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**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)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Vapocoolant be applied before vaccine injections	Placebo	Relative (95% CI)	Absolute		
Distress Acute <sup>1,2</sup> (measured with: validated tool (facial expression duration and cry duration over 60 seconds) by researcher; Better indicated by lower values)												
1	randomised trials	serious <sup>3</sup>	no serious inconsistency	no serious indirectness	serious <sup>4</sup>	none	30	30	-	SMD 0.44 lower (0.96 lower to 0.07 higher) <sup>1</sup>	⊕⊕○○ LOW	CRITICAL
Procedure Outcomes, Safety, Parent Fear, Vaccine Compliance, Preference, Satisfaction (assessed with: no data were identified for these important outcomes)												
0	No evidence available					none	-	-	-	-		IMPORTANT
								0%		-		

<sup>1</sup> Vapocoolant and placebo sprayed for 2-3 seconds

<sup>2</sup> 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.

<sup>3</sup> Immunizer and parent not blinded; outcome assessor blinded

<sup>4</sup> 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

<sup>5</sup> Discomfort from application not reported for the vapocoolant and placebo groups