SUPPLEMENTARY MATERIAL

Supplementary material 1

Appendix 1. Search strategies for QUESTION 1 and QUESTION 2.

RESEARCH QUESTION 1: What is the impact of pMDIs on the carbon footprint?

- (pMDI OR DPI) AND (climate change OR carbon footprint OR greenhouse gas OR CO2)
- inhalers AND asthma AND (climate change OR carbon footprint OR greenhouse gas OR CO2)

RESEARCH QUESTION 2: What is the possible impact of changing the treatment of patients with asthma from pMDIs to DPIs?

- (pMDI impact OR DPI impact) AND (asthma treatment OR asthma therapy OR asthma outcomes OR asthma QoL OR asthma patients OR asthma quality of life) AND switch
- ("Dry Powder Inhalers [Mesh]") AND "Metered Dose Inhalers"[Mesh] AND (impact OR switch OR asthma OR quality of life)
- pMDI AND asthma AND patient AND (profile OR characteristics OR preferences)
### Supplementary material 2

**Appendix 2. Selection criteria for questions QUESTION 1 and QUESTION 2.**

<table>
<thead>
<tr>
<th>Clinical question</th>
<th>Inclusion criteria</th>
<th>Exclusion criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUESTION 1: What is the impact of pMDIs on the carbon footprint?</strong></td>
<td>• Original manuscripts, reviews and editorials</td>
<td>• Studies evaluating costs and the impact of inhalers for the treatment of asthma</td>
</tr>
<tr>
<td></td>
<td>• Studies evaluating the impact on the carbon footprint of inhalers for the treatment of asthma that use HFC-based propellants</td>
<td>without data about emissions of CO₂ or CO₂-equivalent emissions and/or percentages of total emissions.</td>
</tr>
<tr>
<td></td>
<td>• Studies providing data from carbon footprint measurements of pMDIs or DPIs</td>
<td>• Studies about HFC uses other than health.</td>
</tr>
<tr>
<td></td>
<td>• Comparative studies, as long as calculations (kg, tons or gigatons) of CO₂, or other CO₂-equivalent emissions, and/or percentages of total emissions are available.</td>
<td>• Studies based on HFC for health use but not focusing on the use of inhalers for the treatment of respiratory diseases (healing/cooling sprays, etc.).</td>
</tr>
<tr>
<td></td>
<td>• Publications with data related to emissions of the entire life cycle (only data about emissions generated by use and disposal)</td>
<td>• Studies focusing on pathologies other than asthma.</td>
</tr>
<tr>
<td></td>
<td>• Studies published within the last 11 years (2010-2021)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Publications in English or Spanish.</td>
<td></td>
</tr>
<tr>
<td><strong>QUESTION 2: What is the possible impact of changing the treatment of patients with asthma from pMDIs to DPIs?</strong></td>
<td>• Original manuscripts.</td>
<td>• Reviews and editorials.</td>
</tr>
<tr>
<td></td>
<td>• Studies assessing the clinical implications of switching from pMDIs to DPIs: lack of asthma control, poor adherence, reduced pharmacological effect or reduction in quality of life.</td>
<td>• Studies not evaluating the clinical implications of a change from pMDIs to DPIs, the impact on drug absorption and the evaluation of patient profile according to their characteristics, needs or preferences when deciding the most convenient type of inhalation device.</td>
</tr>
<tr>
<td></td>
<td>• Studies assessing the impact on drug absorption and the evaluation of patient profile according to their characteristics, needs or preferences when deciding the most convenient type of inhalation device.</td>
<td>• Studies focusing on pathologies other than asthma.</td>
</tr>
</tbody>
</table>
preferences when deciding the most convenient type of inhalation device.

- Studies published in the last 11 years (2010-2021)
- Publications in English or Spanish.

HFC, hydrofluorocarbons; DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
### Supplementary material 3

#### List of excluded publications after full-text reading (QUESTION 1)

<table>
<thead>
<tr>
<th>Citation</th>
<th>Reason for exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUESTION 1: What is the impact of pMDIs on the carbon footprint?</strong></td>
<td></td>
</tr>
<tr>
<td>Hunt F, Wilkinson A. Carbon footprint analysis of the salford lung study (asthma): A SusQI analysis. Thorax 2021;76:A190.</td>
<td>No direct data on pMDI/DPI emissions; No original article/review</td>
</tr>
</tbody>
</table>

| **QUESTION 2: What is the possible impact of changing the treatment of patients with asthma from pMDI to DPI?** | |
| A Cumulative Dose Study to Evaluate the Safety and Efficacy of Albuterol in a Dry Powder Inhaler and an HFA MDI (Hydrofluoroalkane Metered Dose Inhaler) [https://clinicaltrials.gov/ct2/show/NCT01056159](https://clinicaltrials.gov/ct2/show/NCT01056159) | Clinical trial information (design)                      |

Review article

Comparison of efficacy of 2 products in independent samples.


Conference abstract


Review article

Clinical trial information (design)


Conference abstract


Review article

Conference abstract


No DPI vs pMDI comparison studies

Murphy KR, Uryniak T, Martin U, Zangrilli J. Effect of budesonide/formoterol pressurized metered-dose inhaler on predefined asthma events in 4 different patient populations with No DPI vs pMDI comparison studies
<table>
<thead>
<tr>
<th>Title</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipps BE, Tashkin DP, Uryniak T, Trudo F. Responder analysis evaluating the effect of budesonide/formoterol pressurized metered-dose inhaler in patients with mild to moderate asthma with versus without fixed airflow obstruction. American journal of respiratory and critical care medicine 2013; 187</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Effects of Particle Size in Small Airways Dysfunction. <a href="https://clinicaltrials.gov/ct2/show/NCT01892787">https://clinicaltrials.gov/ct2/show/NCT01892787</a></td>
<td>Clinical trial information (design)</td>
</tr>
<tr>
<td>Hojo, M; Hirashima, J; Sato, N; Ikura, M; Sugiyama, H. A clinical analysis to compare the anti-inflammatory effect on peripheral airway by salmeterol/fluticasone combination inhaler between DPI and PMDI products. Respirology (2013) 18 (Suppl. 4), 1–81</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Reference</td>
<td>Type</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Miller D, Wayne D, Ferro T, Taveras H, Iverson H. Cumulative dose</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>comparison of the efficacy and safety of albuterol-multidose dry</td>
<td></td>
</tr>
<tr>
<td>powder inhaler and albuterol-hydrofluoroalkane metered dose inhaler in</td>
<td></td>
</tr>
<tr>
<td>adults with asthma. Annals of allergy, asthma and immunology. 2014; 113(5</td>
<td></td>
</tr>
<tr>
<td>SUPPL. 1): A46.</td>
<td></td>
</tr>
<tr>
<td>Nilsson E, Chawes BL, Bønelykke K, Vindfeld S, Moore AC, Bisgaard H.</td>
<td>Letter to the editor</td>
</tr>
<tr>
<td>Effect of delivery device on systemic exposure to inhaled</td>
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<tr>
<td>PMC4137838.</td>
<td></td>
</tr>
<tr>
<td>Tashkin DP, Chippes BE, Uryniak T, Trudo F. Responder analysis</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>evaluating the effect of budesonide/formoterol pressurized metered-dose</td>
<td></td>
</tr>
<tr>
<td>inhaler (BUD/FM pMDI) in patients with moderate to severe asthma versus</td>
<td></td>
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<tr>
<td>without fixed airflow obstruction (FAO). Allergy and asthma procedures</td>
<td></td>
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<tr>
<td>Nilsson E, Chawes BL, Bønelykke K, Vindfeld S, Moore AC, Bisgaard H.</td>
<td>Letter to the editor</td>
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<td>Effect of delivery device on systemic exposure to inhaled</td>
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<tr>
<td>PMC4137838.</td>
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<td>Tashkin DP, Chippes BE, Uryniak T, Trudo F. Responder analysis</td>
<td>Conference abstract</td>
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<td>evaluating the effect of budesonide/formoterol pressurized metered-dose</td>
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<tr>
<td>inhaler (BUD/FM pMDI) in patients with moderate to severe asthma versus</td>
<td></td>
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<tr>
<td>without fixed airflow obstruction (FAO). Allergy and asthma proceedings</td>
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<tr>
<td>Aydemir Y. Assessment of the factors affecting the failure to use</td>
<td>Data for pMDI and</td>
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<tr>
<td>inhaler devices before and after training. Respir Med. 2015 Apr;109(4):</td>
<td>DPI before a training</td>
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<tr>
<td>Bulac S, Cimrin A, Ellidokuz H. The effect of beclometasone</td>
<td>No DPI vs pMDI</td>
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<tr>
<td>dipropionate/formoterol extra-fine fixed combination on the</td>
<td>comparison studies</td>
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<tr>
<td>peripheral airway inflammation in controlled asthma. J Aerosol Med</td>
<td></td>
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<tr>
<td>bul 2014 Jul 22. PMID: 25050594.</td>
<td></td>
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<tr>
<td>Thuresson M, Nilsson F. Budesonide inhaler device switch patterns in</td>
<td></td>
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<tr>
<td>an asthma population in Swedish clinical practice (ASSURE). Int J Clin</td>
<td>No DPI vs pMDI</td>
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<tr>
<td>Kirsten AM, Watz H, Brindicci C, Piccinno A,Magnussen H. Effects of</td>
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<td>beclomethasone/formoterol and budesonide/formoterol fixed</td>
<td>Comparative pMDI</td>
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<tr>
<td>combinations on lung function and airway inflammation in patients</td>
<td>vs BAI comparison</td>
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<tr>
<td>with mild to moderate asthma—an exploratory study. Pulm Pharmacol Ther.</td>
<td>studies</td>
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<tr>
<td>2015 Apr;31:79-84. doi: 10.1016/j.pupt.2014.08.007. Epub 2014 Sep 4. PMID:</td>
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<td>25194884.</td>
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<tr>
<td>Therapeutic equivalence of beclometasone/formoterol delivered via</td>
<td>vs BAI comparison</td>
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<td>Scichilone N, Benfante A, Bocchino M, Braido F, Paggiaro P, Papi A,</td>
<td>Review article</td>
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<tr>
<td>Santus P, Sanduzzi A. Which factors affect the choice of the inhaler in</td>
<td></td>
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<tr>
<td>chronic obstructive respiratory diseases? Pulm Pharmacol Ther. 2015 Apr;</td>
<td></td>
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<tr>
<td>Zambelli-Simões L, Martins MC, Possari JC, et al. Validation of scores</td>
<td>Study for the</td>
</tr>
<tr>
<td>of use of inhalation devices: valuation of errors. J Bras Pneumol. 2015;</td>
<td>validation of a</td>
</tr>
<tr>
<td>A Single Dose PD &amp; PK Study With Two Formulations of Abediterol in</td>
<td>Clinical trial</td>
</tr>
<tr>
<td>Patients With Asthma. [Clinical trial information](<a href="https://clinicaltrials">https://clinicaltrials</a>.</td>
<td>information</td>
</tr>
<tr>
<td>gov/ct2/show/NCT027777827)</td>
<td>(design)</td>
</tr>
</tbody>
</table>


David Bell, Lucille Mansfield, Mark Lomax. Fluticasone propionate/formoterol breath-triggered inhaler: Ease-of-use and patient preference. European Respiratory Journal Sep 2016, 48 (suppl 60) PA4109; DOI: 10.1183/13993003.congress-2016.PA4109


Lavorini F, Pedersen S, Usmani OS; Aerosol Drug Management Improvement Team (ADMIT). Dilemmas, Confusion, and Misconceptions Related to Small Airways Directed Therapy. Chest.


Yingxue Chen, Susanne Prothon, Ulf Eriksson, Henrik Forsman, Honglin Su, Mary Brown, Ajay Aggarwal, Helen Jackson. Pharmacokinetics (PK) of a single dose AZD7594 administered intravenously (IV), orally, and inhaled via two dry powder inhalers (DPI) and a pressurized metered-dose inhaler (pMDI). European Respiratory Journal Sep 2017, 50 (suppl 61) PA531; DOI: 10.1183/1393003.congress-2017.PA531. Conference abstract


<table>
<thead>
<tr>
<th>Reference</th>
<th>Type of Article</th>
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<tbody>
<tr>
<td>Wang GD, Macaulay R. Right to breathe, right to choose?. Value in health. Volume 21, Supplement 3, S415, October 01, 2018</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Wang GD, Macaulay R. Right to breathe, right to choose?. Value in health. Volume 21, Supplement 3, S415, October 01, 2018</td>
<td>Conference abstract</td>
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<tr>
<td>Wang GD, Macaulay R. Right to breathe, right to choose?. Value in health. Volume 21, Supplement 3, S415, October 01, 2018</td>
<td>Conference abstract</td>
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<td>Wang GD, Macaulay R. Right to breathe, right to choose?. Value in health. Volume 21, Supplement 3, S415, October 01, 2018</td>
<td>Conference abstract</td>
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<td>Wang GD, Macaulay R. Right to breathe, right to choose?. Value in health. Volume 21, Supplement 3, S415, October 01, 2018</td>
<td>Conference abstract</td>
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<tr>
<td>Wang GD, Macaulay R. Right to breathe, right to choose?. Value in health. Volume 21, Supplement 3, S415, October 01, 2018</td>
<td>Conference abstract</td>
</tr>
<tr>
<td>Title</td>
<td>Author(s)</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
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<tr>
<td>Understanding the Knowledge Gap and Assessing Comfort Level among Healthcare Professionals Who Provide Inhaler Education.</td>
<td>Karle E, Patel TP, Zweig J, Kravac A.</td>
</tr>
<tr>
<td>Understanding the Knowledge Gap and Assessing Comfort Level among Healthcare Professionals Who Provide Inhaler Education.</td>
<td>Karle E, Patel TP, Zweig J, Kravac A.</td>
</tr>
</tbody>
</table>

### References


<table>
<thead>
<tr>
<th>Title</th>
<th>Clinical trial information (design)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budesonide/Formoterol Turbuhaler® Versus Terbutaline Nebulization as Reliever Therapy in Children With Moderate Asthma Exacerbation. <a href="https://clinicaltrials.gov/ct2/show/NCT04705727">Clinical trial information</a></td>
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</tr>
<tr>
<td>Płusa T, Badowska-Kozakiewicz A. Can we minimize carbon footprint by using &quot;greener&quot; inhalers and improve clinical outcome at the same time in asthma therapy? Pol Merkur Lekarski. 2021 Aug 16;49(292):252-254. PMID: 34464363.</td>
<td>No clinical data</td>
<td></td>
</tr>
</tbody>
</table>
Supplementary material 4

**Summary of full-text articles reporting CO₂ footprint due to inhalers used for the treatment of asthma.**

<table>
<thead>
<tr>
<th>Publication</th>
<th>Study type</th>
<th>Carbon footprint (Kg CO₂-eq/year/pack)</th>
<th>MMAT appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilkinson AJK, et al. (2020)[85]</td>
<td>Qualitative</td>
<td>0.74 DPIs 23.38 pMDIs 0.35 SMI 13.56 Total 100</td>
<td></td>
</tr>
<tr>
<td>Pritchard JN. (2020)[48]</td>
<td>Qualitative</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>Lavorini F, et al. (2021)[5]</td>
<td>Qualitative</td>
<td>0.58 DPIs 23.00 pMDIs 0.35 SMI 11.79 Total 100</td>
<td></td>
</tr>
<tr>
<td>Murayama N, et al. (2018)[86]</td>
<td>Quantitative descriptive</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Ortsäter G, et al. (2019)[53]</td>
<td>Quantitative non-randomized</td>
<td>0.62 DPIs 0.62 pMDIs 0.35 SMI Total 100</td>
<td></td>
</tr>
<tr>
<td>Wilkinson AJK, et al. (2019)[56]</td>
<td>Quantitative descriptive</td>
<td>2.27 DPIs 20.50 pMDIs 16.45 SMI Total 60</td>
<td></td>
</tr>
<tr>
<td>Hänsel M, et al. (2019)[87]</td>
<td>Quantitative descriptive</td>
<td>15.54 DPIs 0.78 pMDIs 8.16 SMI Total 60</td>
<td></td>
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<tr>
<td>Janson C, et al. (2020)[88]</td>
<td>Quantitative descriptive</td>
<td>0.83 DPIs 22.33 pMDIs 10.04 SMI Total 60</td>
<td></td>
</tr>
<tr>
<td>Panigone S, et al. (2020)[41]</td>
<td>Quantitative descriptive</td>
<td>0.92 DPIs 14.57 pMDIs 10.67 SMI Total 60</td>
<td></td>
</tr>
<tr>
<td>Plusa T, et al. (2021)[89]</td>
<td>Quantitative descriptive</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Emeryk AW, et al. (2021)[40]</td>
<td>Quantitative descriptive</td>
<td>0.86 DPIs 11.39 pMDIs 8.29 SMI Total 60</td>
<td></td>
</tr>
</tbody>
</table>

DPIs, dry-powder inhalers; MMAT, Mixed Methods Evaluation Tool; SMI, Soft Mist Inhaler; pMDIs, pressurised metered-dose inhalers
Supplementary material 5
Summary of full-text articles reporting clinical outcomes of patients with asthma treated with either pMDIs or DPIs.

<table>
<thead>
<tr>
<th>Publication</th>
<th>Study type</th>
<th>Devices</th>
<th>MMAT appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rootmensen GN, et al. (2010)[90]</td>
<td>Quantitative randomised controlled</td>
<td>Diskus®, Turbuhaler®, Diskhaler™ pMDI with spacer pMDI</td>
<td>100</td>
</tr>
<tr>
<td>Price D, et al. (2011)[64]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>100</td>
</tr>
<tr>
<td>Price D, et al. (2011)[65]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>100</td>
</tr>
<tr>
<td>Spector SL, et al. (2012)[68]</td>
<td>Quantitative randomised controlled</td>
<td>pMDI, all BUD/FM DPI, all BUD</td>
<td>100</td>
</tr>
<tr>
<td>Kanniess F, et al. (2015)[62]</td>
<td>Quantitative randomised controlled</td>
<td>Foster®, Clenil®, Pulvinal®, Nexthaler®</td>
<td>100</td>
</tr>
<tr>
<td>Darbà J, et al. (2016)[83]</td>
<td>Quantitative non-randomised</td>
<td>Accuhaler®, Turbuhaler®, NEXThaler®, pMDI, all brands</td>
<td>100</td>
</tr>
<tr>
<td>Kerwin EM, et al. (2016)[75]</td>
<td>Quantitative randomised controlled</td>
<td>pMDI vs DPI, all brands</td>
<td>100</td>
</tr>
<tr>
<td>Melani AS, et al. (2017)[82]</td>
<td>Quantitative non-randomised</td>
<td>Diskus® vs pMDI, all brands HandiHaler vs pMDI, all brands Aerolizer vs pMDI, all brands Turbuhaler® vs pMDI, all brands</td>
<td>100</td>
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<tr>
<td>Kerwin E, et al. (2018)[76]</td>
<td>Quantitative randomised controlled</td>
<td>pMDI vs DPI, all brands</td>
<td>100</td>
</tr>
<tr>
<td>Rhee CK, et al. (2019)[72]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>100</td>
</tr>
<tr>
<td>Berger WE, et al. (2010)[44]</td>
<td>Quantitative randomised controlled</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
</tr>
<tr>
<td>Müller V, et al. (2011)[71]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
</tr>
<tr>
<td>Basheti IA, et al. (2016)[46]</td>
<td>Quantitative non-randomised</td>
<td>Turbuhaler®, Accuhaler®, pMDI, all brands</td>
<td>80</td>
</tr>
<tr>
<td>Qaqundah PY, et al. (2016)[77]</td>
<td>Quantitative randomised controlled</td>
<td>Albuterol 90 μg DPI vs albuterol 90 μg pMDI Albuterol 180 μg DPI vs albuterol 180 μg pMDI</td>
<td>80</td>
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<tr>
<td>Sicras A, et al. (2017)[66]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
</tr>
<tr>
<td>Castel-Branco MM, et al. (2017)[81]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
</tr>
<tr>
<td>Authors</td>
<td>Study Design</td>
<td>Intervention Comparison</td>
<td>Participants</td>
</tr>
<tr>
<td>-------------------------------</td>
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<td>--------------------------------------------------------------------------------------------</td>
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<tr>
<td>Aggarwal AN, et al. (2018)[45]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
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<tr>
<td>Pessôa CLC, et al. (2019)[80]</td>
<td>Quantitative non-randomised</td>
<td>Aerolizer® Aerocaps Diskus® pMDI, all brands</td>
<td>80</td>
</tr>
<tr>
<td>Park HS, et al. (2019)[73]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
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<tr>
<td>Can C, et al. (2020)[78]</td>
<td>Quantitative non-randomised</td>
<td>pMDI, all brands vs Turbuhaler® pMDI, all brands vs capsules-based DPI, all brands</td>
<td>80</td>
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<tr>
<td>Woo S-D, et al. (2020)[70]</td>
<td>Quantitative randomised controlled</td>
<td>pMDI vs DPI, all brands</td>
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<tr>
<td>Bickel S, et al. (2021)[74]</td>
<td>Quantitative non-randomised</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
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<tr>
<td>Kupczyk M, et al. (2021)[63]</td>
<td>Quantitative randomised controlled</td>
<td>pMDI vs DPI, all brands</td>
<td>80</td>
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<tr>
<td>Gillespie M, et al. (2015)[84]</td>
<td>Quantitative randomised controlled</td>
<td>mDPI Diskus® pMDI, all brands</td>
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<tr>
<td>van der Palen J, et al. (2016)[79]</td>
<td>Quantitative randomised controlled</td>
<td>Ellipta™ pMDI, all brands</td>
<td>60</td>
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<tr>
<td>Srichana T, et al. (2016)[69]</td>
<td>Quantitative randomised controlled</td>
<td>Pulmicort® Turbuhaler®Aeronide*</td>
<td>60</td>
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<tr>
<td>Hojo M, et al. (2016)[61]</td>
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BUD, budesonide; DPIs, dry-powder inhalers; FM, formoterol; FFC, formoterol/fluticasone combination; MMAT, Mixed Methods Evaluation Tool; pMDIs, pressurised metered-dose inhalers; SFC, salmeterol-fluticasone; VFC, vilanterol/fluticasone combination
### Supplementary material 6

**Efficacy outcomes according to the type of inhaler in all publications.**

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Total: 56 votes for DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers.
Supplementary material 7

Quality of life outcomes according to the type of inhaler in all publications.

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AHQ, Asthma Health Questionnaire; DPIs, dry-powder inhalers; PAQLQ, Pediatric Asthma Quality of Life Questionnaire; pMDIs, pressurised metered-dose inhalers
### Supplementary material 8

#### Handling outcomes according to the type of inhaler in all publications.

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
Supplementary material 9

**Adherence outcomes according to the type of inhaler in all publications.**

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
Supplementary material 10

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ATSM, Asthma Treatment Satisfaction; CQ, questionnaire for consumers; DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers; TSQM, Treatment Satisfaction Questionnaire for Medication
Supplementary material 11

Use of resources outcomes according to the type of inhaler in all publications.

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
### Supplementary material 12

**Safety outcomes according to the type of inhaler in all publications.**

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
**Supplementary material 13**

Efficacy outcomes according to the type of drug in all publications.

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
Supplementary material 14

Quality of life outcomes according to the type of drug in all publications.

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AHQ, Asthma Health Questionnaire; DPIs, dry-powder inhalers; PAQLQ, Pediatric Asthma Quality of Life Questionnaire; pMDIs, pressurised metered-dose inhalers
Handling outcomes according to the type of drug in all publications.

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
Supplementary material 16

Adherence outcomes according to the type of drug in all publications.

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
Satisfaction outcomes according to the type of drug in all publications.

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ATSM, Asthma Treatment Satisfaction; CQ, questionnaire for consumers; DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers; TSQM, Treatment Satisfaction Questionnaire for Medication
### Supplementary material 18

**Safety outcomes according to the type of drug in all publications.**

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers
Supplementary material 19

Use of resources outcomes according to the type of drug in all publications.

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DPIs, dry-powder inhalers; pMDIs, pressurised metered-dose inhalers