

(false negatives and false positives) were prominent as part of the translational pathway from quantitative summary estimates of test accuracy to management decisions. Summary measures that separate the two dimensions of test accuracy in the absence of prevalence information (for example sensitivity and specificity) appeared to result in a misplaced emphasis on one or other of false positive or false negative test errors. Presenting test accuracy data using the 2x2 diagnostic table or a pictograph attenuated this effect.

Conclusion Choice of test accuracy metric appears to have a profound effect on diagnostic decision making. Understanding, contextual factors and motivational biases are likely to be contributing factors to the observed variability. It is unclear to what extent any advantage of test accuracy metric for informed decision making is based on familiarity as opposed to their intuitive nature. Simultaneous illustration of both dimensions of test accuracy in order to facilitate informed diagnostic decision making requires further exploration.

Plenary Session

PL01 A SIMPLE MORBIDITY SCORE FOR UK PRIMARY CARE: A NEW TOOL FOR RESEARCH AND HEALTHCARE OUTCOME MONITORING

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Background Adjustment for morbidity level is important in ensuring fair comparison of outcomes between patient groups and healthcare providers. The Quality and Outcomes Framework (QOF) in UK primary care, which records numerous diseases systematically, offers potential for developing a standardised morbidity score that can be easily applied in research and service settings.

Methods Using The Health Improvement Network (THIN), a large primary care database of 375 UK general practices in 2008–9, half the practices were randomly selected as a training set to derive a morbidity score based on chronic conditions recorded in QOF, and the other practices formed a validation set to assess predictive performance. A total of 653,780 patients aged 60 and over registered in 2008 were included, and mortality at one year was assessed.

Results Nine QOF conditions were identified as robust co-predictors (Hazard Ratio ≥ 1.2) of mortality independent of age and sex, and were assigned integer score weights based on the strength of their association with mortality. Cancer (HR=3.4) and Dementia (HR=2.8) were the strongest predictors. In a Cox model with age and sex included, the addition of the QOF score improved model discrimination in predicting mortality (c-statistic=0.82 vs. 0.78), performing similarly to the Charlson index, an established morbidity index. In a multilevel logistic model, an individual's QOF score explained more of the variation in mortality between practices than the Charlson index (46% compared to 32%). At practice level, the mean QOF score per patient was strongly correlated with practice standardised mortality ratios ($r=0.64$) and explained more variation in practice death rates than the Charlson index.

Conclusion A simple score derived from routine QOF recording provides a morbidity index which is highly predictive of one year mortality in older UK Primary Care patients, is simpler to implement than existing morbidity scores, and explains practice level variations in mortality. This new score has potential utility in research and healthcare outcome monitoring and could be easily implemented nationally through existing mechanisms for anonymised collection of QOF data from practices.

PL02 BREASTFEEDING AND SOCIAL MOBILITY: NEUROLOGICAL DEVELOPMENT OR STRESS MECHANISMS?

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Background Breastfeeding has been associated with higher cognitive scores, better test results and fewer socio-emotional problems in childhood. These outcomes in turn predict social mobility. This study examines the effect of breastfeeding on inter-generational social mobility and the role of two biologically plausible mechanisms: via improved neurological development due to the long-chain polyunsaturated fatty acids in breast milk and via hypothalamic-pituitary-adrenal (HPA) axis functioning due to growth hormones in breast milk.

Methods We use data from two birth cohorts (the 1958 National Child Development Study and the 1970 British Birth Cohort) to examine breastfeeding's relationship with social mobility. Social class at 10/11 years was based on father's class. Both class of origin and own social class in adulthood (age 33/34) were measured by the Registrar General's social class (RSGC). Neurological development was assessed using cognitive tests and assessments of fine motor function. HPA functioning was assessed using socio-emotional behaviour scales and a physical symptoms of stress score.

Results Rates of breastfeeding were higher in the 1958 cohort than the 1970 cohort (43% vs. 21% breastfed 1+ months). Breastfeeding was more socially patterned by 1970, with advantaged mothers being more likely to breastfeed. A propensity score approach matched breastfed and non-breastfed children on a large number of characteristics before estimating the effect of breastfeeding on social mobility. We modelled the odds of upward and downward social mobility conditional on being breastfed for 1 month or more and social class of origin. Results show that breastfeeding increased the odds of upward mobility (1958 cohort: OR 1.25 95% CI 1.13, 1.37; 1970 cohort: OR 1.14 95% CI 1.00, 1.31), and reduced the odds of downward mobility (1958 cohort: OR 0.81 95% CI 0.74, 0.90; 1970 cohort OR 0.79 95% CI 0.69, 0.91). Controlling for the measures of neurological development and stress functioning attenuated the effect of breastfeeding to marginal or non significance. Gender differences in these findings will be discussed.

Conclusion Breastfeeding promotes upward social mobility and protects against downward mobility. The effects appear to operate through enhanced neurological development and more effective stress processes.

PL03 SOCIO-ECONOMIC INEQUALITIES IN LUNG CANCER TREATMENT: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background Intervention-generated inequalities in health result from the way that health interventions are organised and delivered. There is some evidence that socio-economic inequalities in care may occur for some common cancers and treatment inequalities may contribute to socio-economic differences in survival. Although the incidence and outcome of lung cancer varies with socio-economic status (SES), it is not known whether socio-economic inequalities in treatment occur. We conducted a systematic review and meta-analysis of existing research on socio-economic inequalities in receipt of treatment for lung cancer.