baig N. ICS guidance for prone positioning of the conscious COVID patient. London (UK): Intensive Care Society; 2020. Available from: <https://emcrit.org/wp-content/uploads/2020/04/2020-04-12-Guidance-for-conscious-proning.pdf>. Accessed 2020 May 14
11. Jin YH, Cai L, Cheng ZS, et al. A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (standard version). *Mil Med Res*. 2020 Feb 6;7(1):4. Available from : <https://mmrjournal.biomedcentral.com/track/pdf/10.1186/s40779-020-0233-6>. Accessed 2020 May 14
See: 6.5.1 Hypoxemic respiratory failure and ARDS treatments, (4) Invasive mechanical ventilation, page 17
[PubMed: PM32029004](#)
12. Kluge S, Janssens U, Welte T, Weber-Carstens S, Marx G, Karagiannidis C. German recommendations for critically ill patients with COVID-19. *Med Klin Intensivmed Notfmed*. 2020 Apr 14. [Epub ahead of print]
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13. Massachusetts General Hospital: treatment guidance for critically ill patients with COVID-19. Boston(MA): General Hospital Corp; 2020 Apr 5: Available from: <https://www.massgeneral.org/assets/MGH/pdf/news/coronavirus/treatment-guidance-for-critically-ill-patients-with-COVID-19.pdf>. Accessed 2020 May 14
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19. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: interim guidance. Geneva (CH): World Health Organization; 2020 Mar 13. Available from: [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected). Accessed 2020 May 14
See: 7. *Management of critical COVID-19: acute respiratory distress syndrome (ARDS)*, page 7

Not COVID-19 Specific

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Review Articles

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