

May 2020

Interventions aimed at primary prevention of asthma

Cochrane Airways Scoping Search Report

Liz Stovold

Introduction to the scoping search report

This scoping search report describes the methods and results of scoping activities undertaken by Cochrane Airways on interventions aimed at adolescents with asthma. Interventions for primary prevention of asthma was identified as priority by the Cochrane Airways Priority Setting Group (CAPSG) as part of the Cochrane Airways ‘whole of scope’ priority setting exercise conducted in 2019/2020.

This scoping search report does not attempt to appraise or synthesise the included studies. It provides a summary of the existing evidence on this topic.

Purpose

The purpose of this scoping search report is:

- to assess what evidence exists for this topic
- to inform the development of future Cochrane Review titles
- to provide a transparent record of scoping work undertaken by Cochrane Airways

Study inclusion criteria

Population: pregnant women, babies, infants, children

Intervention: any intervention aimed at primary prevention of asthma (excluding occupational asthma)

Comparator: any

Outcomes: asthma or wheeze

Study design: systematic reviews

Literature search

A limited and very narrow/focussed literature search was conducted in the [Epistemonikos](#) database and PubMed to identify systematic reviews published in the last 10 years relevant to the topic of primary prevention of asthma.

The search strategies can be found in the [appendix](#). Searches were conducted on 20 May 2020.

Assessment of search results

The search of Epistemonikos/PubMed retrieved 28 references. One member of the Cochrane Airways team (LS) screened the titles and abstracts using the Cochrane Register of Studies triage function, and checked full-text if necessary.

Included studies

The search identified 18 related systematic reviews. The reviews are summarised in **Table 1**. The reference for each review is listed in the [References](#) section.

Table 1: Summary of reviews

Study ID	Review type	Included study types	Population	Intervention/theme	Outcome(s)	No. included studies
Azad 2013	Systematic review	RCTs	pregnancy or infancy	Probiotics	asthma/wheeze	20
Beckhaus 2015	Systematic review	Cohorts	Pregnancy	nutrition	asthma, wheezing, eczema, or other atopic disease	32
Best 2019	Protocol for Cochrane systematic review	RCTs	Pregnancy, infancy	Vitamin D	asthma/wheeze	-
Cuello-Garcia 2017	Systematic review	RCTs	pregnant women, breastfeeding mothers, and infants	Prebiotics	atopic dermatitis, asthma/wheeze, food allergies	22
Garcia-Larsen 2016	Overview of systematic reviews	Systematic reviews	General population	Dietary intake	asthma	7
Güngör 2019	Five systematic reviews	Quantitative, controlled studies	Birth to adulthood	Feeding human milk; duration of human milk feeding; duration of exclusive human milk feeding;	food allergy, atopic dermatitis, allergic rhinitis, atopic disease, or asthma	73
He 2012	Systematic review	?	pregnancy or infancy	Probiotics	asthma	?
Hosseini 2017	Systematic review	Experimental, cohort, case-control, cross-sectional	All age groups	fruit and vegetable intake	asthma/wheeze; immune response	30
Lodge 2015	Systematic review	RCTs, nonRCTs, observational	infants	Breastfeeding	asthma, allergies	89
Muley 2015	Systematic Review	RCTs	Infants, children	omega-3 fatty acid supplementation	asthma/wheeze	5
Nurmatov 2011	Systematic review	Cohorts, case-control, cross-sectional	pregnant women, infants, and children ≤16 years	Nutrient and food intake (selenium; zinc; vitamins A, C, D, and E; mediteranean diet)	asthma/wheeze, allergies	62
Obbagy 2019	Two systematic reviews	Quantitative, controlled studies	Infants; toddlers	Timing of introduction to	food allergy, atopic dermatitis, allergic	39

				complementary feeding; type/amount of complementary feeding	rhinitis, atopic disease, or asthma	
Quinn 2019	Protocol for systematic review	Any study design	infants born early pre-term up to term, and followed up from infancy to childhood (1–10 years)	prophylaxis with a monoclonal antibody for prevention of RSV-bronchiolitis	recurrent wheeze or asthma	-
Seyedrezazadeh 2014	Systematic reviews	Cohorts, case-control, cross-sectional	All age groups, incl. pregnancy	fruit and vegetable consumption	asthma/wheeze	42
Shen 2018	Systematic review	RCTs, cohorts	Pregnancy, infants	Vitamin D levels & intake	asthma, wheeze	36
Wu 2018	Systematic review	Observational studies	Pregnancy	Vitamin E	asthma, wheeze	19
Yepes-Nunez 2017	Systematic review	RCTS, non-RCTS	pregnant women, breastfeeding women, infants and children	Vitamin D	atopic dermatitis, allergic rhinitis, asthma/wheeze, food allergies	5
Zuccotti 2015	Systematic review	RCTS	pregnancy or early infancy	Probiotics	atopic dermatitis, asthma/wheeze, rhinoconjunctivitis	17

References

Systematic Reviews

Azad MB, Coneys GJ, Kozyrskyj Prof AL, Field Prof CJ, Ramsey Prof CD, Becker AB, Friesen C, Abou-Setta AM, Zarychanski R. Probiotic supplementation during pregnancy or infancy for the prevention of asthma and wheeze: systematic review and meta-analysis *BMJ (Clinical research ed.)* **2013**: 347 ; f6471

Beckhaus AA, Garcia-Marcos L, Forno E, Pacheco-Gonzalez RM, Celedon JC, Castro-Rodriguez JA. Maternal nutrition during pregnancy and risk of asthma, wheeze, and atopic diseases during childhood: a systematic review and meta-analysis. *Allergy* **2015**: 70 (12) ; 1588-1604

Best CM, Xu J, Patchen BK, Cassano PA. Vitamin D supplementation in pregnant or breastfeeding women or young children for preventing asthma *Cochrane database of systematic reviews (Online)* **2019**: (8)

Cuello-Garcia C, Fiocchi A, Pawankar R, Yepes-Nunez JJ, Morgano GP, Zhang Y, Agarwal A, Gandhi S, Terracciano L, Schunemann HJ, Brozek JL. Prebiotics for the prevention of allergies: a systematic review and meta-analysis of randomized controlled trials *Clinical and experimental allergy* **2017**: 47 (11) ; 1468-1477

Garcia-Larsen V, Del Giacco SR, Moreira A, Bonini M, Charles D, Reeves T, Carlsen KH, Haahtela T, Bonini S, Fonseca J, Agache I, Papadopoulos NG, Delgado L. Asthma and dietary intake: an overview of systematic reviews *Allergy* **2016**: 71 (4) ; 433-442

Güngör D, Nadaud P, LaPergola CC, Dreibelbis C, Wong YP, Terry N, Abrams SA, Beker L, Jacobovits T, Järvinen KM, Nommsen-Rivers LA, O'Brien KO, Oken E, Pérez-Escamilla R, Ziegler EE, Spahn JM. Infant milk-feeding practices and food allergies, allergic rhinitis, atopic dermatitis, and asthma throughout the life span: a systematic review *American journal of clinical nutrition* **2019**: 109 (Suppl_7) ; 772S-799S

He M, Wang T, Zhang H-P, Jia C-E, Xiong X-Y, Wang G, Ji Y-L. Probiotics for prevention and treatment of bronchial asthma: a systematic review *Chinese journal of evidence-based medicine* **2012**: 12 (4) ; 460-469

Hosseini B, Berthon BS, Wark P, Wood LG. Effects of Fruit and Vegetable Consumption on Risk of Asthma, Wheezing and Immune Responses: a Systematic Review and Meta-Analysis *Nutrients* **2017**: 9 (4) ; 1-26

Lodge CJ, Tan DJ, Lau MX, Dai X, Tham R, Lowe AJ, Bowatte G, Allen KJ, Dharmage SC. Breastfeeding and asthma and allergies: a systematic review and meta-analysis *Acta paediatrica* **2015**: 104 (467) ; 38-53

Muley P, Shah M, Muley A. Omega-3 Fatty Acids Supplementation in Children to Prevent Asthma: is It Worthy?-A Systematic Review and Meta-Analysis *Journal of allergy* **2015**: 2015 (no pagination) ; 312052

Nurmatov U, Devereux G, Sheikh A. Nutrients and foods for the primary prevention of asthma and allergy: systematic review and meta-analysis *Journal of allergy and clinical immunology* **2011**: 127 (3) ; 724-33.e1-30

Obbagy JE, English LK, Wong YP, Butte NF, Dewey KG, Fleischer DM, Fox MK, Greer FR, Krebs NF, Scanlon KS, Stookey EE. Complementary feeding and food allergy, atopic dermatitis/eczema, asthma, and allergic rhinitis: a systematic review *American journal of clinical nutrition* **2019**: 109 (Suppl_7) ; 890S-934S

Quinn LA, Shields MD, Groves HE. Respiratory syncytial virus prophylaxis for prevention of recurrent childhood wheeze and asthma: a protocol for a systematic review *Systematic reviews* **2019**: 8 (1) ; 333

Seyedrezazadeh E, Moghaddam MP, Ansarin K, Vafa MR, Sharma S, Kolaheidoz F. Fruit and vegetable intake and risk of wheezing and asthma: a systematic review and meta-analysis *Nutrition reviews* **2014**: 72 (7) ; 411-428

Shen S-Y, Xiao W-Q, Lu J-H, Yuan M-Y, He J-R, Xia H-M, Qiu X, Cheng KK, Lam KBH. Early life vitamin D status and asthma and wheeze: a systematic review and meta-analysis *BMC pulmonary medicine*. *18(1):120, 2018 jul 20*. **2018**: 18 (1) ; 120

Wu H, Zhang C, Wang Y, Li Y. Does vitamin E prevent asthma or wheeze in children: a systematic review and meta-analysis *Paediatric respiratory reviews* **2018**: 27 (pp 60-68) ; 60-68

Yepes-Nunez JJ, Brozek JL, Fiocchi A, Pawankar R, Cuello-Garcia C, Zhang Y, Morgano GP, Agarwal A, Gandhi S, Terracciano L, Schunemann HJ. Vitamin D supplementation in primary allergy prevention: systematic review of randomized and non-randomized studies *Allergy* **2017**: 73 (1) ; 37-49

Zuccotti G, Meneghin F, Aceti A, Barone G, Callegari ML, Di Mauro A, Fantini MP, Gori D, Indrio F, Maggio L, Morelli L, Corvaglia L; Italian Society of Neonatology. Probiotics for prevention of atopic diseases in infants: systematic review and meta-analysis *Allergy* **2015**: 70 (11) ; 1356-1371

Randomized controlled trials

Appendix: Database search strategies

Cochrane Airways Register of Trials via The Cochrane Register of Studies

Epistemonikos

Asthma prevention

PubMed

1. Search terms: Asthma prevention systematic review
2. Followed by checking 'similar articles'