

## Comparative safety and effectiveness of inhaled corticosteroids and long-acting beta-agonists for chronic asthma: A rapid review and network meta-analysis

### Summary

This rapid review and network meta-analysis was conducted to determine the comparative safety and efficacy of inhaled corticosteroids (ICS) and long-acting beta-agonists (LABA) in treating patients with chronic asthma. A network meta-analysis found that adjustable or fixed dose combined inhalers with low dosage ICS+LABA, medium dosage ICS+LABA, or high dosage ICS+LABA had the greatest probability of decreasing the risk of moderate to severe exacerbations in patients with chronic asthma. Only 2 RCTs included in the review reported on symptoms using the ACT scale. Neither study found a clinically relevant change in symptoms. There were no significant differences in the risk of cardiovascular disease or cardiovascular related mortality across all treatment groups.

### Implications

Adjustable or fixed dose combined inhalers with low dosage ICS+LABA, medium dosage ICS+LABA, or high dosage ICS+LABA are likely effective in preventing moderate to severe exacerbations in patients with chronic asthma. These inhalers likely don't increase the risk of cardiovascular disease or cardiovascular related. As this is a rapid review, our results should be interpreted with caution.

**Report Reference:** Tricco AC, Ashoor HM, Zarin W et al. Comparative Safety and Effectiveness of Inhaled Corticosteroids and Beta-agonists for Chronic Asthma: A Rapid Review and Network Meta-Analysis. 2015. [ODPRN Report](#).

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### What is the current situation?

- Evidence suggests that combined therapy with inhaled corticosteroids (ICS) and long-acting beta-agonists (LABA) for patients with chronic asthma is promising
- However, it is not clear which combinations of therapies are safest and most effective for these patients

### What is the objective?

The objective of this rapid review and network meta-analysis was to determine the comparative safety and efficacy of long-acting inhaled agents (ICS, LABA) for patients with chronic asthma over 12 years of age

### How was the review conducted?

- The protocol (or plan) for the review was developed and revised with input from researchers, clinicians, industry stakeholders, and the Ontario Ministry of Health and Long Term Care
- A librarian in the group identified the literature by searching studies from previous systematic reviews, including 8 Cochrane reviews
- The primary outcome of interest was the proportion of patients with moderate to severe exacerbations and secondary outcomes included symptoms (Asthma Control Test (ACT) scale), cardiovascular diseases, and cardiovascular-related mortality
- Screening of literature search results was conducted independently by two reviewers, data abstraction was completed by one reviewer and independently verified by a second
- Bayesian network meta-analysis (NMA) was conducted to synthesize the available evidence

### What did the review find?

- 64 parallel randomized controlled trials (RCTs) including 4 companion reports were identified for inclusion in the review
- Fixed or adjustable dose combined inhalers with low dosage ICS+LABA, medium dosage ICS+LABA, or high dosage ICS+LABA had the greatest probability of decreasing the risk of moderate to severe exacerbations (46 RCTs)
- There were no significant differences in risk of cardiovascular disease (3 RCTs) or cardiovascular related mortality across all treatment groups (6 RCTs)
- An NMA or MA for symptoms could not be completed as only 2 included RCTs reported on this outcome, neither trial reached a clinically relevant important difference on the ACT scale