P57 INEQUALITIES IN SCREEN TIME DURING THE EARLY YEARS: FINDINGS FROM A PROSPECTIVE COHORT STUDY

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Background It is well understood that the first five years of life are crucial to future health, wellbeing and success, and that large inequalities are evident early in life. While research into inequalities amongst families is not new, understanding how a child's access to mobile technology may impact the transmission of inequality from parent to child is. Scientific literature exploring screen time exposure mainly predates the current reality of mobile technology being ubiquitous household items. It also predominantly relies on parent reports of children's screen use. Leveraging off an existing prospective cohort study which began in 2017, this study aims to quantify the amount of screen time children are exposed to during the early years, understand socioeconomic disparities and whether screen exposure makes a difference to child development.

Methods This study utilises innovative speech recognition technology called Language Environment Analysis (LENA), which can quantify the amount of electronic noise heard by a child over a 16-hour day. LENA data is collected once every six months from 6 – 48 months of age, with children stratified by two levels of maternal education (secondary school only, university degree plus). Descriptive statistics of screen use will be presented cross-sectionally by age and maternal education groups.

Results At 6 months children within the low education grouping heard 64.23 (SD 67.63) minutes of electronic noise and 58.10 (SD 51.16) at 12 months. This compares with 31.34 (SD 43.36) at 6 months and 41.93 (SD 50.10) minutes at 12 months for those in the high education grouping. Limitations in understanding screen use through the categorisation of 'electronic noise' through the LENA sound recognition software will be overcome through manual transcription of audio recordings by human transcribers. Comparisons of LENA data and human transcription will be presented.

Conclusion This is the first study to objectively quantify children's screen use in the first year of life within a contemporary sample. Current screen time guidelines recommend under the age of 2 years children should not be exposed to any screens. Our data indicates, for the majority of families this is simply not the case. The results from the current study also highlight inequalities in screen use, raising questions of whether screen use is contributing to the continuing disparities in developmental outcomes by school entry, something our study aims to investigate as it progresses.

P58 UNDERSTANDING PATHWAYS TO INEQUALITIES IN CHILD MORTALITY: A MEDIATION ANALYSIS USING WHOLE POPULATION LINKED DATA IN WALES

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Background There has been an unprecedented rise in infant mortality rates in the UK since 2014, especially in disadvantaged areas. This trend is concerning since infant mortality is a sensitive indicator of the prevailing social conditions affecting health across the life course. Identifying potentially modifiable factors on the pathway linking childhood socio-economic conditions (SECs) to child mortality is important to inform public health policies to reduce health inequalities. The aim of this study was to assess the extent to which intervening on maternal health, perinatal factors and/or birth outcomes might reduce inequalities in child mortality.

Methods We conducted a causal analysis of linked population level data from the SAIL Databank on all singletons born in Wales between 2000 and 2019 and their mothers. The exposure of interest was mother's quintile of small area deprivation 3-years prior to pregnancy; the outcome was child mortality between birth and age 15-years. The data included gestational age, birthweight, parity, maternal age, maternal health conditions before and during pregnancy, pregnancy complications, congenital anomalies, smoking during pregnancy and perinatal maternal mental health. Using the framework of interventional disparity measures, we estimated the contribution of factors relating to maternal health, perinatal factors and birth outcomes to inequalities in child mortality adjusting for potential confounding by parity. Confidence intervals will be calculated by non-parametric bootstrap.

Results There were 763,241 singleton live births in Wales between 2000 and 2019 and of these, 3,289 children died within the first 15 years of life. Initial results are based on a complete-case analysis of data on 463,200 births out of which 1,719 died by age 15. The probability to have died by age 15 was 1.37 times as high in the most deprived quintile compared to the least. After shifting the distribution of maternal health, perinatal factors and birth outcomes in the most deprived population quintile to that in the least deprived quintile, the survival probability ratio between the most and least deprived children was reduced to 1.09.

Conclusion Child mortality is a rare event but with clear socio-economic patterning. Initial results indicate that maternal health, perinatal factors and birth outcomes may explain most of the observed inequalities. Further analyses will aim to disentangle the contribution of these mediating blocks to identify potential public health policy entry points.

P59 DO THE RISKS OF PRETERM BIRTH AND SOCIOECONOMIC STATUS ACCUMULATE? A SYSTEMATIC REVIEW OF INTERACTION AND EFFECT MODIFICATION

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Background Preterm birth is a major public health problem, affecting 8% of births in the UK overall with significant socio-economic inequalities observed. Children who are born pre-term have an increased risk of negative health and education outcomes. These outcomes are socially patterned but it is not clear how the effects of preterm birth are modified by socio-economic circumstances (SEC).

Methods Systematic review of quantitative observational studies of an interaction, or effect modification, between preterm birth and SEC. Searches were conducted from five databases between January 2000 and June 2020, and all were identified for dual screening based on title and abstract review. Inclusion criteria was comparison across SEC and gestational age, interaction between the two, or stratification by either, and health or education as outcome. All included studies were citation searched. All studies were narratively synthesised and quality assessed.

Results After searches, 52 studies were identified for full text screening, of which nine met inclusion criteria. Citation searching produced ten more studies. The final sample (19) covered eight countries (all North America and Europe). Forty outcomes were identified, split into four categories; pre-school, primary school (5–11), secondary school (11–18), and post-school (18–29). Outcomes for pre-school was development/cognitive, school was cognitive/performance, and post-school was socioeconomic status. Health outcomes were neonatal mortality, ADHD medication prescription, and psychiatric diagnosis or disability post school. Varied measures of socioeconomic status were used as exposure. The majority (16) categorised preterm birth. Of the 18 studies that examined interaction, seven studies found there was a statistically significant interaction between measure of SEC and preterm birth. All interactions found demonstrate that the negative influence of preterm birth was stronger for those in low SEC. Outcomes which provide significant interaction included; cognitive outcome at 18, prescription of ADHD medication in childhood and adolescence, educational attainment at all levels, and psychiatric admissions in 23 to 29.

Discussion There is some evidence of an interaction between preterm birth and SEC on outcomes for children and young people; the negative effects of preterm birth were exacerbated by low SEC. The remaining evidence suggests the effects accumulate; this is potentially due to underpowered studies. A limitation of the evidence is reporting, some studies only reported whether interaction was significant. This evidence has important policy implications; the potential exacerbation, added to the socioeconomic inequalities in preterm birth, means there is a cohort of children with increased vulnerability, with specific needs that require further investigation.

P60

COMPARING LIFE COURSE AND CURRENT SOCIAL GRADIENTS IN GENERAL HEALTH AT AGE 50: A SIMPLE MEASURE OF INEQUALITY OF OPPORTUNITY FOR HEALTH

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Background Sophisticated measures of inequality of opportunity for health require the empirically challenging and ethically controversial task of disentangling causal networks between circumstances and choices throughout an individual's life. 'Life course' gradients – bivariate associations between childhood social circumstances and adult health – may provide a simple indicator of societal lifetime inequality of opportunity for health, since there is widespread ethical agreement children cannot be held responsible for their social circumstances. We compare conventional 'current' social gradients in adult health

with 'life course' gradients, representing a simple inequality of opportunity metric.

Methods We use data from the UK 1958 National Child Development Study, applying multiple imputation methods to account for attrition. The primary health variable is SF-36 general health score (0–100) measured at age 50, with dichotomised self-assessed general health included as a robustness check. The primary SES variables are income, social class, and education measured at age 50 and age 16. SES variables at age 16 are measured by parental proxy and several alternatives are explored in robustness checks, including parental SES earlier in childhood. Gradients are calculated using the slope and relative indices of inequality (SII, RII) for SF-36 general scores and risk differences and ratios for self-assessed health.

Results Life course income gradients in SF-36 scores are 4.53 and 5.22 for women and men, respectively, using the SII ($p < 0.001$) and 1.07 and 1.08 for women and men, respectively, using the RII ($p < 0.001$). Life course gradients in SF-36 scores are also found using mother's education (SII: 11.32/10.84 for women/men, $p < 0.001$; RII: 1.19/1.18 for women/men, $p < 0.001$), father's education (SII: 9.97/7.75 for women/men, $p < 0.001$; RII: 1.16/1.13 for women/men, $p < 0.001$) and household social class (SII: 11.60/7.11 for women/men, $p < 0.001$; RII: 1.19/1.12 for women/men, $p < 0.001$). Life course gradients are approximately half the size of current gradients for parental education and women's parental social class and one third the size for parental income and men's parental social class. Results are robust across inequality measures, adult health variables, childhood SES variables, and missing data assumptions.

Discussion Children in the most socioeconomically disadvantaged households at age 16 tend to experience substantially worse general health at age 50 than children in the most advantaged households. This trend is more pronounced when using static SES markers such as education. Lifecourse social gradients provide a simple indicator of inequality of opportunity for health, which are 31–56% the magnitude of health inequality measured using conventional current social gradients.

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REGIONAL INEQUALITIES IN MULTIMORBIDITY WITHIN ENGLAND BETWEEN 2004 AND 2019: A DESCRIPTIVE EPIDEMIOLOGY STUDY USING THE CLINICAL PRACTICE RESEARCH DATALINK

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Background An estimated 25% of GP patients within the UK have multimorbidity (two or more chronic conditions), a large proportion of which is attributable to non-communicable diseases, many of them preventable. There are known regional inequalities in health across England, including for chronic diseases. This study aimed to describe regional inequalities in multimorbidity incidence and prevalence.

Methods We selected a random sample of 1m adults from the Clinical Practice Research Datalink (CPRD Aurum database) registered at participating GP practices within England between 2004 and 2019. Regions were defined by 2010 Strategic Health Authority boundaries as per the location of the participant's general practice. Participants were linked to