

# LEUKOTRIENE INHIBITORS FOR BRONCHIOLITIS IN INFANTS AND YOUNG CHILDREN

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# Leukotriene inhibitors for bronchiolitis in infants and young children (Review)

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# BACKGROUND

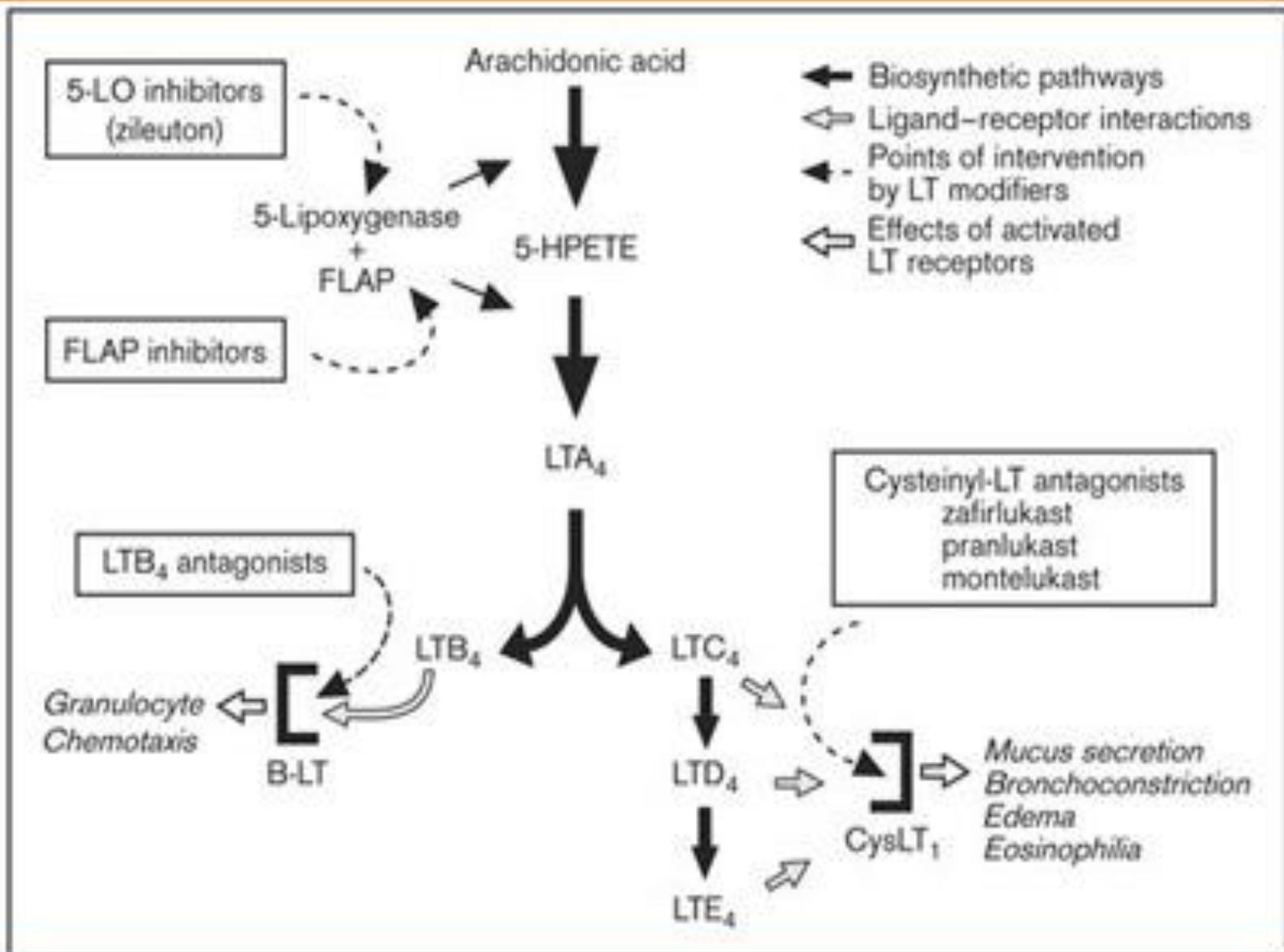
- Bronchiolitis is a common acute inflammatory illness of the bronchioles
- 10% of children in high-income countries contract bronchiolitis in the first year of life, 2% - 3% : hospitalisation

# BACKGROUND

- The cause: respiratory syncytial virus (RSV), parainfluenza, influenza, adenovirus and rhinovirus.
- the absence of clear scientific evidence for a specific treatment approach.
- Bronchodilators, antibiotics and steroids are widely used but not routinely recommended.  
→ new treatment approaches are necessary.

# BACKGROUND

- Leukotriene inhibitors (LI) can decrease the concentration of leukotrienes and reduce the symptoms of wheezing and coughing.



# BACKGROUND

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- Montelukast has been approved by the US Food and Drug Administration (FDA) for use in children < 2 years.

# OBJECTIVES

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- To assess the efficacy and safety of leukotriene inhibitors for bronchiolitis in infants and young children.

# METHODS

## Criteria for considering studies for this review:

- **Types of studies:** RCTs comparing leukotriene inhibitors with control (placebo or other interventions).
- **Types of participants:** infants and children < 24 months, with physician-diagnosed bronchiolitis

# METHODS

## □ **Types of outcome measures:**

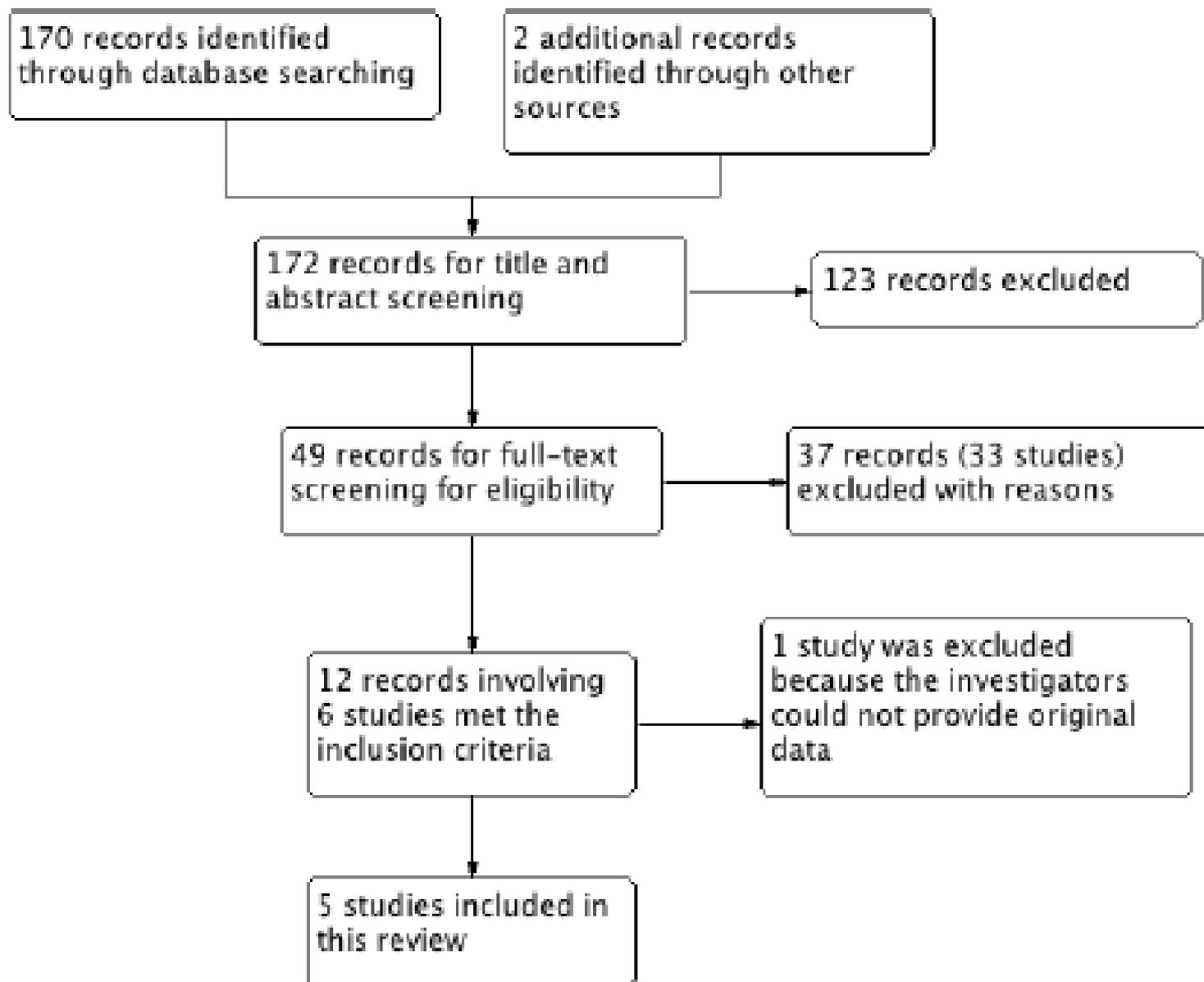
### ▣ **Primary outcomes**

1. Length of hospital stay.
2. All-cause mortality.

### ▣ **Secondary outcomes**

1. Clinical severity score.
2. Percentage of symptom-free days.
3. Percentage of children requiring ventilation.
4. Oxygen saturation.
5. Recurrent wheezing.
6. Respiratory rate.
7. Clinical adverse effects.

Figure 1. Study flow diagram.

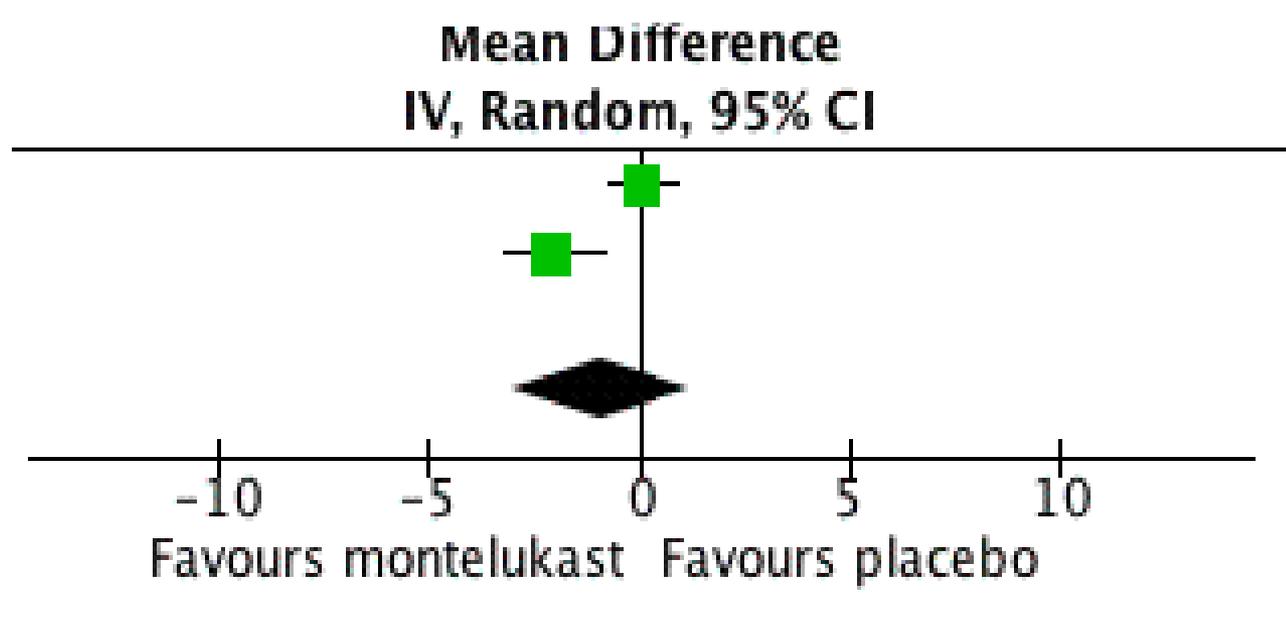


# RESULTS OF THE SEARCH

- 5 RCTs: *Denmark, Mexico, Singapore, South Africa, USA, South Korea and Japan, Belgium, Egypt and Israel.*
- 1 296 participants hospitalised.
- Intervention: 4 mg montelukast → discharge/ for several weeks.
- Follow up: 3 - 12 months.

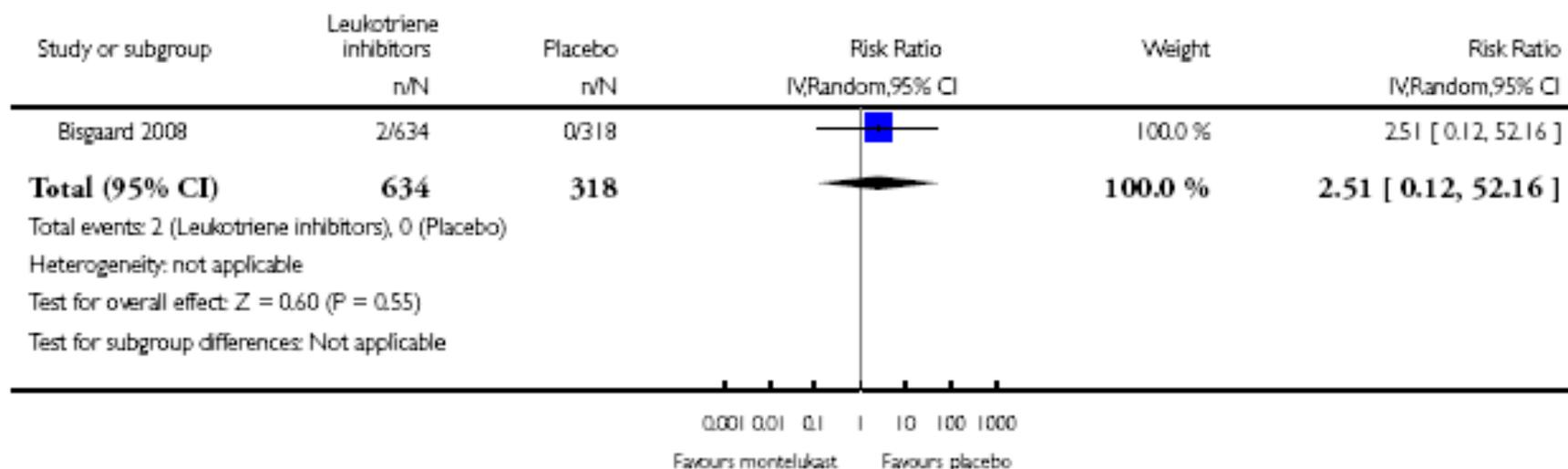
# RESULTS

**1. Length of hospital stay:** mean difference (MD) - 0.95 days, 95% confidence interval (CI) -3.08 - 1.19,  $P = 0.38$ .



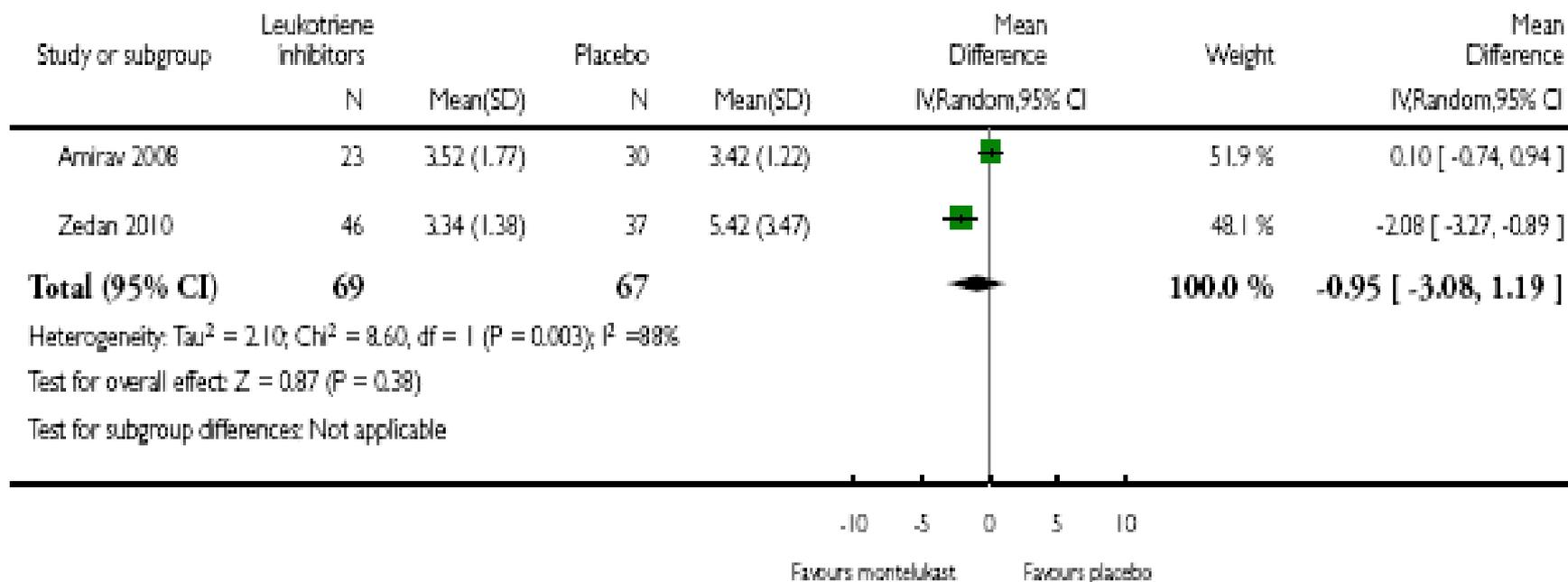
# RESULTS

## 2. All - cause mortality:



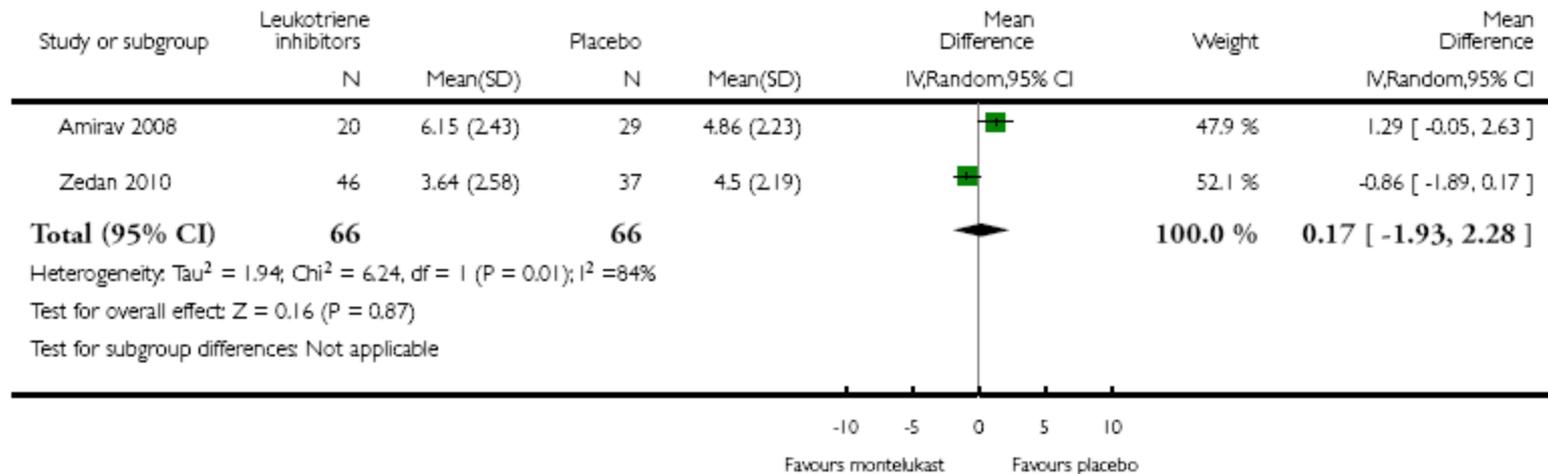
# RESULTS

## 4. Clinical severity day score (day2):



# RESULTS

## 5. Clinical severity day score (day3):



# RESULTS

6. **Percentage of children requiring ventilation**

7. **Oxygen saturation**

8. **Respiratory rate**

→ No relevant data were available

9. **Recurrent wheezing:**

One study reported/1 years: did not reduce the incidence of recurrent wheezing.

# RESULTS

## 10. **Clinical adverse effects:**

- One study of 952 children reported 2 deaths in the leukotriene inhibitors group: neither was determined to be drug-related.
- adverse events: diarrhoea, wheezing shortly after administration and rash.

# CONCLUSIONS

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- The current evidence does not allow definitive conclusions to be made about the effects of LI on length of hospital stay and clinical severity score.
- The quality of the evidence was low.
- Further large studies are required.

THANK YOU!

