**Project Title**  
*Modelling preventative interventions to address inequalities in chronic disease*

**Lead Researchers**  
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**SPHR Collaborators**  
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**External Collaborators / Partners**  
Nick Cavill, Independent Consultant on physical activity

**Start Date**  
1 October 2012

**End Date**  
30 September 2015

### Outline

**BACKGROUND**
- Coronary heart disease (CHD) represents the biggest single cause of death in the UK  
- CHD is currently the biggest contributor to inequalities in premature deaths  
- CHD is eminently preventable, but many preventive interventions aimed at changing behaviours fail to reduce inequalities, and some may even widen them  
- With UCL colleagues, we have developed & validated the IMPACTsec Policy Model. This can examine English mortality trends by socio-economic circumstance (SEC) quintiles and to quantify contributions from specific risk factors & treatments.

**RESEARCH QUESTION**
- Can we extend and build on the IMPACTsec model to evaluate and predict the effects of past and future environmental and health care interventions, in order to inform local priority-setting and evidence-based commissioning?

**OBJECTIVES**
Using CHD as a case-study, we will:
- Identify, characterise and interpret published data on the effectiveness and differential socio-economic impact of environmental interventions on CHD prevention  
- Identify and access relevant data describing socio demographic trends in population CHD risk factors & effectiveness and differential impact of CHD therapies;  
- Explore modelling methodologies to:  
  - quantify and describe the contribution of environmental and health care interventions on recent CHD mortality change by socio demographic group, and  
  - predict likely impact of future policies & interventions;  
- Disseminate outputs in a form suitable for commissioners.

**METHODS**
- Systematic literature review:  
  - Review policies on tobacco control, diet & inactivity  
- Consult expert advisory group  
- Model impact of past and future environmental and health care interventions

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<td>- After scoping a variety of simulation methodologies, we will quantify contributions of past and future interventions to changing risk-factors for CHD, stratified by socio-economic quintiles.</td>
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<td>- Quantification of the precision and uncertainties associated with past estimates and future projections.</td>
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<td>- Evidence-based recommendations to public health and care commissioners with regard to priority-setting, evidence-based commissioning &amp; addressing inequalities.</td>
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For further details, please download the research poster at sphr.nihr.ac.uk

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<th>Findings</th>
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<td>Emerging findings from Rory McGill’s systematic review (sent as an abstract to Society for Social Medicine) can be viewed overleaf.</td>
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<tr>
<td>Contact: Dr Martin O’Flaherty, Senior Lecturer, Department of Public Health, University of Liverpool, UK <a href="mailto:moflaher@liv.ac.uk">moflaher@liv.ac.uk</a></td>
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Assessing the potential effect of healthy eating policy interventions on socioeconomic inequalities: systematic review

Background

Cardiovascular disease (CVD) is one of the main contributors to health inequalities. And CVD primary prevention includes potentially powerful interventions to promote healthy eating. However, might some dietary interventions actually widen the health gap between rich and poor, thus leading to intervention-generated inequalities?

Objective: To systematically review the evidence for differential socio-economic effects associated with healthy eating policy interventions.

Design

We initially searched two bibliographic databases (MEDLINE & Psycinfo) using a piloted search strategy. Results from further databases and additional sources will be reported in the final review. Search results were screened independently by two reviewers.

We included evaluations of policy interventions to promote healthier diets, (defined as the reduced intake of salt, sugar, trans fats, saturated fat, total fat, or total calories, or increased consumption of fruit and vegetables). Studies were only included if quantitative results were presented by socio-economic group (SEG), defined by income or education level, ethnicity, or occupational status.

Extracted data were categorised with a modified version of the 4Ps marketing framework: Price, Product, Place and Promotion, with a 5th “P”, labeled “Personal”, relating to person-based health education.

Results

We identified 14,449 studies in the initial search, and reviewed 95 full text papers. Following screening, only 14 articles (0.1% of 14,449 total) met the inclusion criteria.

Preliminary results analysed using the “5 P’s” framework suggest that some food policy interventions may generate socio-economic differentials.

Price interventions showed the greatest potential to reduce health inequalities (3 of 5 studies). Conversely, Personal interventions tended to widen inequalities (3 of 4 studies showed preferential outcomes in higher SEGs).

Results relating to Place interventions were mixed, with 2 school-based studies reporting a preferential outcome in higher SEGs, and 1 work-based study reporting a preferential outcome in lower SEGs.

Evidence for Product and Promotion interventions appears sparse, with only 1 study found for each category. However, both reporting preferential outcomes in higher SEGs.

Conclusions

Interventions categorised by the “5 P’s” show differential effects on healthy eating outcomes by SEG, with interventions categorised as Personal appearing the most likely to increase health inequalities. However the vast majority of studies retrieved did not explore differential effects by socio-economic group. Future policies aimed at improving population health should be routinely evaluated for their potential impact on health inequalities.