

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Plastic or Reusable Aerochambers in Multi-Dose Inhalers: Clinical Effectiveness and Guidelines

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Research Questions

1. What is the clinical effectiveness of plastic or reusable aerochambers in multi-dose inhalers for patients requiring medication administration?
2. What are the evidence-based guidelines regarding the use of reusable aerochambers for multi-dose inhalers?

Key Findings

No relevant literature was identified regarding the clinical effectiveness of plastic or reusable aerochambers in multi-dose inhalers for patients requiring medication administration. Additionally, no relevant evidence-based guidelines were found regarding the use of reusable aerochambers for multi-dose inhalers.

Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, 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 concept was inhaler spacers. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2015 and April 17, 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	Patients requiring medication via multi-dose inhalers (MDI)
Intervention	Plastic, reusable aerochamber (also known as holding chambers) for MDIs
Comparator	Single-use cardboard aerochamber (also known as holding or space chambers)
Outcomes	Q1: Clinical Effectiveness Q2: Recommendations regarding the use of reusable aerochambers for MDIs
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, evidence-based guidelines

Results

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

No relevant health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, or evidence-based guidelines were identified.

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

Overall Summary of Findings

No relevant literature was identified regarding the clinical effectiveness of plastic or reusable aerochambers in multi-dose inhalers for patients requiring medication administration. Additionally, no relevant evidence-based guidelines were found regarding the use of reusable aerochambers for multi-dose inhalers; therefore no summary can be provided.

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Previous CADTH Reports

1. Disposable spacers for metered-dose inhalers: clinical effectiveness and guidelines. (*CADTH Rapid response report: reference list*). Ottawa (ON): CADTH; 2015: <https://www.cadth.ca/disposable-spacers-metered-dose-inhalers-clinical-effectiveness-and-guidelines>. Accessed 2020 Apr 22.

Non-Randomized Studies

Unclear Comparator

2. D'Vaz N, Okitika TA, Shackleton C, Devadason SG, Hall GL. Bronchodilator responsiveness in children with asthma is not influenced by spacer device selection. *Pediatr Pulmonol*. 2019;54(5):531-536. [PubMed: PM30719873](#)
3. Burudpakdee C, Kushnarev V, Coppolo D, Suggett JA. A retrospective study of the effectiveness of the AeroChamber Plus® Flow-Vu® antistatic valved holding chamber for asthma control. *Pulm Ther*. 2017 Dec;3(2):283-296. [PubMed: PM32026345](#)

Alternative Study Design

4. Saeed H, Abdelrahim ME, Rabea H, Salem HF. Evaluation of disposable and traditional accessory devices for use with a pressurized metered-dose inhaler. *Respir Care*. 2020 Mar;65(3):320-325. [PubMed: PM31455686](#)
5. Csonka P, Lehtimaki L. In vitro drug delivery performance of five valved holding chambers with and without facemasks. *Pediatr Pulmonol*. 2019;54(9):1457-1465. [PubMed: PM31254459](#)

Clinical Practice Guidelines – Non-Systematic Methodology

6. National Institute for Health and Care Excellence. COVID-19 rapid guideline: severe asthma. (*NICE guideline NG166*) 2020; <https://www.nice.org.uk/guidance/ng166>. Accessed 2020 Apr 22.
See 4.1, Equipment, page 10
7. National Institute for Health and Care Excellence. COVID-19 rapid guideline: community-based care of patients with chronic obstructive pulmonary disease (COPD). (*NICE guideline NG168*) 2020; <https://www.nice.org.uk/guidance/ng168>. Accessed 2020 Apr 22.
See 3.1, Equipment, page 11

Review Articles

8. Lavorini F, Janson C, Braido F, Stratelis G, Lokke A. What to consider before prescribing inhaled medications: a pragmatic approach for evaluating the current inhaler landscape. *Ther Adv Respir Dis*. 2019 Jan-Dec;13:1753466619884532. [PubMed: PM31805823](#)

9. Sanders M, Bruin R. A rationale for going back to the future: use of disposable spacers for pressurised metered dose inhalers. *Pulm Med.* 2015;2015:176194.
[PubMed: PM26491563](#)