Disposable Continuous Positive Airway Pressure Devices for Respiratory Distress: 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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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.

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

1. What is the comparative clinical effectiveness of disposable continuous positive airway pressure devices versus mechanical continuous positive airway pressure devices for patients in respiratory distress?

2. What are the evidence based guidelines regarding the use of disposable continuous positive airway pressure devices?

Key Findings

One non-randomized study was identified regarding the comparative clinical effectiveness of disposable continuous positive airway pressure devices versus mechanical continuous positive airway pressure devices for patients in respiratory distress. No evidence-based guidelines were identified regarding the use of disposable continuous positive airway pressure devices.

Methods

A limited literature search was conducted by an information specialist on key resources including PubMed, Medline via Ovid, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, 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 disposable continuous positive airway pressure systems and patients in respiratory distress. No filters were applied to limit the retrieval by study type. The search was limited to English language documents published between Jan 1, 2015 and May 5, 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.

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<td><strong>Population</strong></td>
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<td><strong>Intervention</strong></td>
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| **Comparator**             | Q1: Standard mechanical, hospital grade continuous positive airway pressure devices (e.g., Carestream PortO2vent, MAC device)  
                              | Q2: Not applicable |
| **Outcomes**               | Q1: Clinical effectiveness (e.g., pulmonary function, respiratory rate, need for ventilation, hospitalization) and safety (e.g., infection, death)  
                              | Q2: Recommendations regarding the use of disposable continuous positive airway pressure devices |
| **Study Designs**          | Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, and evidence-based guidelines |
Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports and systematic reviews are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One non-randomized study¹ was identified regarding the comparative clinical effectiveness of disposable continuous positive airway pressure devices versus mechanical continuous positive airway pressure devices for patients in respiratory distress. No evidence-based guidelines were identified regarding the use of disposable continuous positive airway pressure devices. Additionally, no relevant health technology assessments, systematic reviews, or randomized clinical trials were identified.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-Analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies


Guidelines and Recommendations

No literature identified.
Appendix — Further Information

Health Technology Assessments

Alternative Comparator

See: Effects of interventions, page 20

Randomized Controlled Trials

Alternative Comparator


Study Protocol


Non-Randomized Studies

Alternative Comparator


No Comparator

PubMed: PM26912824

PubMed: PM25800082
Review Articles


Additional References


   See: "What are the indications for Boussignac CPAP?", page 3