quintiles of the 2015 Index of Multiple Deprivation (IMD) as a measure of area-level socioeconomic deprivation. We used two measures of multimorbidity: a) basic multimorbidity: two or more chronic conditions; b) complex multimorbidity: at least three chronic conditions affecting at least three body systems. A list of 211 chronic conditions of interest, including long-term mental health conditions and chronic infections, was agreed by a multidisciplinary team. Using standard formulae, we calculated crude and age-sex standardised multimorbidity prevalence and incidence by geographical region. We used quasi-Poisson regression models to calculate risk ratios adjusted for year, sex, age, region, and IMD quintile. Analyses were conducted using R v4.0.4.

Results Our final sample consisted of 989,421 adults: 48.7% male, with median age of 46 years (inter-quartile range 33–62). The overall crude prevalence of multimorbidity in England was 43.7% for basic, and 25.2% for complex multimorbidity over the 16-year study period. London had the lowest crude prevalence of both multimorbidity types (basic: 35.4%; complex: 18.3%), whilst the North East had the highest (basic: 48.6%; complex: 29.6%). In age-sex standardised results, prevalence was still highest in the North East, with London and the South East having the lowest prevalence. Similar regional inequalities were found in the incidence of both multimorbidity types. Compared to London, the North East had higher multimorbidity prevalence in risk ratios adjusted for socioeconomic deprivation and demographic factors (basic multimorbidity: 1.18 (95% confidence interval 1.16, 1.19); complex multimorbidity: 1.26 (95% confidence interval 1.24, 1.29).

Conclusion There are regional inequalities in multimorbidity within England with higher burden in the North, compared to London and the South. These inequalities remained after adjusting for age and socioeconomic deprivation. Strategies aimed at addressing the social determinants of health are needed to reduce future burden on health and social care systems, particularly in the North of England.

P62 EDUCATIONAL INEQUALITIES IN STATIN TREATMENT: CROSS-SECTIONAL ANALYSIS OF UK BIOBANK

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Background Despite reductions in the rates of cardiovascular disease in high income countries, individuals who are the most socioeconomically deprived remain at the highest risk of disease. Although intermediate lifestyle and behavioural risk factors explain some of this, much of the effect remains unexplained. It is not known whether differences in risk adjusted use of statins between educational groups may contribute to these inequalities.

Methods Using data from a large prospective cohort study, UK Biobank, we calculated a QRISK3 cardiovascular risk score for 472 097 eligible participants with complete data on self-reported educational attainment and statin use (55% female; mean age, 56). We used logistic regression to explore the association between i) QRISK3 score and ii) educational attainment on self-report statin use. We then stratified the association between QRISK3 score, and statin use by educational attainment to test for interactions. We then replicated analyses using QRISK or QRISK2 scores recorded in primary care data and statin prescriptions recorded in primary care prescription records.

Results There was evidence of an interaction between QRISK3 scores and education. For an equivalent QRISK3 score, more educated individuals were more likely to report taking statins. In women with 7 years of schooling, a one unit increase in QRISK3 score was associated with a 7% higher odds of statin use (odds ratio (OR) 1.07, 95% CI 1.07, 1.07). In women with 20 years of schooling, a one unit increase in QRISK3 score was associated with an 14% higher odds of statin use (OR 1.14, 95% CI 1.14, 1.15). Comparable ORs in men were 1.04 (95% CI 1.04, 1.05) for 7 years of schooling and 1.08 (95% CI 1.08, 1.08) for 20 years of schooling. These inequalities were also present in analyses using primary care data.

Conclusion For the same level of cardiovascular risk, individuals with lower educational attainment are less likely to receive statins, likely contributing to cardiovascular inequalities. The mechanisms leading to these differences are unknown, but both health seeking behaviours and clinical factors may contribute.

P63 USING DATA ON FATHERS/PARTNERS TO STUDY PRENATAL PARENTAL EXPOSURES AND CHILD HEALTH: CHALLENGES INTRODUCED BY MISSING DATA AND SELECTION BIAS

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Background There are challenges in studying the effects of partner exposures around pregnancy on child health. We explored potential sources of bias in the effects of parental prenatal health behaviours on child health, to describe and quantify some of these challenges, as well as suggest ways in which they might be mitigated.

Methods First, we characterised the availability of data on partner and mother health behaviours in the prenatal period from three UK cohort studies: the Avon Longitudinal Study of Parents and Children (ALSPAC), Born in Bradford (BiB), and the Millennium Cohort Study (MCS). Second, we assessed the potential for sample selection in these cohorts by comparing characteristics of families where the partner did and did not participate. Third, using parental smoking during pregnancy and child birthweight as an example, we ran simulation studies of several DAGs to explore the extent that missing partner data and selection can affect estimates. We then explored the 'real life' impact of partner sample selection on estimates of maternal effect.

Results In all cohorts, data on partner prenatal health behaviours was less detailed and collected less frequently than maternal prenatal health behaviours. Partners participated in ALSPAC and MCS for the majority of pregnancies. Of 14,472 pregnancies in ALSPAC, and 18,241 pregnancies in MCS,