Review: oral Haemophilus influenzae vaccination reduces the number and severity of recurrent bronchitis episodes


QUESTION: Does an oral, whole cell, non-typeable Haemophilus influenzae (NTHi) vaccine protect against recurrent episodes of acute bronchitis?

Data sources
Studies were identified by searching Medline (1966–98), Extracted (1994–8), ISI Current Contents (1993–8), Carl Uncover (1988–98), and the Cochrane Controlled Trials Register with the terms bronchitis, haemophilus, vaccine, bronchostat, and baculine burna; by scanning relevant books, bibliographies of articles, and conference abstracts; and by contacting authors and experts in the field.

Study selection
Published studies were selected if they were randomised controlled trials that compared the effects of oral monobacterial NTHi vaccination with placebo in patients between 19 and 93 years of age who had recurrent exacerbations of acute bronchitis or chronic obstructive pulmonary disease; patients in vaccine and placebo groups were matched by age; and main outcomes were number of patients using antibiotics (an indication of the severity of exacerbation), bronchitis episodes, or rate of NTHi carriage in the respiratory tract.

Data extraction
2 reviewers independently extracted data on study quality and characteristics, patient characteristics, interventions, and outcomes.

Main results
6 studies (440 patients) met the selection criteria. 5 studies were done in patients with chronic bronchitis (mean age range 51 to 71 y), and 1 was done in patients with recurrent episodes of chronic bronchitis (mean age 46 y). 5 studies were done in Australia, and 1 was done in New Guinea; all studies used a concealed allocation procedure; and study duration ranged from 3 to 12 months. At 6 months, fewer patients who received NTHi vaccination used antibiotics than did those who received placebo (table); no difference existed at 3 months. NTHi vaccination reduced bronchitis episodes at 3 and 6 months more than did placebo (table). NTHi vaccination and placebo did not differ for rates of NTHi carriage in the respiratory tract at 3 or 6 months.

Conclusion
An oral whole cell, non-typeable Haemophilus influenzae vaccine reduces the number and severity of recurrent episodes of acute bronchitis.

Oral Haemophilus influenzae vaccination vs placebo for recurrent bronchitis*

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Follow up</th>
<th>Weighted event rates</th>
<th>Weighted mean decrease (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Vaccine</td>
<td>Placebo</td>
</tr>
<tr>
<td>Antibiotic use</td>
<td>6 months</td>
<td>32%</td>
<td>59%</td>
</tr>
<tr>
<td>Bronchitis episodes</td>
<td>3 months</td>
<td>6.69 (6.42 to 6.96)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>4.47 (4.30 to 4.64)</td>
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</tbody>
</table>

*Fixed-effects model used for all outcomes. Abbreviations defined in glossary; NNT and CI calculated from data in article.

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