

## Maternal vulnerability and birth interval in England: a retrospective analysis of hospital episode statistics

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### Introduction

Several studies have shown that a short birth interval is associated with increased risks of adverse perinatal outcomes (e.g.: preterm birth, stillbirth) and neonatal and maternal death. It is unclear whether this relationship is likely to be causal or to reflect confounding due to psychosocial vulnerability.

### Conclusion/Implications

Vulnerable mothers had a shorter subsequent birth interval and an increased risk of birth in the next five years. Maternity care may be an appropriate time to target interventions to vulnerable families to enable choice about timing of subsequent pregnancy.

### Objectives and Approach

To determine the association between birth interval for mothers with and without indicators of vulnerability.

Using Hospital Episode Statistics for England, we included mothers with a live birth in 2011. Vulnerability indicators were codes for mental health problems, adversity related injury (ARI), material or social disadvantage (M/SD) recorded in admissions in the previous five years, or age

Time (in days) to next delivery within five years was analysed using Cox proportional hazard regression models and adjusted for maternal age, parity, multiple and preterm birth.

### Results

Of 636,876 women delivering in 2011, 93,266 (14.6%) had indicators of vulnerability: 63,421 (10.0%) for mental health problems, 8,229 (1.2%) for an ARI, 21,616 (3.4%) for M/SD, and 32,622 (5.1%) were teenage mothers.

Over a third of mothers (242,401; 38.1%) had another live birth within five years. Median time to next delivery was 957 days (5-95% centiles: 433-1694), and was longest for teenage mothers (979 days, 391-1726), and shortest for women with ARIs (904 days, 391-1697).

Vulnerable mothers were more likely than women with no vulnerability indicators to have another live birth (HRadj: 1.13, 95%CI: 1.12-1.14): risks were independently increased for teenage mothers (HRadj: 1.53, 1.50-1.55), women with an ARI (HRadj: 1.15, 1.11-1.19) or mental health problems (HRadj: 1.05, 1.03-1.06).

