

# IMPACT OF MATERNAL OBESITY ON NEURAL TUBE DEFECTS AND CARDIOVASCULAR ANOMALIES: ABSOLUTE RISK AND TEMPORAL TRENDS

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**Background and Aims:** UK guidelines advocate that obese pregnant women (body mass index, BMI $\geq$ 30kg/m<sup>2</sup>) be made aware of the increased risks to them and their offspring. This study pooled data from several sources to derive estimates of the absolute and attributable risks of neural tube defects and cardiovascular anomalies for obese women in England, and predict changes in prevalence resulting from trends in BMI.

**Methods:** The BMI profile of the maternal population of England and of the prevalence of each outcome were obtained from nationally representative sources. Trends in BMI were modelled by logistic regression. Risk ratios for neural tube defect and cardiovascular anomaly were derived from Stothard *et al.* Absolute risks, attributable risks, and future prevalence were estimated.

**Results:** The estimated absolute risks of a neural tube defect or cardiovascular anomaly for an obese pregnant woman in England are 19 (95% confidence interval, CI=1.6-2.2) and 75 (95% confidence interval, CI=66-84) per 10,000 births respectively, compared to 10 (95% CI=9.5-11.4) and 60 (95% CI=67-63) per 10,000 births respectively for women of recommended BMI (25-29kg/m<sup>2</sup>). An estimated 9.8% (95% CI=5.6-14.1) of neural tube defects and 3.0% (95% CI=0.5-5.4) of cardiovascular anomalies in England are attributable to maternal obesity.

If trends in maternal BMI continue, 24.0% (95% CI=22.1-25.9) of the maternal population of England will be obese by 2020. This is predicted to result in increases of 6.5% and 4.3% respectively in the prevalences of neural tube defects and cardiovascular anomalies compared with the prevalence in 2010.

**Conclusions:** This study provides estimates of the individual risk and population burden of neural tube defects and cardiovascular anomalies in England resulting from maternal obesity. The results have implications for public health planning and for providing clear information to obese women about their pregnancy-related risks.

**References:**

Stothard *et al* (2009). *JAMA* 301: 636-650