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A comparison of child mortality from potentially preventable causes in England and Sweden using birth cohorts from linked administrative datasets

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Introduction

Child mortality is nearly twice as high in England as in Sweden. A comparison of mortality from potentially preventable causes could inform health system responses. This study focused on respiratory tract infection (RTI)-related deaths, amenable to healthcare interventions, and sudden unexpected deaths in infancy (SUDI), amenable to public health interventions.

Objectives and Approach

We developed nationally-representative birth cohorts of singleton live births in 2003-2012 using a hospital admissions database in England and the Medical Birth Register in Sweden. Children were followed-up from 31st day of life until their fifth birthday via linkage to hospital admission and mortality records. We compared child mortality using Cox proportional hazards models to estimate hazard ratios (HR) for England versus Sweden for RTI-related mortality at 31-364 days and 1-4 years, and for SUDI mortality at 31-364 days. Models were adjusted for birth characteristics (gestational age, birthweight, sex, congenital anomalies), and socio-economic factors (maternal age and socio-economic status).

Results

Of 3,928,483 children in England, there were 807 RTI-related deaths at 31-364 days (17% of all deaths in the age range), 691 deaths at 1-4 years (31%), and 1,166 SUDIs (24%) in England. Corresponding figures for 1,012,682 children in Sweden were 136 (18%), 118 (25%) and 189 (24%). Unadjusted HRs for RTI-related deaths in England versus Sweden were 1.50 (95% confidence interval: 1.25-1.80) at 31-364 days. Adjustment for birth characteristics reduced the HR to 1.16 (0.97-1.39), and for socio-economic factors to 1.11 (0.92-1.33). Corresponding figures for RTI-related mortality at 1-4 years were 1.58 (1.30-1.92), 1.32 (1.09-1.61) and 1.30 (1.07-1.59), respectively. Unadjusted HRs for SUDIs reduced from 1.59 (1.36-1.85) to 1.40 (1.20-1.63) after adjusting for birth characteristics, and to 1.19 (1.02-1.39) after adjusting for socio-economic factors.

Conclusion/Implications

Higher prevalence of adverse birth characteristics (such as prematurity, low birthweight, congenital anomalies) contributed to increased risks of RTI-related and SUDI mortality in England relative to Sweden. Therefore, preventive strategies should focus on maternal health and socio-economic circumstances before and during pregnancy to reduce RTI-related and SUDI mortality in England.