

Background Previous studies have suggested that in-utero exposure to infection is associated with an increased risk of childhood seizures, but there is a lack of evidence regarding in-utero exposure to influenza. The objective of this study was to investigate whether in-utero exposure to the H1N1 pandemic, influenza infection, or vaccination is associated with a higher risk of childhood seizures.

Methods Registry-based study including all children born in Norway between 01/10/2009 and 31/12/2015 (n=254,347). Data were linked from sources including the Medical Birth Registry, the Norwegian Immunisation Register, the primary care reimbursement system, and the Norwegian Patient Registry. We investigated three exposures: 1) in-utero exposure to the H1N1 pandemic (≥ 1 pregnancy day during the main H1N1 pandemic wave), 2) in-utero exposure to maternal influenza infection (diagnosis of influenza-like illness in primary care, and/or laboratory confirmed H1N1 infection), and 3) in-utero exposure to H1N1 vaccination. We used Cox Proportional Hazards modelling to compare the incidence of seizures (any seizure, febrile seizure, epilepsy) according to exposure status from birth until 31/12/2015. Hazard ratios were adjusted for parity, maternal age, multiplicity, sex and maternal smoking.

Results 24.4% (62,032) children were exposed in-utero to the H1N1 pandemic, of whom 3.7% (2,299) were exposed in-utero to maternal influenza. Among 77 671 children with ≥ 1 in-utero day during the vaccination period, 34.9% (n=27,138) were exposed to vaccination. The risk of febrile seizures was slightly increased after in-utero exposure to the pandemic (aHR 1.06, 95% CI 1.00–1.12), but there was no evidence of an increased risk of epilepsy (aHR 1.08, 95% CI 0.93–1.26). There was no evidence of an overall association between in-utero exposure to maternal H1N1 infection and childhood seizures (febrile seizures aHR 1.17, 95% CI 0.92–1.49; epilepsy aHR 0.93, 95% CI 0.50–1.75). However, when stratified by trimester of exposure we observed a 40% increased risk of febrile seizures after infection during the second trimester (aHR 1.42, 95% CI 1.02–1.99). In-utero exposure to vaccination was not associated with an increased risk of childhood seizures.

Discussion This large study benefits from virtually no loss to follow-up and mandatory vaccination reporting. The limitations includes our inability to validate outcome data, and the under-reporting of influenza infection. Our finding of no increased risk subsequent to in-utero exposure to H1N1 vaccination supports the safety of vaccination in pregnancy. Although we found no overall evidence that in-utero exposure to maternal H1N1 infection was associated with febrile seizures, a small increased risk of febrile seizures after second trimester exposure warrants further investigation.

OP04

THE ASSOCIATION BETWEEN THE CHILDCARE ENERGY-BALANCE ENVIRONMENT AND UK 3–4-YEAR-OLDS' ANTHROPOMETRIC INDICES

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Background Although parents provide the majority of childcare before they enter formal schooling, preschool-aged children now spend increasing amounts of time in out-of-home

care. Childcare centres, in addition to parents, therefore have a significant responsibility for shaping children's energy-balance behaviours. However, little is known about how the UK childcare environment influences children's anthropometric indices. We assessed how the amount of time spent in childcare, and how the nutrition, physical activity and overall childcare environment were associated with children's anthropometric indicators (z-BMI score; waist-to-height ratio (WHR); sum of skinfold thickness (SST)).

Methods We recruited 3–4 year-old children across socio-economic strata from 30 childcare centres in Cambridgeshire, UK. Trained personnel measured children's height, weight, waist circumference, and subscapular and triceps skinfolds. Parents reported weekly childcare attendance patterns; we assessed the childcare environment relating to obesity (e.g. nutrition and physical activity) using the Environment and Policy Assessment and Observation system. We explored associations between childcare attendance and environment and anthropometric outcomes using two-level hierarchical regression (level 1: child; level 2: childcare centre). All models were adjusted for child ethnicity; maternal educational attainment; maternal BMI; and maternal employment. WHR and SST models were additionally adjusted for child sex and age in months (which are both taken into account when calculating z-BMI scores).

Results 196 children (49% female) from 30 childcare centres provided valid data. Neither time spent in care, nor the nutrition, physical activity, or overall childcare environment were associated with children's z-BMI score, WHR and SST. These findings remained after adjusting for child and maternal variables; several of the latter were independently associated with the outcomes of interest.

Discussion In contrast to previous international evidence, neither time spent in childcare nor the environment itself were associated with UK preschool-aged children's adiposity-related outcomes. The childcare environment remains important to the Government's obesity strategy, and has been central to intervention efforts to prevent or reduce early childhood obesity to date. However, family-level factors also warrant substantial attention when considering obesity prevention strategies for young children.

Health inequalities 1

OP05

WHICH AGES AND CAUSES OF DEATH EXPLAIN THE WIDENING LIFESPAN VARIATION GAP IN SCOTLAND? A POPULATION BASED STUDY USING ROUTINE DATA

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Background Scotland's relative lifespan variation ranking within Western Europe deteriorated after 1980. It is not clear how Scotland's national lifespan variation trend is associated with socioeconomic inequalities in age and cause of death. We calculate lifespan variation for deprivation quintiles over a thirty year period. We apply stepwise decomposition by age and cause of death to better understand the changing nature of mortality inequalities.

Methods Census population estimates and mortality records from 1981–2011, were matched with the Carstairs score, an