

## How does having cystic fibrosis impact on birth weight? A population level data linkage study in Wales

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### Objective

To assess the impact of CF on birthweight and the extent to which this is mediated by gestational age.

### Methods

We used the Secure Anonymised Information Linkage (SAIL) data- bank to collect perinatal data on all children born in Wales at more than 35 weeks gestation between the years 1998 and 2014. Disease-specific codes documented in hospital admission and GP records were used to identify children with CF. We used linear regression to undertake a causal mediation analysis to assess the impact of CF on birthweight, and the extent to which this is mediated by gestational age at birth, whilst adjusting for clinically important covariates.

### Findings

The data set included 513,717 children, of which 301 have CF. Children with CF in Wales were on average 161g (95% CI: 213g – 106g) lighter than children without CF. 37% (95% CI: 23%-56%) of the effect of CF on birthweight was mediated by gestational age, with children with CF on average being born 2.7 days (95% CI: 1.6days – 3.9days) earlier than children without CF.

### Discussion

In Wales children with CF are born lighter than children without CF and this is only partly due to shorter gestation. This suggests that CF has important impacts on intrauterine growth. Further data-linkage is ongoing, to allow adjustments for meconium ileus status at birth, maternal health, smoking and socio-economic status.