

Comparison of child mortality by characteristics at birth in England and in Sweden using linked administrative data

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Objectives

England has one of the highest child mortality rates in Western Europe, while Sweden has one of the lowest. These differences suggest that improvements in early life mortality should be achievable in England. However, policy makers need to know when in the life course to target interventions to prevent the largest number of deaths in early life, e.g. by addressing the prevalence of risk factors at birth (such as preterm birth or low birthweight), or improving the care of babies after birth. This study aims to compare child mortality in England and in Sweden using whole country birth cohorts based on linked administrative health databases in order to determine whether the disparities are driven by risk factors operating before or after birth.

Approach

We created birth cohorts from a national birth register (Sweden) and a hospital admission database (England). These were linked to longitudinal hospital data and death registration data. All singleton live births for 2003-2012 were included and followed from birth up to five years. We compared mortality in England and in Sweden using Cox proportional hazard model with characteristics at birth (gestation, birthweight, gender, maternal age, congenital malformations), socio-economic status and country as covariates.

Results

The study cohort comprised 1,047,192 children in Sweden and 6,117,693 children in England. 2,820 of cohort children died in Sweden (0.3%) and 28,434 in England (0.5%).

Preliminary results showed that under-5 mortality was almost twice as high in England as in Sweden (5.1 deaths per 1000

live births, 95% confidence interval (CI): 5.0/1000-5.2/1000 vs 3.0/1000, 95% CI: 2.9/1000-3.2/1000). Mortality rates were 45% higher in England during infancy, but only 15% higher in early-childhood (1-4 years). Children with congenital malformations were at similar risk of death in England (33.9/1000, 95% CI: 32.9/1000-34.8/1000) as in Sweden (32.7/1000, 95% CI: 29.5/1000-35.8/1000). The prevalence of congenital malformations, however, was twice as high in England (5.1% vs 2.6%).

Conclusion

Our preliminary results suggest that the disparities in early-childhood mortality were partly driven by increased prevalence of congenital malformations in England relative to Sweden, as mortality rates within this group were comparable. Individual-level data from birth cohorts constructed using linked administrative health databases enable comparing mortality among children with the same combinations of risk factors at birth. Such analyses can inform policy makers whether resources to prevent early-life mortality are most effectively targeted at improving the health of pregnant women, neonatal care, or supporting families with young children.

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