**Author(s):** VS/AT  
**Date:** 2015-03-26  
**Question:** Should vapocoolants before vaccine injections vs placebo be used for reducing vaccine injection pain in children 0-3 years?  
**Settings:** pediatric clinic  
**Bibliography:** Maikler 1991 (1,2)

<table>
<thead>
<tr>
<th>No of studies</th>
<th>Design</th>
<th>Risk of bias</th>
<th>Inconsistency</th>
<th>Indirectness</th>
<th>Imprecision</th>
<th>Other considerations</th>
<th>Vapocoolant be applied before vaccine injections</th>
<th>Placebo</th>
<th>Relative (95% CI)</th>
<th>Absolute</th>
<th>Quality</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>randomised trials</td>
<td>serious(^2)</td>
<td>no serious inconsistency</td>
<td>no serious indirectness</td>
<td>serious(^4)</td>
<td>none</td>
<td>Vapocoolant be applied before vaccine injections</td>
<td>Placebo</td>
<td>-</td>
<td>SMD 0.44 lower (0.96 lower to 0.07 higher)(^3)</td>
<td>LOW</td>
<td>CRITICAL</td>
</tr>
</tbody>
</table>

**Distress Acute** \(^1\) (measured with: validated tool (facial expression duration and cry duration over 60 seconds) by researcher; Better indicated by lower values)  

\(^1\) Vapocoolant and placebo sprayed for 2-3 seconds  

\(^2\) Study by Luthy (2013) includes children 2-12 years (mean age, 5.2 years). Results for children unable to self-report pain not separated from older children. This study is included in the analysis of vapocoolant effectiveness for children >3-17 years.  

\(^3\) Immunizer and parent not blinded; outcome assessor blinded  

\(^4\) Confidence interval crosses line of nonsignificance and sample size was below the recommended optimum information size (OIS) of 400 for an effect size of 0.2  

\(^5\) Discomfort from application not reported for the vapocoolant and placebo groups  

**Procedure Outcomes, Safety, Parent Fear, Vaccine Compliance, Preference, Satisfaction (assessed with: no data were identified for these important outcomes)**

| 0 | No evidence available | | | | | | | | | 0% | IMPORTANT |