

Environmental Exposures Influence on the Antenatal Microbiome and Health of Offspring



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Disclosure

- We have no conflicts of interest, sponsorships or commercial support to report

Objectives:

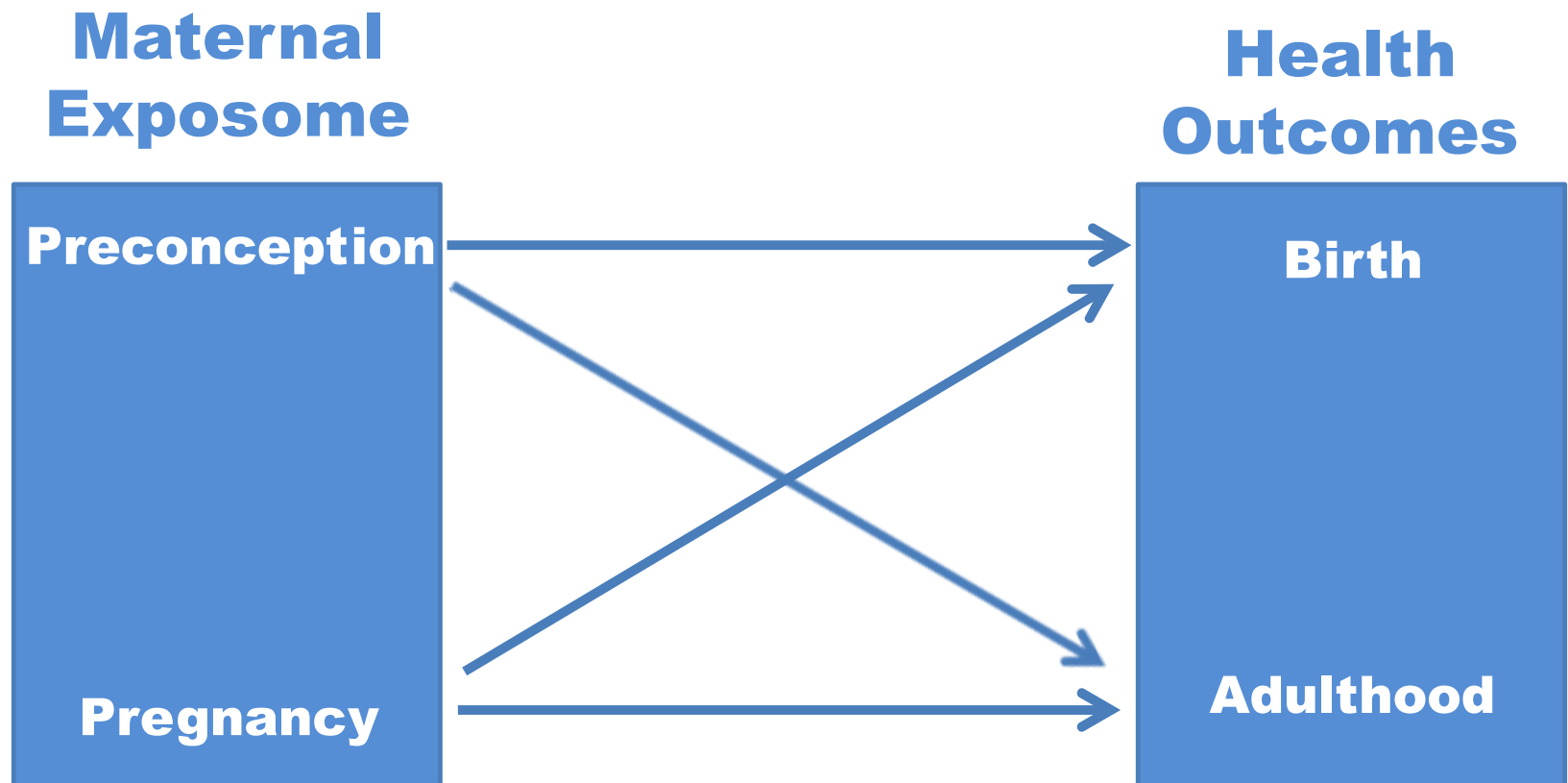
- Identify exposures that may alter the maternal microbiome
- Discuss potential health implications for offspring health related to altered antenatal microbiome composition

Outline

- Background
- Methods
- Results
- Discussion



Interaction between Maternal & Fetal Environments



Mechanisms influencing Development

Endogenous Factors

- Genetic Variant
- Neurohormones
- Oxidative Stress
- Inflammation



Exogenous Exposures

(Exposome)

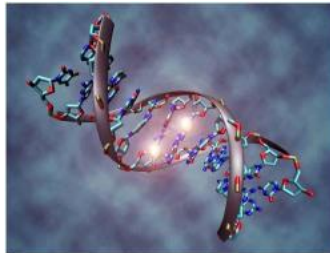
- Stress
- Medications
- Diet
- Pollutants

Contributors to Fetal Programming During Pregnancy

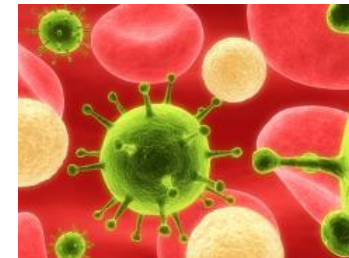
Fetal Environment

Maternal Exposome

Altered initial microbiome composition associated with altered methylation



Altered gut microbiome influences development of HPA axis responsiveness



Offspring

- Microbiome/Immunity
- HPA Axis Responsiveness
- DNA Methylation
- Telomere Length

Susceptibility to Diseases



2 Questions:

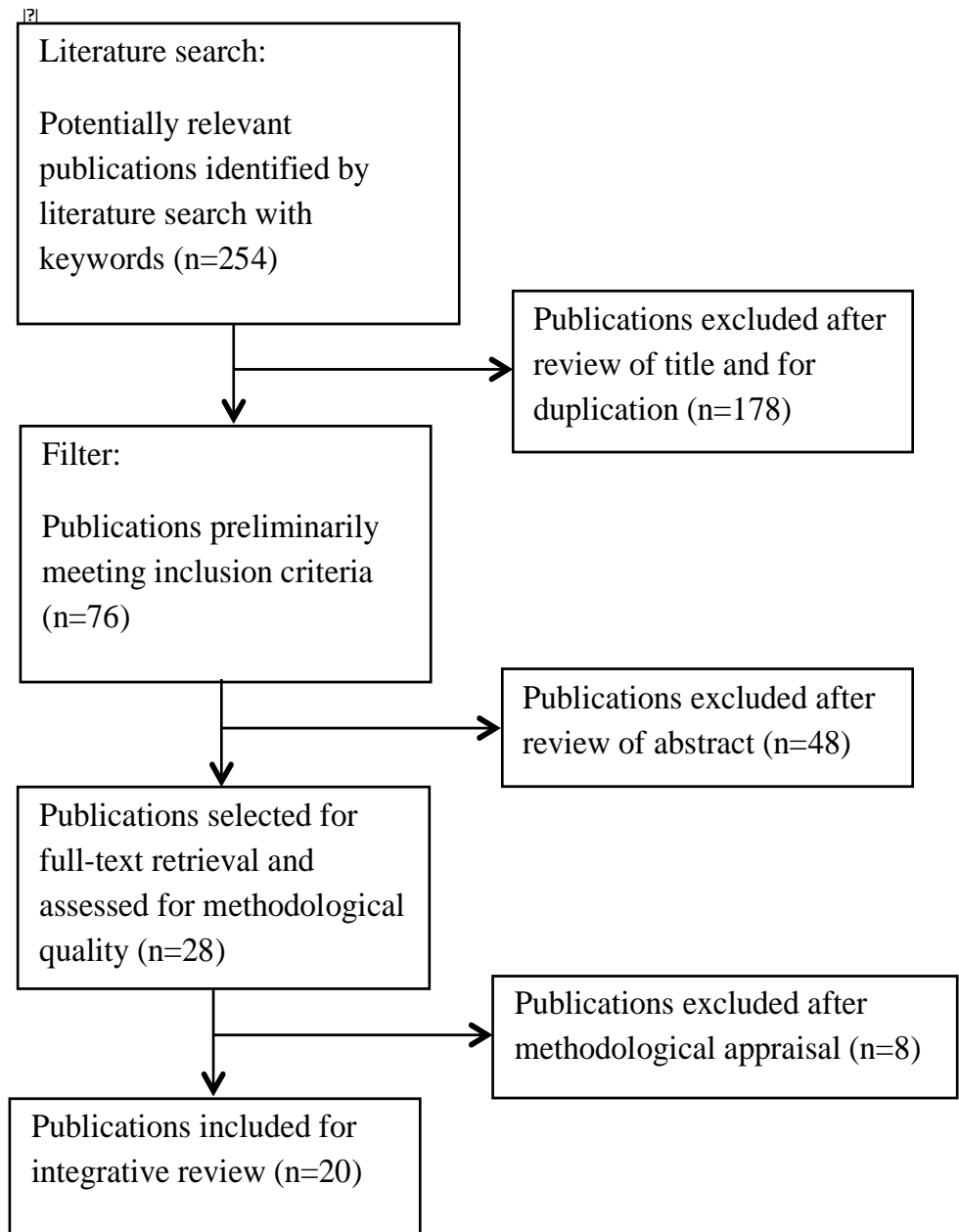
1. What is known about the antenatal microbiome?
2. Do variations in the antenatal microbiome influence offspring health?



Integrative Review

Key words:

- Microbiome
- Microbiota
- Antenatal period
- Pregnancy
- Offspring
- Birth outcomes

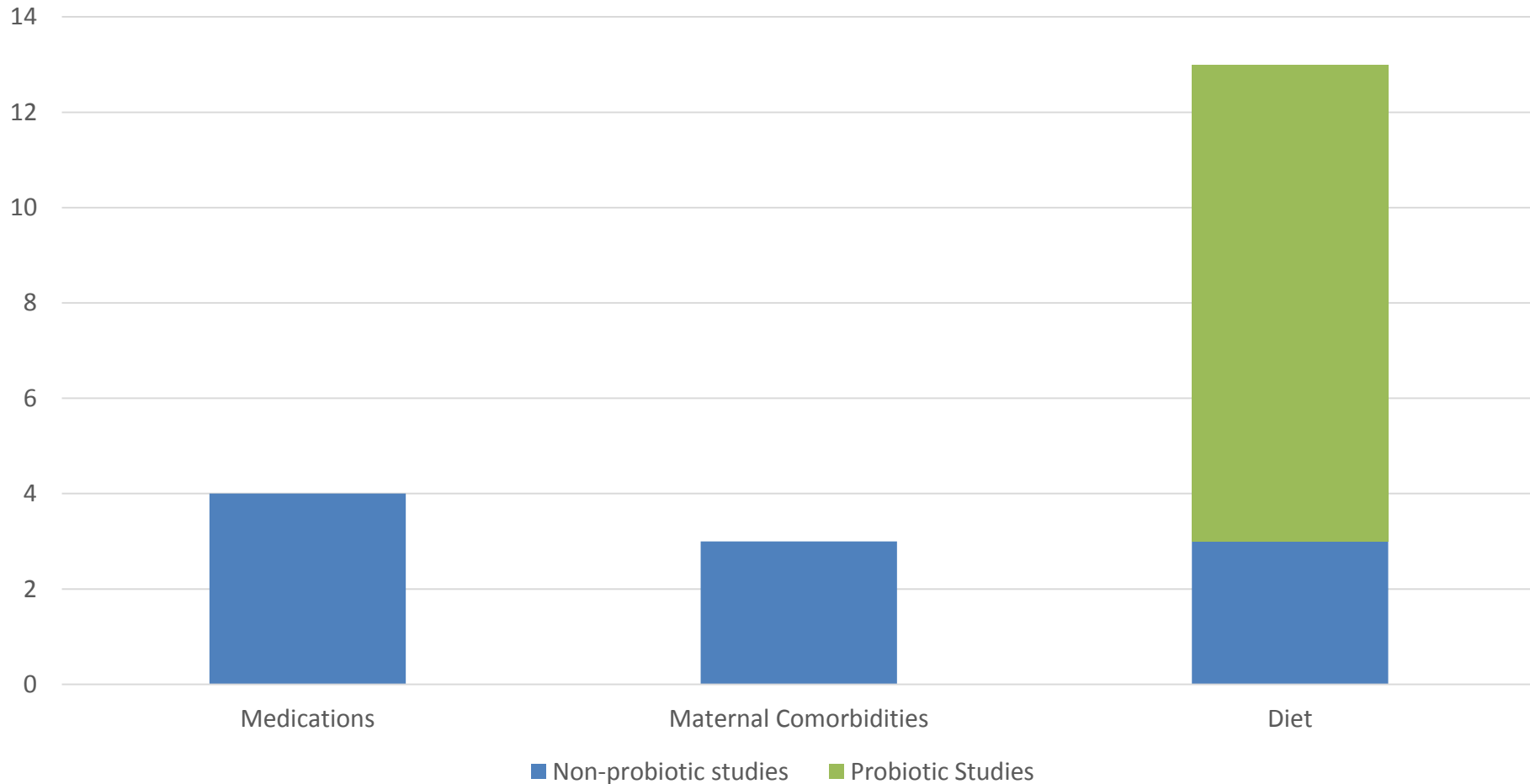


Results Overview

- Small sample sizes
- Observational and randomized control trials
- Ambiguous findings



Main factors identified



Potential Health Implications



Clinical Implications

- Mode of birth
- Infant feeding
- Environmental toxicants
- Antibiotic use



Thank you!

Questions?

Recently accepted for publication:

Wright, ML., Starkweather, AR. (2015). Antenatal Microbiome: Potential Contributor to Fetal Programming and Establishment of the Microbiome in Offspring. *Nursing Research*. (In press, online ahead of print)

