QUESTION: In children with acute asthma, are homemade spacers as effective as conventional ones for improving response to a β₂-agonist given by metered dose inhaler?

Main outcome measures
Changes in clinical score and pulmonary function and need for nebulisation.

Main results
Analysis was by intention to treat. An improvement in lung function was seen in all groups. Results for the sealed bottle group were similar to those for the conventional spacer group; a cup was least effective (p = 0.02) (table). Among children with mild-airway obstruction, clinical scores, pulmonary function, and need for nebulisation did not differ among study groups.

Among children with moderate to severe airway obstruction, clinical scores did not differ among study groups and a cup was least effective for improving pulmonary function (p < 0.05) (table). Nebulisation was needed by 10 of 11 children who used a cup, 8 of 11 children who used a sealed bottle, 9 of 11 who used an unsealed bottle, and 4 of 11 who used a conventional spacer.

Conclusion
In children with acute asthma, spacers made from sealed cold-drink bottles were as effective as conventional spacers.

Spacers made from sealed cold-drink bottles were as effective as conventional spacers in children with acute asthma


Disease severity Outcomes Conventional spacer (95% CI) Sealed bottle (CI) Unsealed bottle (CI) Cup (CI)
All children
FEV₁ 24% (14 to 37) 20% (15 to 33) 17% (10 to 34) 13% (0 to 23)
FVC 13% (6 to 20) 13% (8 to 26) 10% (4 to 23) 5% (0 to 8)
Mild to moderate obstruction
FEV₁ 37% (19 to 53) 33% (18 to 55) 18% (9 to 57) 0% (–4 to 24)
PEFR 59% (22 to 69) 36% (21 to 102) 21% (16 to 99) 12% (–5 to 37)
FVC 17% (8 to 22) 23% (14 to 36) 18% (5 to 26) 6% (–5 to 15)
‡FVC = forced vital capacity; PEFR = peak expiratory flow rate. §Not significant.