

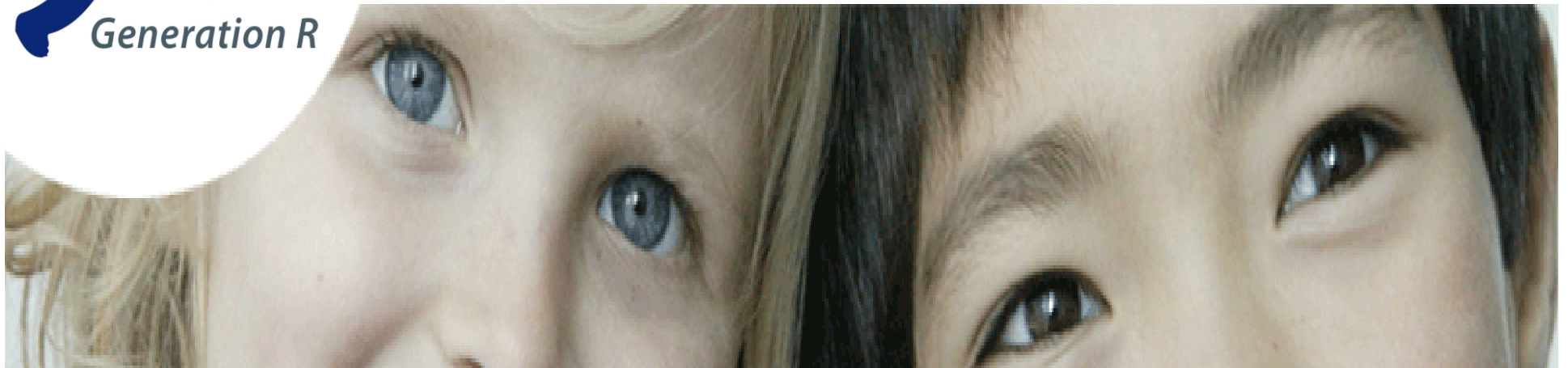
Maternal haemoglobin levels during pregnancy and asthma in childhood

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Disclosure Statements

Financial Disclosure Statement

The authors declare to have no financial relationships relevant to this article to disclose

Conflict of Interest Statement

The authors declare that they have no conflicts of interest



Background

Asthma prevalence has increased past few decades

Highest incidence occurring in children

Maternal factors associated with asthma in offspring

Background

Nutrients and oxygen supply to the fetus critical factor for health and development

Low and high haemoglobin levels during pregnancy →
suboptimal fetal oxygen and nutrients supply →
adverse birth outcomes

Several studies examined the association with adverse birth outcomes

One study examined the association with respiratory outcomes

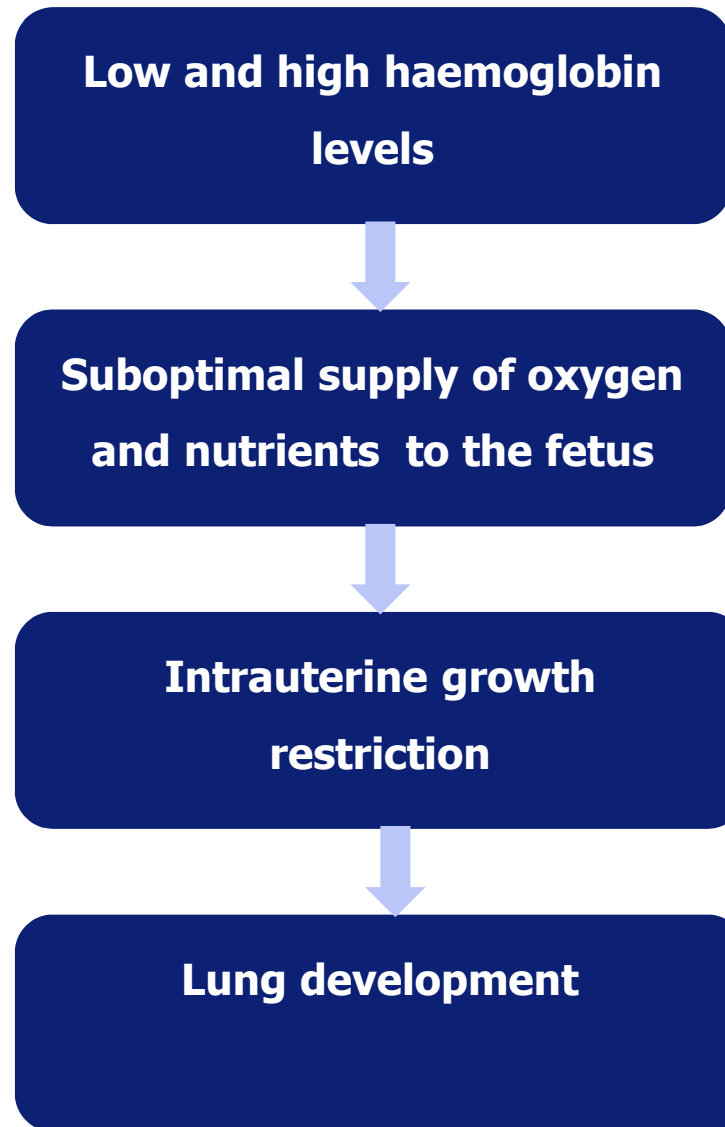
Maternal anaemia associated with wheeze < age 3 years

Maternal anaemia associated with asthma among asthmatic mothers

(Triche et al, Ann Allergy Asthma Immunol, 2011)



Hypothesis



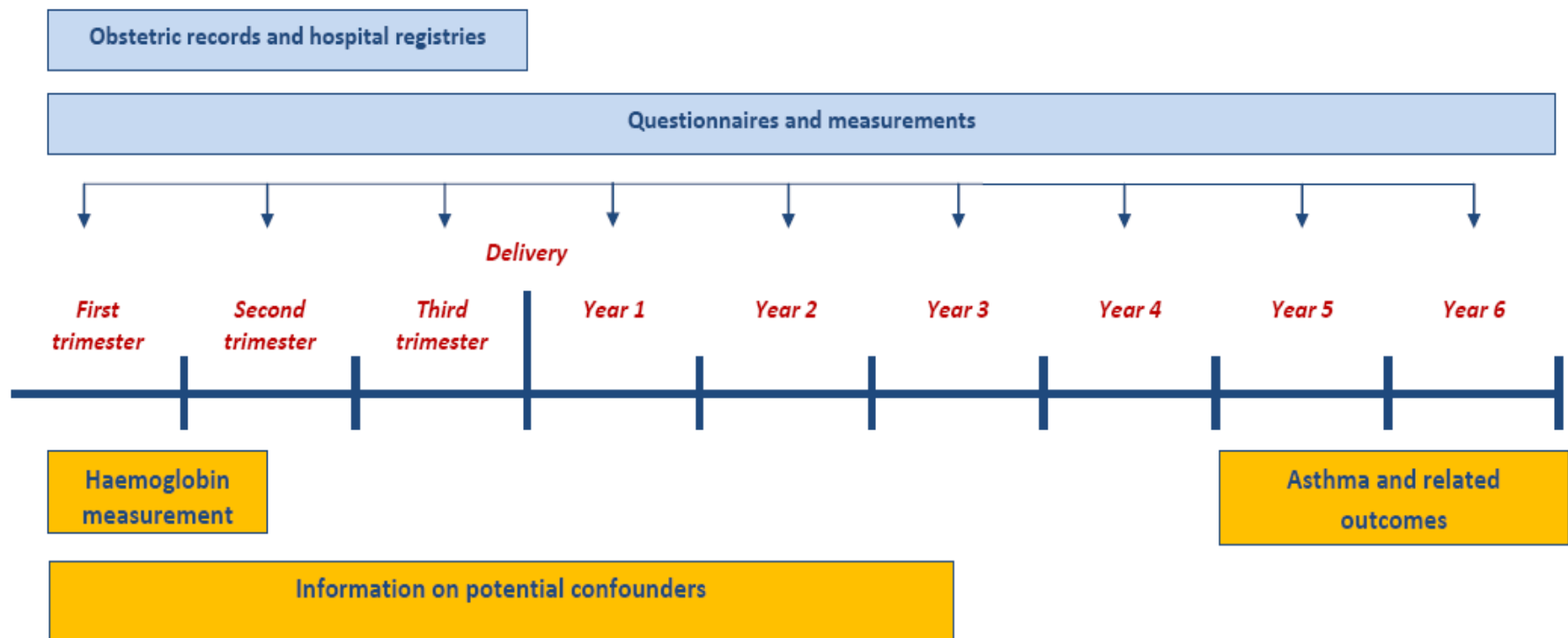
Objective

To examine whether maternal haemoglobin levels during pregnancy are associated with asthma and related outcomes in the offspring

Methods

Design

Population based prospective cohort study (2002-2006)



Jaddoe et al, Eur J Epidemiol, 2012

Methods

Haemoglobin concentrations

Low haemoglobin: <6.8 mmol/l

High haemoglobin: ≥ 8.2 mmol/l

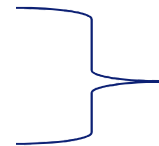
Asthma and related outcomes

Wheezing

Physician diagnosed asthma ever

Fractional Exhaled nitric oxide (FeNO)

Airway resistance (Rint)



Parent reported questionnaires



Visit research center

Data analysis

Logistic and linear regression analyses

Adjustment for potential confounders

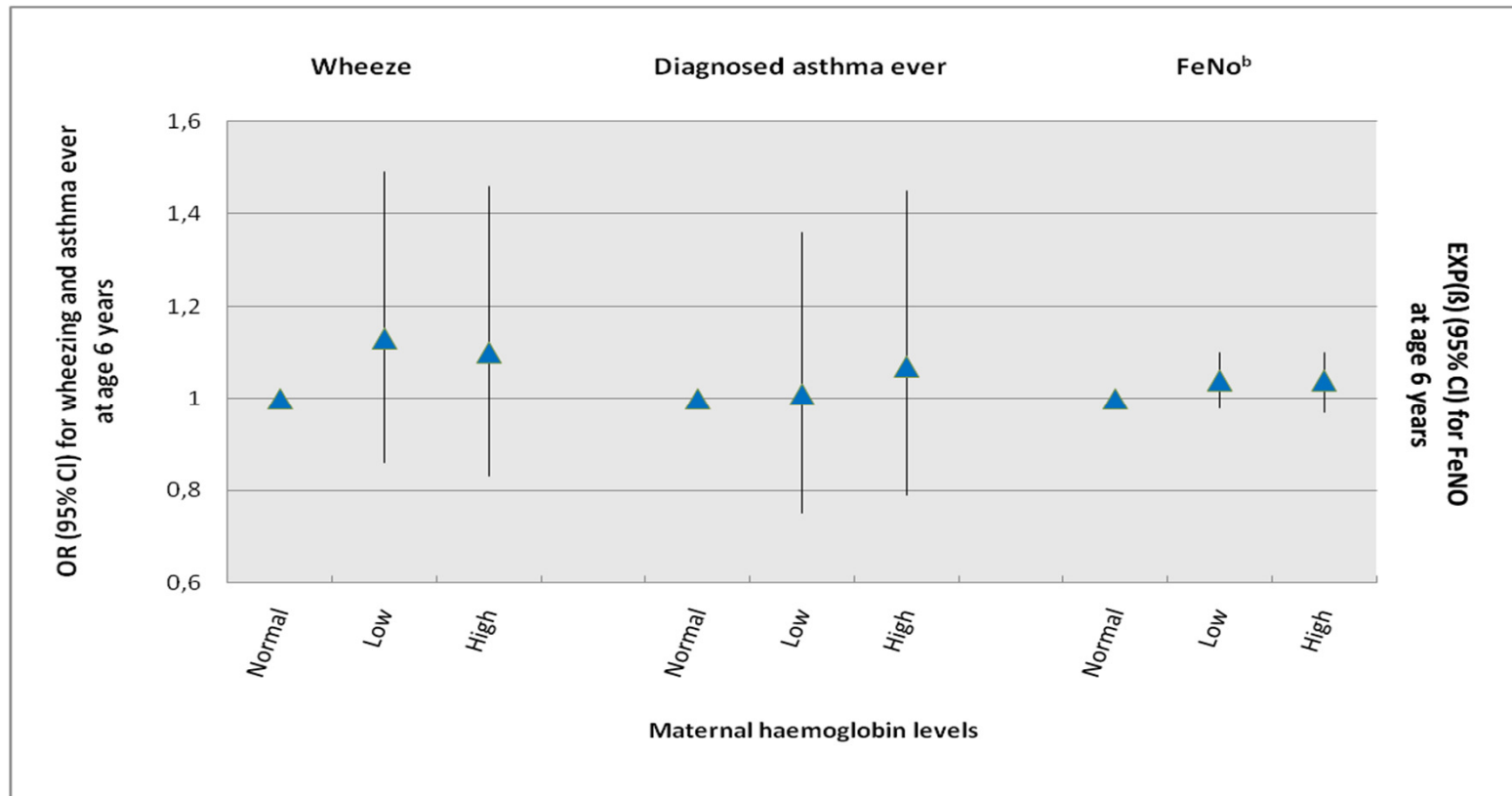


Results

Haemoglobin levels	(N=6229)
Normal	4509 (72%)
Low	810 (13%)
High	909 (15%)

Asthma and related outcomes	
Wheezing	845 (14%)
Asthma ever	619 (10%)
FeNO (Median (range))	7.39 (0.1-119.0)
Rint (Mean \pm SD)	-0.11 (3.58)

Results



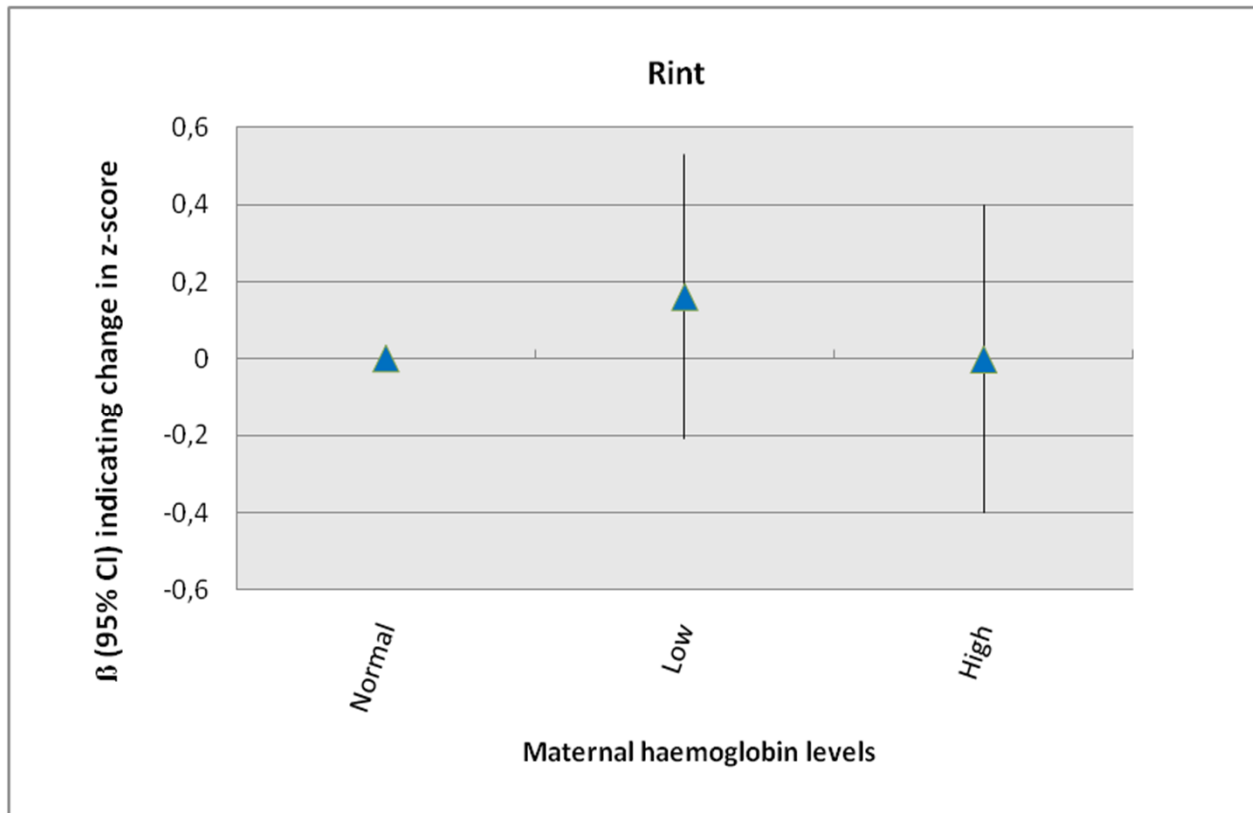
Adjusted for gestational age at blood sampling, maternal age, maternal ethnicity, maternal educational level, household income per month, maternal BMI before pregnancy, family history of atopy, gender child, smoking during pregnancy, folic acid intake, maternal complications during pregnancy, caesarean section, birth weight z-score, breastfeeding, multiparity, history of cow's milk allergy first year, vitamin D supplementation, day-care attendance.



^b Additionally adjusted for FeNO technique.



Results



Discussion

Strengths

Objective measurement of haemoglobin concentrations

Adjusted for gestational age at blood sampling

Limitations

Information wheezing and asthma diagnosis obtained by parent-reported questionnaires

Conclusion

Maternal haemoglobin levels during pregnancy are not associated with asthma or related outcomes in the offspring until the age of 6 years

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