Abstracts

OP06  SOCIO-DEMOGRAPHIC INEQUALITIES IN CARDIOVASCULAR RISK MANAGEMENT AND EARLY DETECTION OF VASCULAR CONDITIONS BY THE NHS HEALTH CHECK: A DIFFERENCE-IN-DIFFERENCES MATCHING ANALYSIS

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Background England’s National Health Service (NHS) Health Check is a nationwide cardiovascular risk assessment and management programme implemented with aims to prevent cardiovascular disease (CVD), type 2 diabetes mellitus (T2DM) and chronic kidney disease, as well as to reduce inequalities in health. We aimed to compare the impact of the NHS Health Check on: i) Early detection of vascular conditions among population subgroups of age, sex, ethnicity and deprivation; and ii) The management of cardiovascular risk among high-risk population subgroups of age, sex, and deprivation.

Methods We obtained retrospective electronic medical records from the Clinical Practice Research Datalink for a randomly selected sample of 138,788 patients aged 40–74 years, without known CVD or diabetes, and were registered with 462 English general practices between 2009 and 2013. We estimated programme impact for each subgroup using a difference-in-differences matching analysis that compared changes in outcome over time and between Health Check attendees and non-attendees.

Results 21.4% (29,672/138,788) of the study population attended a Health Check. The programme was associated with increased detection of hypertension and T2DM among Health Check attendees. A significantly greater number of hypertension and T2DM incident cases were detected in male than female attendees (e.g. an additional 4.02%, 95% CI: 3.65% to 4.39%, and 2.08%, 1.81% to 2.35% male and female attendees were detected with hypertension respectively). A significantly greater number of T2DM incident cases were detected among attendees living in the most deprived area (1.60%, 1.23% to 1.97%) compared with those living in the least deprived area (0.79%, 0.52% to 1.06%).

Conclusion The programme was associated with significant reductions in 10 year CVD risk scores, total cholesterol and systolic blood pressure while statin prescribing increased among high-risk attendees. However, no major differences in programme impact on cardiovascular risk management were observed between subgroups (e.g. programme impact on 10 year CVD risk score was −1.13%, −1.48% to −0.78% in male and −1.53%, −2.36% to −0.71% in female attendees).

OP07 IMPACT OF AN INTEGRATED HEALTH AND WELLBEING APPROACH TO ADDRESSING MULTIPLE LIFESTYLE RISKS AND REDUCING HEALTH INEQUALITIES: A MIXED METHODS STUDY

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Background The return of public health to local government in England in 2013 created an opportunity to integrate preventive services with agencies that act on the wider determinants of health. A number of local authorities subsequently developed integrated health and wellbeing approaches, in recognition that the previous ‘silo’ approach to the provision of single-issue lifestyle services had made little impact on inequalities. These integrated services often involve targeting the most disadvantaged geographical and non-geographical communities locally. One example is the Wellbeing for Life (WFL) service in County Durham.

Methods The impact of WFL was evaluated using a mixed methods study design, involving: i) ethnographic observations plus interviews and focus groups with clients (n=58), staff (n=47), volunteers (n=15) and external stakeholders (n=10); ii) secondary analysis of intervention monitoring data at baseline (n=1461 clients), three (n=1201), six (n=380) and 12 months (n=133); and iii) a value for money assessment. Primary outcome measures were the EQ-5D and short Warwick Health
Explaining trends in coronary heart disease: childhood cognitive ability and standing balance in mid to later life.

**Background**
Coronary heart disease (CHD) mortality has declined substantially during recent decades but is still one of the leading causes of death, morbidity and healthcare costs in Denmark. Furthermore, socioeconomic inequalities persist. Quantifying the contributions of prevention and treatment to these recent declines might help to identify the most successful health policies, particularly for reducing inequalities.

**Methods**
We used IMPACT_SEC, a previously validated policy model, to apportion the recent decline in Danish CHD mortality to changes in major cardiovascular risk factors, and to increases in treatments in nine non-overlapping patient groups. Participants: All Danish adults aged 25–84 years, stratified by gender, age group and quintiles of financial income. Main outcome measure: Deaths prevented or postponed (DPP), stratified by socio-economic circumstance (SEC).

**Results**
There were 1110 fewer CHD deaths in 2007 than would be expected if the 1991 mortality rates had persisted. This reflected a dramatic 74% fall in CHD mortality rates (from 433 to 113 deaths per 100,000). Improved treatments accounted for approximately 24% (95% confidence interval = 21%–28%). This contribution was higher in more affluent quintiles (approximately 26%) and least in the most deprived group (19%). The biggest contributions came from the treatment of congestive heart failure in the community (630 DPPs=5.7% of all DPPs) and in hospital (410 DPPs=3.7%).

Risk factor improvements accounted for approximately 40% (37%–44%) of the mortality fall. This contribution was higher in the central quintiles -approximately 51% (47%–58%) and least in the most deprived quintile – approximately 36% (29%–39%). The largest contribution came from population falls in cholesterol levels approximately 24% (22.7%–25.4%) of all DPPs; and decreases in smoking, some 10% (8.4%–12.2%).

Overall, the IMPACT_SEC model could explain two thirds of the mortality fall. The 36% gap most likely reflects deficiencies in data, notably in population blood pressure and income.

**Conclusion**
Denmark has benefited from one of biggest falls in CHD mortality in high income countries. The treatment uptake rate in Denmark was comparable with that in other countries and treatments accounted for approximately one third of the total mortality fall, much as in other, comparable populations. The largest contributions came from population-wide, non-pharmacological reductions in major risk factors, notably cholesterol and smoking. Future strategies should therefore prioritise population-wide prevention policies.

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**EXPLAINING TRENDS IN CORONARY HEART DISEASE MORTALITY AND SOCIOECONOMIC INEQUALITIES IN DENMARK 1991–2007: IMPACT_SEC MODEL ANALYSIS USING ROUTINE DATA**

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**Background**
The objective of this study was to quantify the contributions of prevention and treatment to recent declines in CHD mortality in Denmark.

**Methods**
We used IMPACT_SEC, a previously validated policy model, to apportion the recent decline in Danish CHD mortality to changes in major cardiovascular risk factors, and to increases in treatments in nine non-overlapping patient groups. Participants: All Danish adults aged 25–84 years, stratified by gender, age group and quintiles of financial income. Main outcome measure: Deaths prevented or postponed (DPP), stratified by socio-economic circumstance (SEC).

**Results**
There were 1110 fewer CHD deaths in 2007 than would be expected if the 1991 mortality rates had persisted. This reflected a dramatic 74% fall in CHD mortality rates (from 433 to 113 deaths per 100,000). Improved treatments accounted for approximately 24% (95% confidence interval = 21%–28%). This contribution was higher in more affluent quintiles (approximately 26%) and least in the most deprived group (19%). The biggest contributions came from the treatment of congestive heart failure in the community (630 DPPs=5.7% of all DPPs) and in hospital (410 DPPs=3.7%).

Risk factor improvements accounted for approximately 40% (37%–44%) of the mortality fall. This contribution was higher in the central quintiles -approximately 51% (47%–58%) and least in the most deprived quintile – approximately 36% (29%–39%). The largest contribution came from population falls in cholesterol levels approximately 24% (22.7%–25.4%) of all DPPs; and decreases in smoking, some 10% (8.4%–12.2%).

Overall, the IMPACT_SEC model could explain two thirds of the mortality fall. The 36% gap most likely reflects deficiencies in data, notably in population blood pressure and income.

**Conclusion**
Denmark has benefited from one of biggest falls in CHD mortality in high income countries. The treatment uptake rate in Denmark was comparable with that in other countries and treatments accounted for approximately one third of the total mortality fall, much as in other, comparable populations. The largest contributions came from population-wide, non-pharmacological reductions in major risk factors, notably cholesterol and smoking. Future strategies should therefore prioritise population-wide prevention policies.

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**CHILDHOOD COGNITIVE ABILITY AND STANDING BALANCE IN MID TO LATER LIFE: FINDINGS FROM THE MRC NATIONAL SURVEY OF HEALTH AND DEVELOPMENT**

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**Background**
Physical performance indicators, such as standing balance, grip strength and walking speed, are increasingly being used as markers of healthy ageing. This is based on growing evidence that poor performance on these tests is associated with adverse health outcomes including falls, disability, hospitalisation and mortality. Individual variation in the levels of performance on each of these tests may be due to diverse contributing factors across life. Previous research has suggested that neurodevelopmental pathways may be particularly important for balance performance; however the few published studies on this have only examined balance at one age. We aimed to examine the associations between childhood cognitive ability, a marker of neurodevelopment, and standing balance at three ages in mid and later life.

**Methods**
Up to 2785 participants from the MRC National Survey of Health and Development, a British cohort study followed since birth in 1946, were included in analyses. Standing balance was assessed at ages 53, 60–64 and 69 using the one-legged stand test with eyes closed up to a maximum of 30 s.