

ZINC FOR THE COMMON COLD

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BACKGROUND

- Rhinovirus
- One of the most widespread illnesses
- A leading cause of visits to the doctor, absenteeism froms school and work
 - Adults : 2-4 episodes annually
 - Children : 6- 10 colds a year
- Complications : otitis media, sinusitis and exacerbations of reactive airway diseases
- In the United States
 - \$7.7 billion per year.
 - \$2.9 billion on over-the-counter drugs and another \$400 million on medicines for symptomatic relief
 - 1/3 patients : received antibiotic prescription, which has implications for antibiotic resistance
 - work loss : \$20 billion per year

BACKGROUND

- No proven prevention or treatment.
- Zinc :
 - Inhibits viral replication
 - Stabilises cell membranes
 - Prevents histamine release
 - Inhibits prostaglandin metabolism
- Zinc has been tested in trials for treatment of the common cold

OBJECTIVES

Zinc:

- Efficacious in reducing the incidence
- Severity and duration of common cold symptoms.

METHODS

- 15 RCTs (5 trials children 1-16 age)
- 1360 participants, comparing zinc with placebo
- Types of interventions
 - **Therapeutic trials:** interventions commenced within three days of participants developing common cold symptoms for a period of five or more consecutive days.
 - **Prophylactic trials:** intervention commenced and continued throughout the cold season for at least five months.

METHODS

■ Primary outcomes

1. Duration of symptoms
2. Severity of symptoms
3. Incidence of the common cold

■ Secondary outcomes

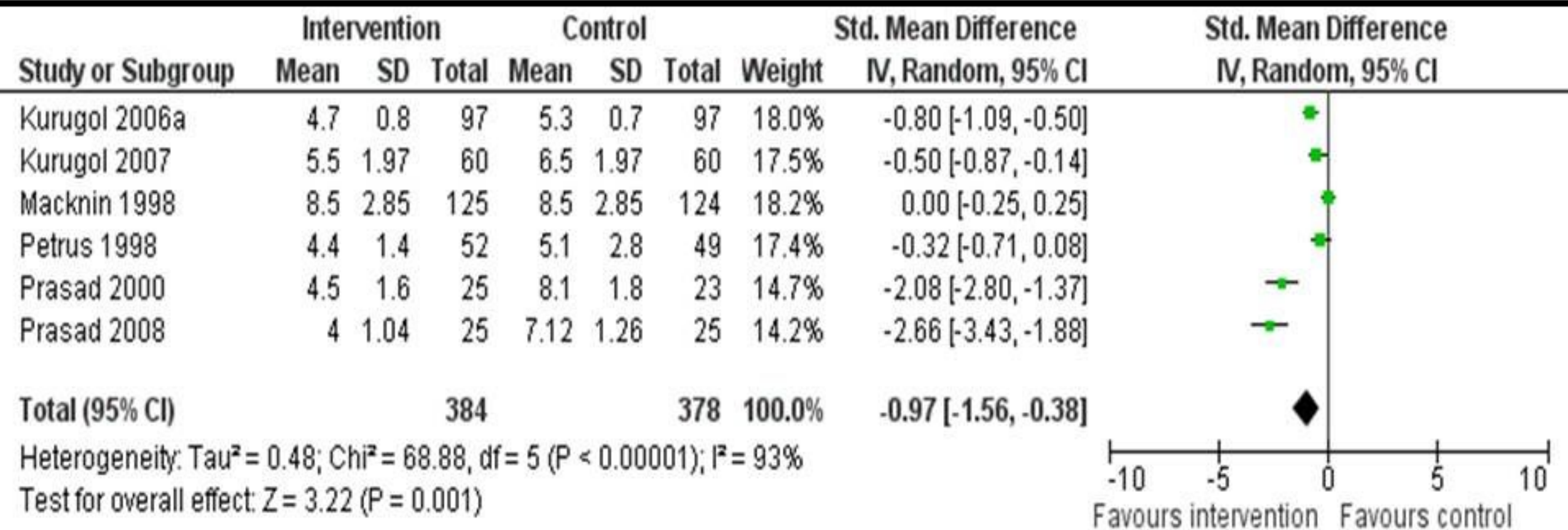
1. Proportion of participants symptomatic after three, five or seven days of treatment
2. Time to resolution of individual symptoms: cough, nasal congestion, nasal drainage and sore throat
3. Change in individual severity symptom scores: cough, nasal score
4. School absence (days)
5. Antibiotic use
6. Adverse events

RESULT

- 996 participants in the therapeutic trials
- 394 in the preventive trials

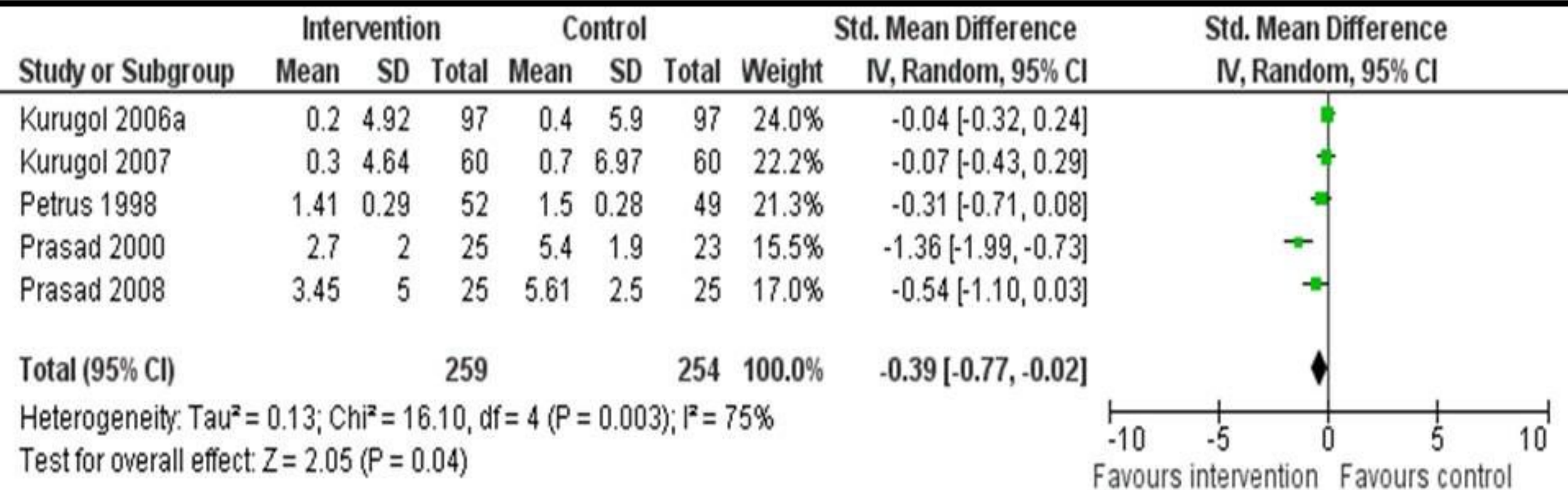
A. Primary outcomes

1 Duration of cold symptoms



- Ten studies : 762 participants
- Zinc : **significant reduction** ($P = 0.001$), within 24 hours of the onset of symptoms.

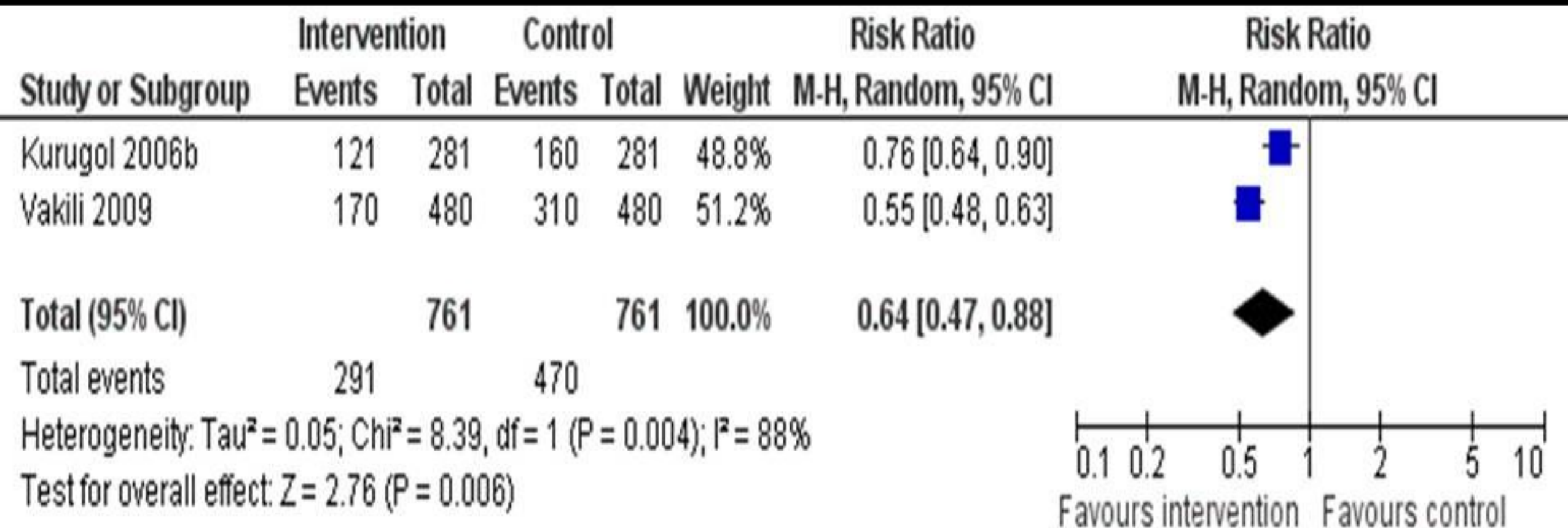
2. Severity of cold symptoms



- Five studies : **significant difference** between two groups ($P = 0.04$)
- **Formulations and time** of administration of zinc differed among the studies

RESULT

3. Incidence of common cold



- two studies

- Zinc : **reduced the incidence** ($P = 0,006$)

RESULT

B. Secondary outcomes

1. Proportion of participants symptomatic after three, five or seven days of treatment

- Three, five days
 - Three studies : 340 participants.
 - No significant difference
- Seven days
 - Five studies : 476 participants.
 - **Significant difference** between the intervention and control group

RESULT

2. Time to resolution of individual cold symptoms

- 5 studies.

- 1) Time to resolution of cough

- 2) Time to resolution of nasal congestion

- 3) Time to resolution of nasal drainage

- 4) Time to resolution of sore throat

➤ **significantly shorter** in the intervention group

RESULT

3. Change in individual severity symptom scores

- Change in cough symptom score: Mean cough score
 - 2 studies: **lower in the control group** statistically significant ($P = 0.2$)
 - 1 study : **significant decrease** in the **intervention group** ($P < 0.00001$)

RESULT

- Change in nasal symptom score
 - 4 studies : the mean nasal score
 - 1 study : lower in the control group, statistically significant
 - 1 study : decrease (not significant) in the intervention group
 - 2 studies : no difference between the two groups

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- Change in throat symptom score
 - 2 studies : the mean throat score
 - 1 study : lower in the intervention group statistically insignificant
 - 1 study : decrease in the mean throat score (not significant) in the intervention group

RESULT

4. School absenteeism

- Three trials.
- Two preventive trials : zinc were absent for fewer days from school ($P = 0.03$)
- One therapeutic trials : zinc were less likely to be absent than placebo ($P = 0.12$).

5. Antibiotics use

- Two trials
- **More** likely in placebo than in zinc ($P < 0.00001$)

RESULT

6. Adverse events

- Ten trials
- **Bad taste** and **nausea** : **higher** in the zinc group.
- **No significant difference** between the 2 groups :
constipation ($P = 0.17$), diarrhea ($P = 0.08$),
abdominal pain ($P = 0.25$), dry mouth ($P = 0.09$)
and oral irritation ($P = 0.50$)

DISCUSSION

- **Results**
- **Quality of the evidence**
 - **Generally of good quality, with a low risk of bias**
- **Agreements and disagreements with other studies or reviews**

Zinc for the common cold

Marshall I (2000)

■ OBJECTIVES:

- The objective of this review was to assess the effects of zinc lozenges for cold symptoms.

■ MAIN RESULTS:

- Seven trials : 754 cases
- Describe the duration, incidence and severity of respiratory symptoms.
- Two trials : reduced the severity and duration of cold symptoms.

■ REVIEWER'S CONCLUSIONS:

- Evidence inconclusive.
- There was significant potential for bias
- further research is required to substantiate these findings.

DISCUSSION

- ❖ The **important changes** in this updated review
 1. **Significant reduction** in the duration and severity of common cold symptoms.
 2. Duration of individual cold symptoms was also **significantly reduced**
 3. The syrup and tablet preparation of zinc is **better** tolerated than lozenges.
 4. **Reduces** incidence, school absenteeism and prescription of antibiotics

AUTHORS' CONCLUSIONS

Implications for practice

- Zinc :
 - **therapeutic** :
 - reduced the duration
 - severity of common cold symptoms
 - **prophylactic** :
 - reduced the incidence
 - school absence
 - antibiotic use in healthy children
- Beneficial for high-income countries. Cannot be applied low-income countries
- Included healthy participants, not evidence in participants at risk
- Caution: not all formulations may be effective (especially lozenges)

AUTHORS' CONCLUSIONS

- Implications for research

- 1. Asthmatic children :

- Cold episodes is a common risk factor for acute asthma exacerbations.
 - The results would be more meaningful for them.

- 2. Low-income countries :

- The assumption is that in these countries zinc deficiency may be prevalent and the results may be far more impressive.

THANK YOU !