

Nutrition to nurture our future

Systematic review: Findings and Implications

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Background

Work history

- Paediatric homecare nurse Hawke's Bay
- ~10 years in the Special Care Baby Unit (SCBU) in Hawke's Bay

Study history

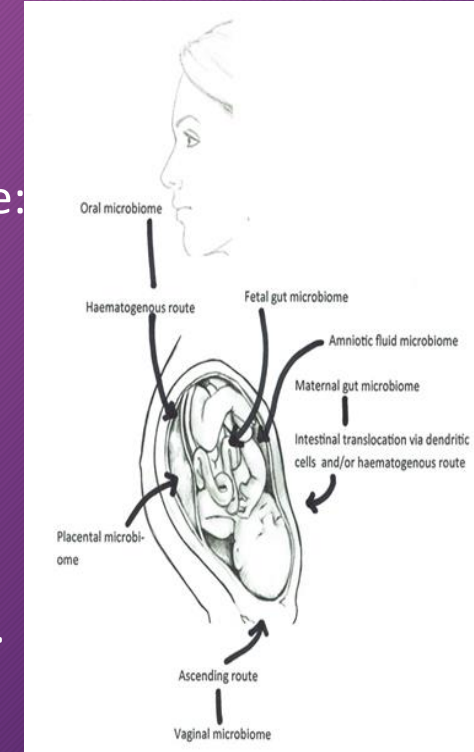
- Postgraduate papers with Gail Corbett
- Interest in gut development especially immune development

Does Maternal Diet in Pregnancy Affect Allergy and Atopy Outcomes in Offspring?

Background literature

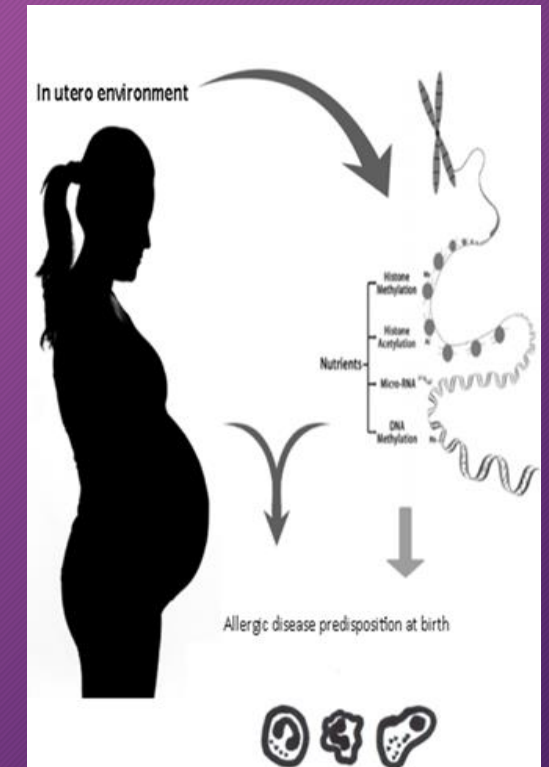
Developmental origins of adult disease

- Barker, D. J. P., Eriksson, J. G., Forsén, T., & Osmond, C. (2002). Fetal origins of adult disease: strength of effects and biological basis. *International Journal of Epidemiology*, 31(6), 1235-1239. <http://dx.doi.org/10.1093/ije/31.6.1235>
- The developing microbiome
- Neu, J. (2015). Developmental aspects of maternal-fetal, and infant gut microbiota and implications for long-term health. *Maternal Health, Neonatology and Perinatology*, 1(1), 6. <http://dx.doi.org/10.1186/s40748-015-0007-4>



Adapted from Nuriel-Ohayon, Neuman, and Koren (2016)

- Both pre- and post natal stimulation is important for the optimal development of the immune system
- West, C. E., Jenmalm, M. C., & Prescott, S. L. (2015). The gut microbiota and its role in the development of allergic disease: A wider perspective. *Clinical and Experimental Allergy*, 45(1), 43-53. <http://dx.doi.org/10.1111/cea.12332>
- The Growing Up in New Zealand study and maternal diet in pregnancy
- Morton, S. M., Grant, C. C., Wall, C. R., Carr, P. E. A., Bandara, D. K., Schmidt, J. M., . . . Camargo, C. A. (2014). Adherence to nutritional guidelines in pregnancy: evidence from the Growing Up in New Zealand birth cohort study. *Public Health Nutrition*, 17(9), 1919-1929. <http://dx.doi.org/10.1017/S1368980014000482>



Adapted from Lockett, Huoman, & Holloway (2015)

Research aims of the systematic review

Are there any dietary changes that can be made during pregnancy that impact the allergy and atopy outcomes of the offspring?

Are there any consistent findings in studies that have been undertaken?

How can these findings be used in New Zealand?

Inclusion criteria

Randomised controlled trials and cohort studies that investigated the effect of maternal diet (food and/or supplementation) in pregnancy and/or lactation on the allergy and/or atopy outcomes of the offspring

Systematically recorded maternal intake of food and/or supplements

Outcomes assessed in the review were asthma, wheeze, eczema and allergic rhinitis

English language

Exclusion criteria

Studies with a focus on participants with a genetic predisposition for conditions that may affect the generalisability of this review will not be included

This review was not focused on food allergy therefore studies looking at diet for food allergen avoidance were not included

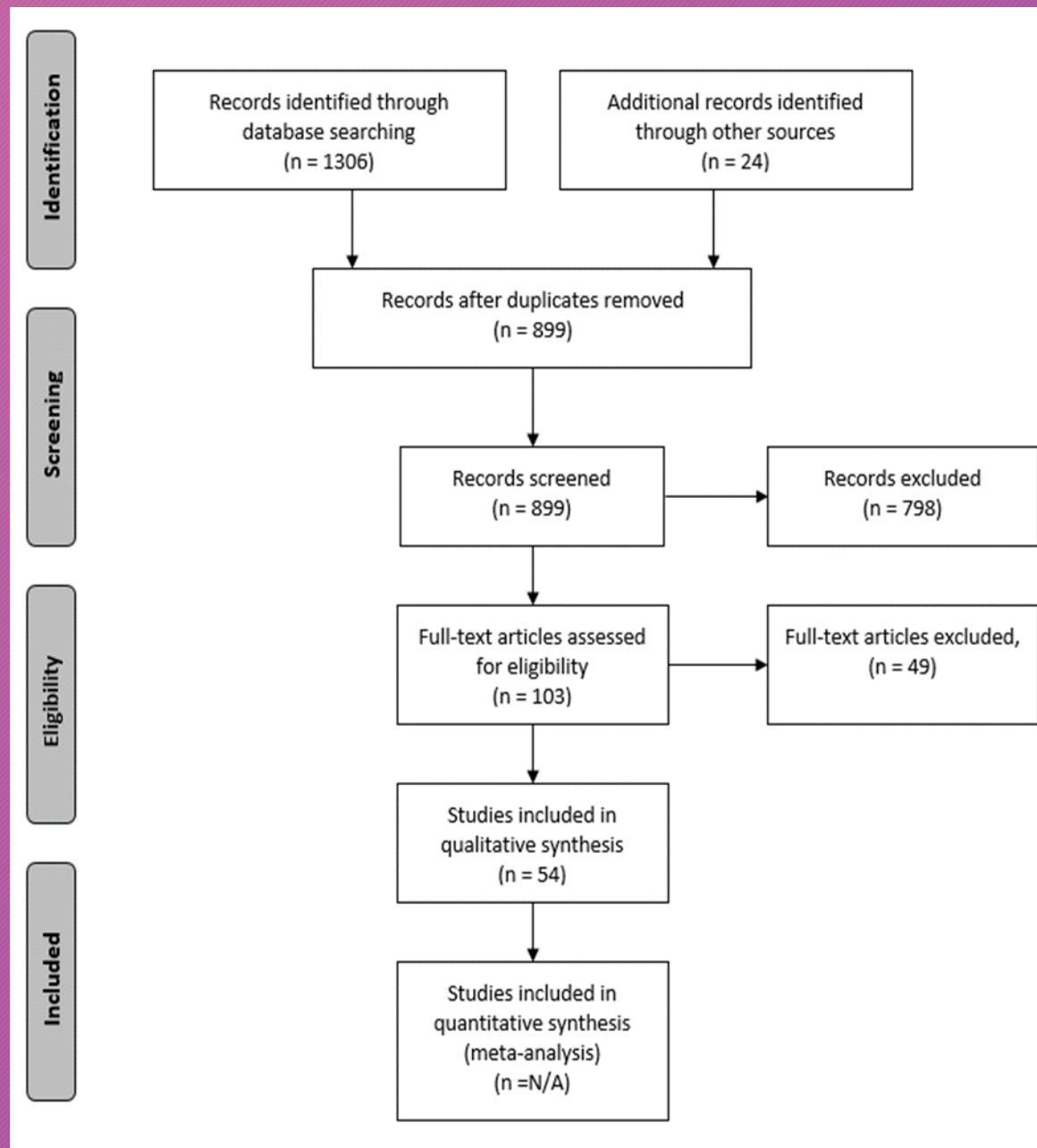


Figure [1]. Prisma flow diagram adapted from: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097)

Methods

Cochrane
approach

Data
extraction of
54 studies

Grade
Summary of
findings tables

Findings:

Within the context of this systematic review

There were no supplements consistently shown to decrease allergy and asthma

There was no food type, group or diet consistently shown to decrease allergy and asthma

Points to consider

- Complexity of food and supplement interactions in the human body
- Differences in study design -
 - method of measurement of intake
 - method of measurement of outcome
 - significant differences in supplement dosage
- Multiple confounding factors

Points to consider (continued)

Healthy eating in pregnancy is associated with better health outcomes for mother and offspring but is not consistently associated with allergic disease

The background literature for this review seemed to show that maternal diet in pregnancy could affect offspring allergy outcomes

The NZ Ministry of Health recommendations for healthy eating in pregnancy are well supported by the literature

Further areas for study

Possibility of a multi-national study with set measurements for intake reporting and in-person outcome assessments

Is nutritional assessment best undertaken for individual food types or dietary patterns?

How to make the Ministry of Health recommendations easily available and user friendly to pregnant women in NZ

How does this affect nurses and other health professionals?

- Can we as NICU/SCBU nurses improve the diets of mother's in our units?
- What knowledge are we given and how can we share it?
- Can we do this without making mothers feel guilty (responsibilisation)
- What tools are already available?
- What is needed?



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