





Evidence Assessment: Summary of a Systematic Review

Who is this summary for?

For Doctors and Health Personnel, Administrators and Managers of health facilities, Community Health Workers and the partners involved in child health care.

Honey for acute cough in children

Key findings

- Honey probably reduces cough symptoms more than placebo and salbutamol (a drug that opens lung airways) when given for up to three days.
- Honey is probably more effective at providing cough relief and reducing the impact of cough on children's sleep at night than no treatment.
- There may be little or no difference between the effects of honey and dextromethorphan (an ingredient in over-the-counter cough remedies) or honey and bromelin with honey on all cough symptoms.

Background

Cough causes concern for parents and is a major cause of outpatient visits. Cough can impact quality of life, cause anxiety, and affects sleep in children and their parents. Honey has been used to alleviate cough symptoms. This is an update of reviews previously published in 2014, 2012, and 2010.

Questions

What is the effectiveness of honey for acute cough in children in ambulatory settings?

Honey for acute cough in children in Cameroon: In Cameroon, as in all developing countries, plants are an important source of medicine due to high costs of modern synthetic drugs offered by orthodox medicine. Results show that concoction of ground leaves with honey; concoction of juice and honey ; concoction of ground bulb with ginger rhizome in honey taken orally, treat cough¹.

¹ Focho, D. A., Nkeng, E. A. P., Fonge, B. A., Fongod, A. N., Muh, C. N., Ndam, T. W., & Afegenui, A. (2009). Diversity of plants used to treat respiratory diseases in Tubah, northwest region, Cameroon. *African Journal of pharmacy and pharmacology*, *3*(11), 573-580.

Table 1: SUMMARY OF THE SYSTEMATIC REVIEW

	What the review authors searched for	What the review authors found				
Studies	Randomised controlled trials (RCTs)	Six RCTs				
Participants	Children aged 12 months to 18 years with cough caused	899 children. The age of participants ranged from 12 months to 16 years. All				
	by acute viral or bacterial URTI.	studies recruited participants from paediatric outpatient clinics				
Interventions	Honey alone or in combination with other products, so far	Honey mixed with distilled lukewarm water				
	as the control group recieved the same product	Three different types of honey: eucalyptus (family Myrtaceae), Labiatae				
		(family Labiatae), or citrus (family Rutaceae) honeys.				
		Buckwheat honey.				
		 Honey was placebo and compared to bromelin (Ananas comosus, 				
		pineapple extract) mixed with honey.				
		 Natural honey from Kafi-Abad (a village in Yazd, Iran). 				
		"the darkest locally available honey" (Kenya).				
Controls	No treatment, placebo, honey-based cough syrup, or other	Studies compared honey with dextromethorphan, diphenhydramine,				
	over-the-counter cough medications.	salbutamol, bromelin (an enzyme from the Bromeliaceae (pineapple) family),				
0.1		no treatment, and placebo.				
Outcomes	Primary outcomes	Primary outcomes				
	1. Duration of cough.	Duration of cough. Symptomotic relief of cough (frequency of cough, reduction in				
	2. Symptomatic relier of cough (nequency of cough,	2. Symptomatic relief of cough (frequency of cough, reduction in				
	Secondary outcomes	3 Improvement in quality of sleep at night for children (couch impact on				
	1. Improvement in quality of sleep at night for children	sleen score)				
	(cough impact on sleep score)					
	2. Improvement in quality of sleep at night for caregiver	4. Improvement in quality of sleep at night for caregiver (cough impact				
	(cough impact on sleep score).	on sleep score).				
	3. Improvement in quality of life (e.g. school attendance					
	and playing).	5. Adverse effects: Reported adverse events included mild reactions				
	4. Adverse effects.	(nervousness, insomnia, and hyperactivity), gastrointestinal				
	5. Improvement in appetite.	symptoms (stomachache, nausea, diarrhoea, and vomiting), rash,				
	6. Cost of honey alone compared with other cough syrups.	tachycardia, drowsiness, and somnolence.				
Date of the most recent search: February 2018						
Limitations: Th	is is a good quality systematic review, AMSTAR = 10/11					

Citation: Oduwole O, Udoh EE, Oyo-Ita A, Meremikwu MM. Honey for acute cough in children. Cochrane Database of Systematic Reviews 2018, Issue 4. Art. No.: CD007094. DOI: 10.1002/14651858.CD007094.pub5.

Table 2: Additionnal Summary of findings

Honey compared to dextromethorphan for acute cough in children						
Patient or population: acute Setting: ambulatory	cough in children					
Intervention: honey						
Comparison: dextromethorp	han					
Comparisons and	Anticipated absolute effects * (95% CI)		Relative effect	No. of	Quality of the	
outcomes	Risk with dextromethorphan	Risk with honey	(95%Cl)	participants (studies)	evidence (GRADE)	
Frequency of cough1	The mean frequency of cough (reduction in frequency of cough score) was -1.54	MD 0.07 score lower (1.07 lower to 0.94 higher)	1	149 (2 RCTs)	LOW	
Severity of cough1	The mean severity of cough (reduction in severity of cough score) was -1.52	MD 0.13 score lower (1.25 lower to 0.99 higher)	1	149 (2 RCTs)	LOW	

Bothersome cough1		The mean bothersome cough (reduction in bothersome nature of cough score) was -1.94	MD 0.29 score higher (0.56 lower to 1.14 higher)	1	69 (1 RCT)	MODERATE
Cough impact on children's sleep1		The mean cough impact on children's sleep (cough impact on children' sleep score) was - 1.75	MD 0.03 score higher (1.12 lower to 1.19 higher)	1	149 (2 RCTs)	LOW
Cough impact on parents' sleep1		The mean cough impact on parents' sleep (cough impact on parents' sleep score) was - 1.97	MD 0.16 score lower (0.84 lower to 0.53 higher)	1	149 (2 RCTs)	LOW
Adverse events		Population				
Nervousness, insomnia, hyperactivity		3 per 100	8 per 100 (2 to 32)	RR 2. 94 (0.74 to 11.71)	149 (2 RCTs)	LOW
Stomachache, nausea, a vomiting	and	1 per 100	7 per 100 (0 to 100)	RR 4. 86 (0.24 to 97.69)	69 (1 RCT)	LOW
Drowsiness		1 per 100	4 per 100 (0 to 100)	RR 2.92 (0.12 to 69.20)	69 (1 RCT)	LOW
*The risk in the interve	ntion g	roup (and its 95% confidence interv	al) is based on the assume	ed risk in the comparis	on group and the relat	ive effect of the
intervention (and its 95%	6 CI). C	I: confidence interval; MD: mean diff	erence; RCT: randomised	controlled trial; RR: ris	sk ratio	
Additional summa	ary of	findings				
Honey compared to di	phenhy	dramine for acute cough in childre	en			
Patient or population: Setting: ambulatory Intervention: honey	acute co	ough in children				
		Outcomes Anticipated absolute	effects* (95% CI)	Relative effect	of participants	Certainty of the
outcomes	Risky	vith diphenhydramine	Risk with honey	(95% CI)	(studies)	evidence
Frequency of coursh1	Thom	han frequency of cough (reduction		1	80 (1 PCT)	
Trequency of cought	in cou	gh frequency score) was -1.73	lower to 0.24 lower)	/	00 (11(01)	LOW
Severity of cough1	The m cough	ean severity of cough (reduction in severity score) was -1.83	MD 0.6 lower (0.94 lower to 0.26 lower)	/	80 (1 RCT)	LOW
Cough impact on children's sleep1	The mean cough impact on children's sleep (cough impact on children' sleep score) was - 1.64		MD 0.55 score lower (0.87 lower to 0.23 lower)	/	80 (1 RCT)	LOW
Cough impact on parents' sleep1 The mean cough impact on parents' sleep (cough impact on parents' sleep score) was - 1.89						
	sleep score)	(cough impact on parents' sleep was - 1.89	MD 0.48 lower (0.76 lower to 0.2 lower)	/	80 (1 RCT)	LOW
Adverse event:	sleep score)	(cough impact on parents' sleep was - 1.89 Population	MD 0.48 lower (0.76 lower to 0.2 lower) 1 per 100 (0 to 20)	/ RR 0.14 (0.01	80 (1 RCT) 80 (1 RCT)	LOW
Adverse event: Somnolence	sleep score)	(cough impact on parents' sleep was - 1.89 Population 8 per 100	MD 0.48 lower (0.76 lower to 0.2 lower) 1 per 100 (0 to 20)	/ RR 0.14 (0.01 to 2.68)	80 (1 RCT) 80 (1 RCT)	LOW
Adverse event: Somnolence Honey compared to no	sleep score)	(cough impact on parents' sleep was - 1.89 Population 8 per 100 ment for acute cough in children	MD 0.48 lower (0.76 lower to 0.2 lower) 1 per 100 (0 to 20)	/ RR 0.14 (0.01 to 2.68)	80 (1 RCT) 80 (1 RCT)	LOW
Adverse event: Somnolence Honey compared to no Patient or population: Setting: ambulatory Intervention: honey Comparison: 'no treatm	sleep score)	(cough impact on parents' sleep was - 1.89 Population 8 per 100 tent for acute cough in children bugh in children	MD 0.48 lower (0.76 lower to 0.2 lower) 1 per 100 (0 to 20)	/ RR 0.14 (0.01 to 2.68)	80 (1 RCT) 80 (1 RCT)	LOW
Adverse event: Somnolence Honey compared to no Patient or population: Setting: ambulatory Intervention: honey Comparison: 'no treatm Outcomes	sleep score) • treatm acute co	(cough impact on parents' sleep was - 1.89 Population 8 per 100 ment for acute cough in children ough in children Anticipated absolute et	MD 0.48 lower (0.76 lower to 0.2 lower) 1 per 100 (0 to 20) ffects* (95% CI)	/ RR 0.14 (0.01 to 2.68) Relative effect	80 (1 RCT) 80 (1 RCT) of participants	LOW LOW
Adverse event: Somnolence Honey compared to no Patient or population: Setting: ambulatory Intervention: honey Comparison: 'no treatm Outcomes	sleep score)	(cough impact on parents' sleep was - 1.89 Population 8 per 100 tent for acute cough in children ough in children Anticipated absolute e Risk with no treatment	MD 0.48 lower (0.76 lower to 0.2 lower) 1 per 100 (0 to 20) ffects* (95% CI) Risk with honey	/ RR 0.14 (0.01 to 2.68) Relative effect (95% Cl)	80 (1 RCT) 80 (1 RCT) of participants (studies)	LOW LOW Certainty of the evidence (GRADE

O					
with: 7-point	The mean severity of cough (reduction in severity of cough	MD 1.03 score lower (1.59 lower to 0.47	/	154 (2 RCTs)	MODERATE
			1	151 (0 DOT)	MODEDATE
Severity of cough1 assessed with: 7-point	(reduction in severity of cough	(1.59 lower to 0.47	1	154 (2 RCTS)	MODERATE
Likert scale Scale from 0 to 6	score) was -1.13	lower)			
Cough impact on children's	The mean cough impact on	MD 1.04 score lower	/	154 (2 RCTs)	MODERATE
sleep1 assessed with: 7 point	children's sleep (cough impact on	(1.57 lower to 0.51			
Likert scale	children' sleep score) was - 1.28	lower)			
Scale from 0 to 6	. ,	,			
Cough impact on parents'	The mean cough impact on	MD 0 88 score lower	1	154 (2 RCTs)	MODERATE
sleen1 assessed with: 7-noint	narents' sleen (cough impact on	(1.23 lower to 0.52)	'	101 (211010)	mobelitite
likert scale	parents' sleep (cough impact of				
Soolo from 0 to 6	parents sleep score/ was - 1.40	lower)			
Adverse events Deputation	Advance events Derevlation				
Adverse events Population	Adverse events Population		-		
Nervousness, insomnia,	1 per 100	6 per 100 (1 to 33)	RR 9.40 (1.16	154 (2 RCTs)	LOW
hyperactivity			to 76.20)		
Stomachache, nausea, and	1 per 100	7 per 100 (0 to 62)	RR 5.90 (0.27	74 (1 RCT)	LOW
vomiting			to 127, 14)	(<i>'</i>	
Drowsiness	1 per 100	4 per 100 (0 to 53)	RR 3 43 (0 14	74 (1 RCT)	LOW
Browenieco			to 87 09)	/ ((((())	2011
Honoy compared to placebo	for south cough in children		10 07.03)		
Honey compared to placebo	for acute cough in children				
Patient or population: acute	cough in children				
Setting: ambulatory					
Intervention: honev					
Comparison: placebo					
Day 5					
Couch duration	The mean cough duration was 5.18	MD 0.72 days lower	1	102 (1 RCT)	
obugir duration	The mean cough duration was 5.10				
	dava	(1.21 lower to 0.12	7	102 (11101)	WODENATE
	days.	(1.31 lower to 0.13	7	102 (11(01))	MODERATE
5 () (days.	(1.31 lower to 0.13 lower)		400 (4 DOT)	MODERATE
Frequency of cough1	days. The mean frequency of	(1.31 lower to 0.13 lower) MD 0.48 score lower		102 (1 RCT)	MODERATE
Frequency of cough1	days. The mean frequency of cough (reduction in frequency of	(1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99	1	102 (1 RCT)	MODERATE
Frequency of cough1	days. The mean frequency of cough (reduction in frequency of cough score) was -1.95	(1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99 higher)	1	102 (1 RCT)	MODERATE
Frequency of cough1 Severity of cough1	days. The mean frequency of cough (reduction in frequency of cough score) was -1.95 The mean severity of cough	(1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99 higher) MD 0.43 score lower		102 (1 RCT) 102 (1 RCT)	MODERATE
Frequency of cough1 Severity of cough1	days. The mean frequency of cough (reduction in frequency of cough score) was -1.95 The mean severity of cough (reduction in severity of cough	(1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99 higher) MD 0.43 score lower (2.21 lower to 1.35		102 (1 RCT) 102 (1 RCT)	MODERATE
Frequency of cough1 Severity of cough1	days. The mean frequency of cough (reduction in frequency of cough score) was -1.95 The mean severity of cough (reduction in severity of cough score) was -1.96	(1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99 higher) MD 0.43 score lower (2.21 lower to 1.35 higher)		102 (1 RCT) 102 (1 RCT) 102 (1 RCT)	MODERATE
Frequency of cough1 Severity of cough1 Bothersome cough1	days. The mean frequency of cough (reduction in frequency of cough score) was -1.95 The mean severity of cough (reduction in severity of cough score) was -1.96 The mean bothersome cough	(1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99 higher) MD 0.43 score lower (2.21 lower to 1.35 higher) MD 0.51 score lower		102 (1 RCT) 102 (1 RCT) 102 (1 RCT)	MODERATE
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Frequency of cough1 Severity of cough1 Bothersome cough1 Cough impact on children's sleep1 Cough impact on parents' sleep Adverse events Stomachache, nausea, and vomiting Diarrhoea	days. The mean frequency of cough (reduction in frequency of cough score) was -1.95 The mean severity of cough (reduction in severity of cough score) was -1.96 The mean bothersome cough (reduction in bothersome nature of cough score) was -1.85 The mean cough impact on children's sleep (cough impact on children' sleep score) was -1.68 The mean cough impact on parents' sleep (cough impact on parents' sleep score) was - 1.54 Population 11 per 100 13 per 100	 (1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99 higher) MD 0.43 score lower (2.21 lower to 1.35 higher) MD 0.51 score lower (3.01 lower to 1.99 higher) MD 0.55 score lower (1.79 lower to 0.69 higher) MD 0.57 score lower (1.59 lower to 0.45 higher) 21 per 100 (12 to 35) 12 per 100 (4 to 34) 	/ / / / / / / / / / / / / / / / / / /	102 (1 RCT) 102 (1 RCT) 102 (1 RCT) 102 (1 RCT) 102 (1 RCT) 102 (2 RCTs) 102 (1 RCT)	MODERATE MODERATE MODERATE MODERATE MODERATE MODERATE LOW
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Frequency of cough1 Severity of cough1 Bothersome cough1 Cough impact on children's sleep1 Cough impact on parents' sleep Adverse events Stomachache, nausea, and vomiting Diarrhoea Tachycardia Only day 5 data shown	days. The mean frequency of cough (reduction in frequency of cough score) was -1.95 The mean severity of cough (reduction in severity of cough score) was -1.96 The mean bothersome cough (reduction in bothersome nature of cough score) was -1.85 The mean cough impact on children's sleep (cough impact on children' sleep score) was -1.68 The mean cough impact on parents' sleep (cough impact on parents' sleep score) was - 1.54 Population 11 per 100 13 per 100 2 per 100	(1.31 lower to 0.13 lower) MD 0.48 score lower (2.95 lower to 1.99 higher) MD 0.43 score lower (2.21 lower to 1.35 higher) MD 0.51 score lower (3.01 lower to 1.99 higher) MD 0.55 score lower (1.79 lower to 0.69 higher) MD 0.57 score lower (1.59 lower to 0.45 higher) 21 per 100 (12 to 35) 12 per 100 (4 to 34) 4 per 100 (0 to 37)	/ / / / / / RR 1.91 (1.12 to 3.24) RR 0.92 (0.33 to 2.55) RR 1.58 (0.15 to 16.86)	102 (1 RCT) 102 (1 RCT) 102 (1 RCT) 102 (1 RCT) 102 (1 RCT) 102 (1 RCT) 402 (2 RCTs) 102 (1 RCT) 102 (1 RCT)	MODERATE MODERATE MODERATE MODERATE MODERATE MODERATE LOW LOW

Honey compared to salbutamol for acute cough in children

Patient or population: acute cough in children Setting: ambulatory Intervention: honey Comparison: salbutamol

Diarrhoea

Outcomes	Anticipated absolute effects* (95% CI)		Relative effect	of participants	Certainty of	
	Risk with salbutamol	Risk with honey	(95% CI)	(studies)	the evidence (GRADE)	
Day 5						
Cough duration	The mean cough duration was 5.18 days.	MD 0.72 days lower (1.31 lower to 0.13lo	/ /	102 (1 RCT)	MODERATE	
Frequency of cough1	The mean frequency of cou (reduction in frequency of cough score) was -1.95	gh MD 0.48 score lower (2.95 lower to 1.99 higher)		102 (1 RCT)	MODERATE	
Severity of cough1	The mean severity of cough (reduction in severity of cou score) was -1.96	MD 0.43 score lower gh (2.21 lower to 1.35 higher)	. /	102 (1 RCT)	MODERATE	
Bothersome cough1	The mean bothersome coug (reduction in bothersome nature of cough score) was 1.85	gh MD 0.51 score lower (3.01 lower to 1.99 - higher)	· /	102 (1 RCT)	MODERATE	
Cough impact on children's sleep	1 The mean cough impact on children's sleep (cough impact on children's sleep score) was -2.47	MD 0.15 higher (0.04 higher to 0.26 higher)	/	100 (1 RCT)	MODERATE	
Cough impact on parents' sleep1	The mean cough impact on parents' sleep (cough impac on parents' sleep score) wa 2.33	MD 0.04 higher (0.01 higher to 0.07 s - higher)	/	100 (1 RCT)	MODERATE	
Only day 5 data shown						
Adverse events	Population	Population				
Stomachache, nausea, and vomit	ting 30 per 100	53 per 100 (31 to 88)	RR 1.74 (1.04 to 2.92)	100 (1 RCT)	MODERATE	
Rash	9 per 100	2 per 100 (0 to 15)	RR 0.19 (0.02 to 1.63)	100 (1 RCT)	MODERATE	
Tachycardia	2 per 100 4	4 per 100 (0 to 39)	RR 1.51 (0.14 to 16.10)	100 (1 RCT)	LOW	

12 per 100 (5 to 30)

RR 0.59 (0.24 to 1.45)

100 (1 RCT)

MODERATE

21 per 100

Applicability

Studies were conducted in Iran, Israel, in the USA, in Brazil and in Kenya.

Conclusions

Honey probably relieves cough symptoms to a greater extent than no treatment, diphenhydramine, and placebo, but may make little or no difference compared to dextromethorphan. Honey probably reduces cough duration better than placebo and salbutamol. There was no strong evidence for or against using honey. Most of the children received treatment for one night, which is a limitation to the results of this review. There was no difference of adverse events between the honey and control arms.

Prepared by

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