Background trends were estimated using a weighted mean of control countries' rates.

Results Although pregnancies and births in England fell during the Strategy period, we found no difference compared with control. In interrupted time series analyses, trends in rates of teenage pregnancy beginning in 1999 in England were similar to Scotland (0.08 fewer pregnancies per 1,000 women per year; -0.74 to 0.60) and Wales (0.14 more pregnancies per 1,000 women per year; -0.48 to 0.76). In synthetic control analyses, yearly under-18 birth rates in England were very similar to synthetic control predictions post intervention, and under-20 pregnancy rates were marginally higher than control across the post intervention time period. Placebo testing and other sensitivity analyses supported the finding of no effect.

Conclusion Our analyses cast doubt on the effectiveness of England's teenage pregnancy strategy. These results should be factored into decision making if other countries, or England in the future, were to contemplate similar costly strategies.

OP92   **DOES MATERNAL FOLIC ACID SUPPLEMENTS IN PREGNANCY INFLUENCE AUTISM SPECTRUM DISORDER IN CHILDREN? A SYSTEMATIC REVIEW AND META-ANALYSIS**

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Background Folic acid supplements during pregnancy may be causally associated with reduced risk of Autism Spectrum Disorder (ASD). This relationship is potentially socially patterned as folic acid intakes are lower in deprived groups. The main limitations of previous systematic reviews and meta-analysis are multiple counts of the same unit of analysis and use of DerSimonian and Laird estimator which underestimates uncertainty and increases type I error rate. We aimed to evaluate evidence of a causal association between prenatal folic acid intake and offspring ASD, and outline evidence of health inequalities.

Methods

Results A total of 1,001,424 children (4646 cases) were pooled from five cohort and four case-control studies. No association was observed between maternal folic acid supplement intakes and offspring ASD (RR 0.77, 95% CI: 0.53 – 1.11, I^2=92.8%). However, when restricting to high quality studies, there was some evidence of a reduced risk of ASD (RR 0.76, 95% CI: 0.56–1.03, I^2=77%) or with removal of the outlier (RR 0.69, 95% CI: 0.51–0.94, I^2=93.2%). A study was considered an outlier if the studies 95% CI did not overlap the 95% CI of the summary effect estimate. Evidence of health inequalities was not reported in any study, but all considered socioeconomic position or an indicator of socioeconomic position to be an important confounder.

Conclusion High quality studies demonstrated a reduced risk of ASD in relation to folic acid supplements in pregnancy, yet residual confounding was likely. Nonconventional approaches to estimate causality were applied in only a few studies but they suggest the relationship is potentially causal. Future research should apply causally informed methods and investigate evidence of health inequalities.

OP93   **THE ASSOCIATION BETWEEN GESTATIONAL AGE AT BIRTH AND SPECIAL EDUCATION NEEDS AT AGE 11 – EVIDENCE FROM THE UK MILLENNIUM COHORT STUDY**

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Background Being born at an earlier gestational age is a risk factor for having neurodevelopmental impairment and special educational needs (SEN) at school. Most prior studies focused on children born preterm (<37 weeks) rather than across the entire gestational age continuum and have not examined specific types of SEN. Our aim was to examine the association between gestational age across the entire gestation spectrum and SEN at the age of 11 years.

Methods We analysed parent reported survey data from the UK Millennium Cohort Study, a nationally representative cohort of children born during the years 2000–2002. Information about the child's birth, health and sociodemographic factors was collected from mothers when children were 9 months old. Information about presence of SEN, whether the child has a statement of SEN which indicates more complex needs, and the reasons for SEN was collected from parents at age 11. Adjusted risk ratios (aRR) were estimated using modified Poisson regression while accounting for confounding.

Results The sample included 12,081 children with data at both time points. The proportion of children with SEN in the cohort was 11.2% and this proportion increased markedly as gestation decreased. The risk of having SEN was highest in children born before 32 weeks gestation who had a 3-fold higher risk than those born at 40 weeks (aRR=2.89; 95% CI 2.02, 4.13). The risk was also elevated in children born early term (37–38 weeks) (aRR=1.33; 95% CI 1.11, 1.59). The proportion of children with a statement of SEN was 4.9% in the overall cohort. There was a clear inverse association between gestational age and having a statement of SEN, which peaked at 15.3% in children born <32 weeks (aRR=3.96; 95% CI 2.24, 7.06). Gestational age was also inversely associated with having multiple reasons for SEN, reaching aRR=3.32 (95% CI 1.61, 6.84) at <32 weeks.

Conclusion Children born at earlier gestational age are more likely to experience SEN, have more complex SEN and require support in multiple facets of learning at age 11. This increased likelihood of SEN was observed even among children born at early term gestation.

OP94   **'I NEEDED SOMEBODY LIKE HER IN MY LIFE': MIGRANT WOMEN'S EXPERIENCES AND PERCEPTIONS OF HEALTH NAVIGATION SERVICES TO INCREASE ACCESS TO MATERNITY CARE IN THE UK**

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Background Migrant women in the UK are at increased risk of maternal morbidity and mortality compared to UK-born women, in part due to inequalities in healthcare access. Health

navigation is a person-centred intervention delivered by lay or professional workers ('health navigators'), addressing individualised barriers to accessing healthcare. Despite recognition of health navigation as a promising intervention for migrant women, there remains a significant paucity of research on stakeholders' perspectives. The aim of this study is to understand migrant women service users' experiences and perceptions of health navigation.

Methods This study is based on a multiple, instrumental case study carried out between May 2019 and January 2020 in two English cities, in collaboration with a grassroots charity and a National Health Service (NHS) programme - both providing health navigators to support migrant women. Through purposeful sampling, semi-structured interviews were conducted with migrant women using these services (n=14), with interviews conducted in English (n=9), or with interpretation in Arabic (n=4) or French (n=1). Additionally, organisational documents were examined for information on women's needs upon referral to the services. Data from interviews and documents were coded in NVivo, and analysed using reflexive thematic analysis.

Results Study participants were refugee, asylum-seeking or trafficked women. They were pregnant or recent mothers, aged between 19 and 41 years. Five overarching themes were developed: 'Need for support', 'Knowledge', 'Tools for life in Britain', 'Close relationships' and 'Expectations'. Women reported needing companionship, material support and signposting - which mainstream NHS services have limited capacity to provide. They described having gained knowledge of NHS services and of pregnancy, birth and early motherhood - which they perceived as empowering and as increasing their access to healthcare. Health navigators reportedly reduced women's social isolation and helped to improve their English language proficiency, supporting women's integration into British society and promoting their general wellbeing. Finally, women described having close relationships with health navigators, but had expectations of them beyond health navigators' remit and boundaries. These themes were consistent across both case study sites.

Conclusion Health navigation was viewed positively by migrant women in this study. They perceived it as improving their access to maternity care - and other healthcare services - as well as improving their wellbeing, although greater clarity on health navigators' roles may help to manage women's expectations. Future research could explore health navigation interventions for migrant women operating beyond the first six weeks of motherhood.

Friday 11 September

Modelling and Methods

OP95 | DEVELOPMENT AND VALIDATION OF A PREDICTION MODEL TO ESTIMATE AN INDIVIDUAL RISK OF 10-YEAR MORTALITY IN A LONGITUDINAL COHORT OF OLDER ENGLISH ADULTS USING ADVANCED STATISTICAL LEARNING METHODS

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Background Although we embarked on the era of the global increase in the ageing population, the recent declines in life expectancy simultaneously experienced by many high-income countries highlight a need for an accurate prediction model for estimating individual, rather than average, risk for mortality in older adults, based on readily accessible information about individuals' lives, health and environment. Using advanced computer intensive statistical learning methods, we derived, evaluated and validated a prediction model of the 10-year risk for all-cause mortality in older adults from the general population.

Methods The model was developed using a prospective population-based cohort of English adults aged ≥50 years old from English Longitudinal Study of Ageing study. Having included a large pool of predictors, we employed cox proportional hazards model with regularisation by the least absolute shrinkage and selection operator (Cox-Lasso) to identity the most robust predictors of mortality and quantify their relative contribution to all-cause mortality in the next 10 years. The model was internally validated using Harrell's optimism-correction procedure followed by external validation in the Health and Retirement Study, which is a nationally representative, longitudinal survey of adults aged ≥50 years old in the United States. The model's prediction accuracy was evaluated with calibration, discrimination, sensitivity and specificity.

Results For model development, the sample comprised 9154 individuals; of these, 1240 (13.4%) died during the 10-year follow-up with an average length of survival of 70.2 months (SD=35.4). For external validation, the sample included 2575 individuals; of these, 491 (19.1%) died during the 10-year follow-up with an average length of survival of 77.7 months (SD=36.5). The prediction model selected 13 (15.5% of n=84) prognostic factors, which included increasing age, male gender, low accumulated wealth, comorbid health conditions (i.e., previous diagnoses of cancer, chronic lung disease or stroke), functional difficulties (i.e., difficulty walking 100 yards, or doing work around house and garden) and worsening memory. External validation demonstrated good discrimination (c-index=0.69), calibration (calibration slope β=0.80), specificity (73.2%) and sensitivity (72.4%).

Discussion Our model is likely to provide accurate estimates of individual 10-year risk of mortality using information that is often available in patients' reports. It is calibrated for individuals aged 50–75 years living in the UK but generalises reasonably well to other populations with similar underlying characteristics. The developed prediction model could be used to communicate risk to individuals and their families (if appropriate), guide strategies for risk reduction and design future studies targeting high risk subpopulations.

OP96 | THE CAUSAL EFFECT OF BMI ON NEURODEVELOPMENT: A WITHIN FAMILY MENDELIAN RANDOMIZATION STUDY USING MOBA

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Background Childhood obesity is linked to poorer emotional health and neurodevelopmental problems but it is unclear if these associations are causal. Observational study designs are