# Revman Plots: Vapocoolants child >3-17 yrs

## Pain

	Vapo	coola	nt	Placebo	No treatn	nent		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
38.1.1 Vapocoolant vs	. Placebo	)							
Abbott 1995 (1)	4.57	3.2	15	4.77	3.23	30	18.0%	-0.06 [-0.68, 0.56]	
Eland 1981 (3)	6	3.8	10	9.33	2.1	10	13.2%	-1.04 [-1.99, -0.09]	<b>-</b>
Eland 1981 (4) Subtotal (95% CI)	6.33	4	10 <b>35</b>	7.67	2.73	10 <b>50</b>	14.0% <mark>45.3%</mark>	-0.37 [-1.26, 0.51] -0.40 [-0.96, 0.15]	-
Heterogeneity: Tau <sup>2</sup> = 0 Test for overall effect: Z			-	(P = 0.24)	; I² = 30%				
38.1.2 Vapocoolant vs	. No treat	ment							
Abbott 1995 (2)	4.57	3.2	15	6.77	3.1	30	17.7%	-0.69 [-1.33, -0.05]	
Cohen 2009	7.64	3.49	31	5.78	3.81	26	19.4%	0.50 [-0.03, 1.03]	
Cohen Reis 1997 (1) Subtotal (95% CI)	3.33	4	20 66	6.83	3.83	21 77	17.6% <b>54.7%</b>	-0.88 [-1.52, -0.23] - <b>0.34 [-1.23, 0.56]</b>	
Heterogeneity: Tau² = 0 Test for overall effect: Z				2 (P = 0.00	01); I² = 85	i%			
Total (95% CI)			101			127	100.0%	-0.38 [-0.89, 0.13]	-
Heterogeneity: Tau <sup>2</sup> = 0 Test for overall effect: Z	•			5 (P = 0.00	06); I <b>²</b> = 69	1%			-2 -1 0 1 2 Favours vapocoolant Favours placebo/noth

#### **Distress Acute**

	Vap	ocoola	nt	No tr	eatme	ent		Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Cohen 2009	7.27	1.92	31	6.65	2.8	26	34.5%	0.26 [-0.26, 0.78]	
Cohen Reis 1997 (1)	2.44	1.4	20	4.81	1.4	21	32.2%	-1.66 [-2.38, -0.94]	_ <b>-</b>
Luthy 2013 (1)	4.67	2.3	18	4.96	2.5	22	33.4%	-0.12 [-0.74, 0.51]	
Total (95% CI)			69			69	100.0%	-0.48 [-1.57, 0.60]	
Heterogeneity: Tau² = 0 Test for overall effect: Z			•	2 (P < 0	).0001	); <b>I²</b> = 8	19%		-2 -1 0 1 2 Favours Vapocoolant Favours No treatment

## **Distress Pre-Procedure**

	Vap	ocoola	nt	PI	acebo			Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% C	I IV, Random, 95% CI
Eland 1981 (3)	6	3.95	10	4	3.95	10	49.1%	0.48 [-0.41, 1.38	]
Eland 1981 (4)	4	4.6	10	3.5	4.1	10	50.9%	0.11 [-0.77, 0.99	]
Total (95% CI)			20			20	100.0%	0.29 [-0.33, 0.92]	1 +
Heterogeneity: Tau <sup>2</sup> =	= 0.00; C	hi <b>²</b> = 0.	.34, df=	= 1 (P =	0.56);	l <sup>2</sup> = 0%	,		
Test for overall effect	: Z = 0.92	2 (P = 0	).36)						Favours Vapocoolant Favours Placebo

## Parent Fear

	Vapo	coola	ant	No T	reatm	ent	1	Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Cohen Reis 1997 (1)	1.41	2.4	20	2.21	2.09	21	100.0%	-0.35 [-0.97, 0.27]	
Total (95% CI)			20			21	100.0%	-0.35 [-0.97, 0.27]	-
Heterogeneity: Not app Test for overall effect: Z		P = 0.2	27)						-2 -1 0 1 2 Favours Vapocoolant Favours No treatment

## Parent Preferences

	Vap	ocoola	int	No T	reatm	ent	:	Std. Mean Difference	Std. Mean Difference
Study or Subgroup	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI
Cohen Reis 1997 (1)	1.64	2.66	20	3.12	3.47	21	100.0%	-0.47 [-1.09, 0.15]	
Total (95% CI)			20			21	100.0%	-0.47 [-1.09, 0.15]	-
Heterogeneity: Not app Test for overall effect: Z		P = 0.1	4)						-2 -1 0 1 2 Favours Vapocoolant Favours No treatment

# Parent Preferences (yes/no)

	Vapoco	olant	No Treat	tment		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Random, 95% Cl	M-H, Random, 95% Cl
Luthy 2013 (1)	11	18	16	22	100.0%	0.84 [0.54, 1.32]	
Total (95% CI)		18		22	100.0%	0.84 [0.54, 1.32]	•
Total events	11		16				
Heterogeneity: Not ap	pplicable						
Test for overall effect	: Z = 0.76 (ł	P = 0.45	j)				0.005 0.1 1 10 200 Favours Vapocoolant Favours No treatment

#### Author(s): VS/AT Date: 2015-03-23 Question: Should vapocoolants before vaccine injections vs placebo/no treatment be used for vaccine injection pain in children >3-17 years? Settings: hospital and community clinic Bibliography: Abbott 1995 (1,2), Eland 1981 (3,4), Cohen 2009, Cohen Reis 1997 (1), Luthy 2013 (1)

Quality assessment No of patients Effect Quality Importance Vapocoolants be Other Placebo/no Relative No of Risk of Design Inconsistency Indirectness Imprecision applied before Absolute considerations studies bias treatment (95% CI) vaccine injections Pain1 (measured with: validated tool (Visual Analog Scale 0-3, Bieri Faces Pain Scale 0-6, Faces Pain Scale-Revised 0-10); Better indicated by lower values) randomised serious<sup>2</sup> no serious no serious serious<sup>6</sup> none 101 127 SMD 0.38  $\oplus \oplus OO$ CRITICAL inconsistencv<sup>3,4,5</sup> indirectness lower (0.89 trials LOW lower to 0.13 higher) Distress Acute <sup>7</sup> (measured with: validated tool (Visual Analog Scale 0-10/0-5, Bieri Faces Pain Scale 0-6) by researchers/parents; Better indicated by lower values) 2 serious<sup>2</sup> serious<sup>6</sup> 69 SMD 0.48 randomised no serious no serious 69 none trials inconsistency<sup>3</sup> indirectness lower (1.57 LOW lower to 0.6 higher) Distress Pre-Procedure (measured with: validated tool (1-3 point scale) by clinician; Better indicated by lower values) ⊕⊕OO IMPORTANT randomised serious<sup>8</sup> no serious no serious serious<sup>6</sup> none 20 20 SMD 0.29 trials inconsistencv indirectness lower (0.33 LOW lower to 0.92 higher) Parent Preferences (measured with: validated tool (questionnaire); Better indicated by lower values) serious<sup>9</sup> randomised no serious no serious serious<sup>6</sup> none 20 21 SMD 0.47 ⊕⊕OO IMPORTANT trials indirectness lower (1.09 inconsistency LOW lower to 0.15 higher)<sup>10</sup>

	randomised	serious <sup>9</sup>	no serious	no serious	serious <sup>6</sup>	none	11/18	16/22	RR 0.84	116 fewer per	$\oplus \oplus OO$	IMPORTAN
	trials		inconsistency	indirectness			(61.1%)	(72.7%)	(0.54 to	1000 (from 335	LOW	
									1.32)	fewer to 233		
										more)		
Safety	/ <sup>11</sup> (assessed w	ith: inves	tigator report)						<u>I</u>		<u> </u>	I
	randomised	serious <sup>12</sup>	no serious	no serious	13	none	-	-	-	-		IMPORTAN
	trials		inconsistency	indirectness								
								0%		-		
Paren	t Fear (measure	ed with: v	alidated tool (Vi	sual Analog Sca	ale 0-10); Be	tter indicated by	/ lower values)		Į	<u>I</u>	1	
	randomised	serious <sup>9</sup>	no serious	no serious	serious <sup>6</sup>	none	20	21	-	SMD 0.35	⊕⊕00	IMPORTAN
	trials		inconsistency	indirectness						lower (0.97	LOW	
										lower to 0.27		
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	No evidence available					none	-	-	-	-		IMPORTAN
	available							0%	_			
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In the	e study by Abbo	tt (1995), t	he sample size fo	or the intervention	n (vapocoola	nt) group was div	rided by 2					
Imm	unizers, researcl	ners, child		not consistently b	linded; outco	me assessor not	ided by 2 consistently blinded					
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