

1.	Project reference:	Final report date:	
	SPHR-LIL-PH1-MCD	26 May 2016	
2.	Project title:		
	Modelling preventative interventions to address inequalities in chronic disease http://sphr.nihr.ac.uk/wp-content/uploads/2017/03/Brief-SPHR-LIL-PH1-MCD.pdf#view=Fit		
3.	Lead investigators on project:	Simon Capewell, LiLaC (Professor Public Health and Policy, University of Liverpool), Peter Diggle, LiLaC (Distinguished University Professor, Lancaster University)	
	Other NIHR School collaborators (name, School for Primary Care/Social Care Research) on project:	N/A	
	Names and roles of others involved in project (e.g. include fixed term contract researchers and external collaborators / partners):	Martin O'Flaherty, Margaret Whitehead, LiLaC (University of Liverpool) Mark Petticrew, LSHTM; Martin White Cambridge (formerly Fuse) Kirk Allen, University of Lancaster (at time research undertaken) Duncan Gillespie, University of Liverpool (at time research undertaken) Maria Guzman-Castillo, Piotr Bandosz University of Liverpool	
4.	Project start date:	Project end date:	Duration:
	1 October 2012	30 September 2015	36 months
5.	Project objectives originally outlined in proposal:		
	<p>BACKGROUND</p> <ul style="list-style-type: none"> Coronary heart disease (CHD) represents the biggest single cause of death in the UK CHD is also the biggest current contributor to inequalities in premature deaths CHD is eminently preventable; however, 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 <i>IMPACTsec Policy Model</i>. This can examine English mortality trends by socio-economic circumstance (SEC) quintiles, quantify contributions from specific risk factors & treatments, and explore future scenarios. <p>RESEARCH QUESTION</p> <ul style="list-style-type: none"> Can we extend and build on the <i>IMPACTsec model</i> 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? <p>OBJECTIVES</p> <p>Using CHD as a case-study, we will:</p> <ul style="list-style-type: none"> 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 and 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

DELIVERABLES

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.
- Quantify the precision and uncertainties associated with past estimates and future projections.

Deliver evidence-based recommendations to public health and primary-care commissioners with regard to priority-setting, evidence-based commissioning and addressing inequalities.

6. Briefly describe and explain the reason(s) for any changes to the project originally outlined in proposal:

No significant changes

7. Brief summary of methods, findings against objectives, and conclusions (2-4 pages max):

Methods:

During this project, we have successfully extended and developed new modelling methods and approaches; specifically:

- We extended the IMPACT food and SEC models to explore a range of food policy options around salt and transfats policies and their effects on inequalities.
- We have also piloted and developed an expert opinion consensus methodology to provide assumptions to explore the differential socioeconomic effect of specific salt policies. This has been explicitly and transparently integrated in a modelling exercise that explored the distributional effectiveness of mandatory and voluntary salt reformulation policies, alongside health promotion and labelling strategies.
- We have implemented a Bayesian age-period-cohort effects forecast model to explore the future socioeconomic distribution of CHD mortality in England.
- We have conducted a programme of systematic reviews to assess the potential effect of healthy eating policies, smoking and physical activity interventions on socioeconomic inequalities in the burden in cardiovascular disease.

Results (including findings in relation to the objectives):

Identify, characterise and interpret published data on the effectiveness and differential socio-economic impact of environmental interventions on CHD prevention

We conducted systematic reviews on physical activity and food policies, focusing on their effectiveness to reduce health inequalities. Food Policies: *Key findings:* We identified 31,887 articles in our search. Following screening, only 41 articles (0.13%) met the inclusion criteria. Interventions categorised by the “5 P’s” suggested differential socio-economic effects on healthy eating outcomes. “Upstream” interventions categorised as “Price” and “Place” appearing more likely to decrease health inequalities, and “downstream”, “Personal” interventions the most likely to increase inequalities.

Physical activity: Eight systematic reviews were initially identified (3 NICE, 3 BMJ/Lancet; 1 Cochrane; 1 HTA,). These which presented 53 potential intervention approaches, of which 44 were based on evidence graded as “strong” or “moderate” quality and included in a more detailed analysis. A total of 185 studies were considered, spanning a range of policies and country settings. Methodological quality was mixed. Sadly, only 10 (5%) out of 185 total studies provided quantitative data on differential responses by socio-economic status:

- Four studies presented differential data related to community-wide multiple level interventions of which 3 suggested widening inequalities.
- Three studies presented differential data related to walking interventions in communities, of which two suggested widening inequalities
- Two studies presented differential data related to cycling interventions in communities. Both suggested narrowing inequalities.
- Only study presented differential data related to sustainable transport interventions; that suggested a narrowing of inequalities.

Conclusions: The results of this rapid review were therefore consistent with the suggestion that suggested that “upstream” interventions focussing on cycling and transport might narrow inequalities, whereas more “downstream interventions targeting communities or individuals might widen inequalities. Furthermore, compared with tobacco control, and nutrition interventions, there is a remarkable paucity of physical activity intervention evaluation studies which consider socio-economic inequalities. This must be considered a priority for future research.

Identify and access relevant data describing socio demographic trends in population CHD risk factors & effectiveness and differential impact of CHD therapies

We have updated the demographic, mortality and socioeconomic information to use in our modelling approaches. We then explored key stakeholders’ estimates for the effect of salt policies on health inequalities, since there is very limited data on the topic. Twelve of the twenty experts approached provided complete responses.

The experts estimated that further voluntary reformulation could result in approximately 40% of products being reformulated by 2020 (*95% confidence intervals: 13–76%*). In these products, the experts expected a reduction in salt content of approximately 22% (*9–45%*). Less progress was expected in the most deprived fifth, who the experts considered might experience approximately 80% (*18–150%*) of the reduction in the most affluent fifth.

We asked the experts to assume that a conservative baseline of 10% of individuals were currently exposed to social marketing and 10% exposed to nutrition labelling. They estimated that this exposure might increase to approximately 24% (*8–55%*) with developments in social marketing and approximately 26% (*9–50%*) with developments in nutrition labelling. The experts considered that the most deprived fifth might experience an increase in exposure about half (*15–89%*) of that in the least deprived fifth for social marketing, and also for nutrition labelling (*8–110%*).

This work resulted in a user-friendly, transparent procedure to rapidly elicit experts’ quantitative estimates on population effects and inequalities. Such data could potentially inform future debate or policy formation, populate models or guide further empirical studies.

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

Future trends in socioeconomic differences in CHD Mortality

Building on our previous work which analysed past trends in CHD mortality by social group (Bajekal et al 2013) and population-level CHD mortality projections in England

(Guzman Castillo et al 2014), we used a Bayesian analysis of an Age-Period-Cohort model (Schmid & Held 2007) to project gender and age-specific coronary heart mortality in England to 2035, for each socio-economic quintile (IMDQ). Age-specific CHD mortality was summarized as premature CHD mortality (ages 35-74). We used the variance (Gillespie in press; Edwards 2011) to describe inequality among groups and decomposed the annual change in variance to yield group-specific contributions. Our results suggested that CHD mortality will continue to decline for all socioeconomic groups and for both men and women in all age-groups. As a result of these population-level declines, *absolute* inequality in premature CHD mortality is projected to decrease by 87% (95% CI 29–98%) among men and by 89% (48–98%) among women. This decrease was particularly driven by the most deprived groups due to their higher premature death rates. However, these declines mask important differences between socioeconomic groups in the rate of decline. Because the most deprived groups have slower rates of decline, *relative* inequality is projected to rise by 60% among men (26 to 107%) and rise by 10% (-15 to 42%) among women. These increases are also mostly influenced by the most deprived. We therefore suggested that more aggressive and progressive prevention policies are urgently needed to accelerate declines among the most deprived, while also maintaining progress for all groups.

Food Policy Modelling:

Trans fats health economics analyses: We found that a total ban on industrial trans fatty acids in processed foods in England might reduce the number of deaths from coronary heart disease by approximately 7,200 deaths (2.6%) between 2015 and 2020. That total ban might also reduce inequality in death from coronary heart disease by about 3,000 deaths (15%).

By contrast, policies to improve labelling or simply remove trans fatty acids from restaurants and takeaways could prevent between 1,800 (0.7%) and 3,500 (1.3%) deaths and reduce inequalities by approximately 600 (3%) to 1,500 (7%) deaths. These policies would therefore be, at best, half as effective.

A total ban would also produce the biggest savings for public services, at total of approximately £265m. This is countered by the fact that the cost to industry of reformulating their products to remove trans fats could be as high as £200m. But that would still produce a net saving for society of about £65m.

Salt reduction policies: Mandated and enforced reformulation to lower salt contents is projected to reduce the annual number of premature CHD deaths by approximately 6,220, and decrease the gap between least and most deprived quintiles by some 990 to 5,200 deaths. Voluntary reformulation could reduce premature CHD deaths by approximately 3,190, but increase the gap between least and most deprived by some 560 to 6,750 deaths. By comparison, health promotion and front-of-pack labelling had a much smaller impact, reducing premature CHD deaths by only about 80 and 470 respectively, with similarly small effects on inequalities. Reformulation of salt content is therefore the most effective and equitable policy option, but only if mandated and enforced at all retail price-bands. Behaviour change options are less effective, but may be the only options if legislative and enforcement structures are politically challenging.

Smoking policies: In order to evaluate the impact of maximizing the tobacco control score in England, we used the IMPACT Policy Model to link predicted changes in smoking prevalence to changes in premature coronary heart disease (CHD) mortality for ages 35-74. Health outcomes with a time horizon of 2015-2025 were stratified by quintiles of socioeconomic circumstance.

Improving all smoking policies to achieve a maximum score on the TCS might reduce smoking prevalence in England by 3% (95%CI: 1%-4%) in absolute terms, or by 15% in relative terms (7%-21%). The most deprived quintile would benefit more, with absolute reductions of 5% (2%-7%). There would be some 3300 (2200-4700) fewer premature CHD deaths between 2015-2025, a 2% (1.4%-2.9%) reduction. The most disadvantaged quintile would benefit more, reducing absolute inequality of CHD mortality by about 4% (3%-9%).

	<p>Further, feasible improvements in tobacco control policy could substantially improve population health, and reduce health-related inequalities in England.</p> <ul style="list-style-type: none"> • Disseminate outputs in a form suitable for commissioners <p>We have disseminated our findings using diverse routes, including peer reviewed journals, national and international conferences, invited presentations, group website and mass media (detailed below).</p> <p><u>Conclusions: (summarise lay conclusions below)</u></p>
8.	<p>Plain English Summary (400 words max) Please provide a summary of the project, including background, findings and conclusions:</p> <p>Heart disease is still a major cause of disability and death, and is particularly affects people in socioeconomically disadvantage groups. In this project, we evaluated the potential of healthy food, tobacco control and physical activity to reduce social and economic differences in deaths from heart diseases.</p> <p>First, we looked at how the future would look like in terms of the risk of dying by social class in 2030, using a mortality forecasting method. We found that although heart attack death rates will continue their long-term decline, this will happen more slowly in socially disadvantage groups. That therefore represents an important and urgent target for population-wide prevention policies. Hence the question, what policies might work best to prevent prematurely heart disease deaths, and reduce inequalities? We first reviewed the existing scientific evidence. That demonstrated that interventions aiming to improve diet across the entire population tended to be more effective than those interventions favouring individual behaviour change. We then used sophisticated computer models to combine this scientific evidence along with the considered views of topic experts. We then calculated and compared the effect of different UK food strategies for the English population up to 2030. We found that “upstream” policies and interventions aiming to benefit the entire population, (for instance by reducing salt or elimination industrial transfats) could have the greatest potential to reduce deaths, reduce inequalities and generate net savings that could be used by the NHS for other purposes.</p>
9.	<p>Keywords Please provide up to 8 keywords that relate to the research undertaken in this study:</p> <p>CARDIOVASCULAR DISEASE FOOD POLICY INEQUALITIES MODELLING TRANSFATS PHYSICAL ACTIVITY SALT SMOKING</p>
10.	<p>Dissemination – please detail planned or published articles in peer-reviewed journals (including web links):</p> <p>Papers Published: C. Kyridemos, K. Allen, G Hickey, M.Guzman-Castillo, P Bandosz, I Buchan, S Capewell, M O’Flaherty. Is cardiovascular screening the best option for reducing future cardiovascular disease burden? A microsimulation study to quantify policy options. BMJ 2016 353:i2793. doi: 10.1136/bmj.i2793 ID BMJ.2016.031638</p> <p>The effects of maximising the UK’s tobacco control score on inequalities in smoking</p>

prevalence and premature coronary heart disease mortality: a modelling study. Allen K, Kypridemos C, Hyseni L, Gilmore AB, Diggle P, Whitehead M, Capewell S, O'Flaherty M. BMC Public Health. 2016 Apr 1;16:292. doi: 10.1186/s12889-016-2962-8.

Kirk Allen, Duncan O. S. Gillespie, Maria Guzman Castillo, Peter J. Diggle, Simon Capewell, Martin O'Flaherty. Premature Coronary Heart Disease Deaths in England: modelling study of future trends and inequalities. International Journal of Cardiology 2015 15;203:290-7. doi: 10.1016/j.ijcard.2015.10.077

Kirk Allen, Jonathan Pearson-Stuttard, William Hooton, Peter Diggle, Simon Capewell, Martin O'Flaherty. Exploring the potential of trans-fats policies to reduce socio-economic inequalities in coronary heart disease mortality in England: A cost-effectiveness modelling study. BMJ 2015;351:h4583 doi: <http://dx.doi.org/10.1136/bmj.h4583>

McGill R, Anwar E, Orton L, Bromley H, Lloyd-Williams F, O'Flaherty M, Taylor-Robinson D, Guzman-Castillo M, Gillespie D, Moreira P, Allen K, Hyseni L, Calder N, Petticrew M, White M, Whitehead M, Capewell S. Are interventions to promote healthy eating equally effective for all? Systematic review of socioeconomic inequalities in impact. BMC Public Health 2015; 15:457
DOI: 10.1186/s12889-015-1781-7 <http://www.biomedcentral.com/1471-2458/15/457>

Piotr Bandosz, Martin O'Flaherty, Marcin Rutkowski, Chris Kypridemos, Maria Guzman-Castillo, Duncan O. S. Duncan, Bogdan Solnica, Michael J. Pencina, Bogdan Wyrzykowski, Simon Capewell, Tomasz Zdrojewski. A victory for statins or a defeat for diet policies? Cholesterol falls in Poland in the past decade: A modelling modeling study. Int J Cardiol 2015 (accepted March 2015)

M Guzman-Castillo, R Ahmed, N Hawkins, S Scholes, E Wilkinson, J Lucy, S Capewell, M O'Flaherty. The contribution of primary prevention medication and dietary change in coronary mortality reduction in England between 2000 and 2007: a modelling study. BMJ Open, 2015;5:e006070.

Guzman Castillo M, Gillespie D, Allen K, Bandosz P, Schmid V, Capewell S O'Flaherty M. Predicting future Coronary Heart Disease mortality trends in England and Wales: a Bayesian age period cohort forecast up to 2030. Plos ONE 2014 9(6): e99482

Duncan O. S. Gillespie, Kirk Allen, Maria Guzman-Castillo, Piotr Bandosz, Patricia Moreira¹, Rory McGill, Ffion Lloyd-Williams, Helen Bromley, Peter Diggle, Simon Capewell and Martin O'Flaherty. The Health Equity And Effectiveness Of Future Policy Options To Reduce Dietary Salt In England: Modelling Study. PlosOne 2015,10(7):e0127927

Conferences & Lectures:

Presented at Annual Scientific Meeting, Society for Social Medicine

1. The health equity and effectiveness of future policy options to reduce dietary salt in England: mechanistic policy forecast. (SSM 2014)
2. Forecasting public health policy: quantifying expert opinion on the future effectiveness and inequality of action on dietary salt intake. (SSM 2014)
3. Quantifying the socio-economic benefits of reducing dietary trans fats: modelling study (SSM 2014)
4. Future trends and inequalities in premature coronary deaths in England: modelling study (SSM 2014)
5. Future declines of Coronary Heart Disease mortality in England and Wales could counter the burden of population ageing.

Presented at annual American Heart Association Nutritional and Epidemiology meetings

6. Contribution of Statins to the Observed Decline in Total Cholesterol in England 1991 - 2012: Socio-Economic Modelling Study" (2015 conference)

Dissemination to Academic Audiences:

O'Flaherty

1. Parallel oral presentation of project results at the Sheffield SPHR Science conference (2015);
2. Sir Richard Doll Seminar in Public Health and Epidemiology, at Michaelmas 2014 (Nuffield Department of Population Health, University of Oxford);
3. Keynote Speaker, Diet, Lifestyle and Cardiovascular Risk: from Evidence to Policy, organized by the Cardiovascular Research Trust. London, December 2014;
4. European Society of Cardiology Annual Meeting, Barcelona, August 2014;
5. Instituto de Salud Pública de Mexico, Cuernavaca. April 2014;
6. Keynote, National Prevention Conference Ireland, National Prevention Center. Galway November 2015;
7. Session Chair: "The infarction is on the other side of the street: geographical inequalities in cardiovascular disease, EUROPREVENT Annual meeting, Lisbon 15 May.
8. Invited Seminar at the National Cerebral and Cardiovascular Center of Japan. Osaka, July 2015; EUROPREVENT Annual meeting, Lisbon May 2015.
9. Keynote Speaker: Promoting healthy weight: National policy to local action.: Evidence Based Food Policy and Equity: LILAC Research. CHAMPS Public Health Collaborative, Liverpool, 23rd March 2016
10. Presentation of our analysis of the NHS health checks effectiveness compared to structural diet policies at the Expert Scientific and Clinical Advisory Panel, Department of Health, London, 27th July 2016
11. UPCOMING:. European Public Health Association annual meeting:
Workshop Speaker in two workshops: Health Impact assessment and modelling, and on Food Systems and Policy. Vienna, 9-12 November 2016
12. UPCOMING: Keynote Lecture., Prevention of Non-Communicable disease at the population level. Hospital Universitario Austral, University Austral Faculty of Medicine Grand Rounds. Pilar, Argentina. 19th August 2016.

Capewell Dissemination

1. Can we quantify the benefits of healthy food policies? Food Thinker Seminar, City University (28/10/2015) http://foodresearch.org.uk/simon-capewell/?utm_source=hootsuite
2. Harnessing our work to create social and policy change in nutrition and obesity. All Ireland Obesity Action Forum, Foodsafe; Dublin (10/10/2015)
3. Turning the tide on the leading causes of premature mortality: A closer look at CVD prevention & the research agenda . PHE Academic Symposium, London (3/12/2015)
4. Securing Scotland's Health by Pills or Policies? FPH Scottish Conference, 6 November 2015: DARE Lecture Peebles (6/11/2015)
5. Preventing Obesity & CVD: Pills or Policies? Kent & Surrey PH Network. Crawley (8/9/2015)
6. Mentoring; Work-Life Balance. Society For Social Medicine Early Career Researchers Workshop. Forging a career in academia: a survival kit Dublin 2015. (01/08/2015)
7. Thinking strategically about your career SSM ECR Workshop. Forging a career in academia: a survival kit Dublin 2015 (01/08/2015)
8. Could food or soda taxes improve health? George Alexander Gibson Lecture 2015, Royal College of Physicians of Edinburgh (05/06/2015)
9. Public Health Prevention Plans: Pills, Policies, Politics or Partnerships? John Snow Lecture 2015, University of York (28/04/2015)
10. From Disease Modelling to Effective NCD Prevention Strategies. Keynote Lecture. NCD PREVENTION COURSE: Capacity Building & Implementation: University of Oxford (25/03/2015)
11. Preventing Obesity & CVD: Pills or Policies? Frederick H. Epstein Memorial Lecture American Heart Association's EPI/Lifestyle, Annual Conference, Baltimore (6/03/2015)
12. Global Collaborations in Cardiovascular Disease: Practical Perspectives and Experiences American Heart Association EPI/Lifestyle Early Career Committee, Early Career Session, (5/3/2015)
13. COLLABORATION: the key to successful academic research. Enhancing

Interdisciplinarity. Afternoon Workshop. Universities of Manchester, Lancaster & Liverpool (30/01/2015)

14. International lessons from the CHD IMPACT Model
University of Warwick SEMINAR SERIES (4/12/2014)

15. WHO Workshop. Framework Convention For Healthy Nutrition: Scientific Strengths & Subsequent Steps. EUPHA European Association of Public Health, Glasgow, (21/11/2014)

16. Nutrition Policies Session. . Policy Provocations: Action on Sugar
EUPHA European Association of Public Health, Glasgow, (21/11/2014)

17. EUPHA Plenary: Optimal non-communicable disease: prevention strategies: pills or policies? "Communicable and non-communicable diseases: forging a convergent approach from an integrated public health perspective". European Association of Public Health, Glasgow, (21/11/2014)

18. Building Healthy Global Food Systems: Policy Provocations
World Public Health Nutrition Association Biannual Conference, Oxford (9/9/2014)

20. Public health policy: "What Works?" & overcoming barriers to implementation
FAB Annual Meeting: Sugar, New approaches to the Public Health Crisis (London, 10/7/2014)

21. Wicked Problem #3 OBESITY. Tackling industry & governments .
Festival of Public Health, Manchester, (01/7/2014)

22. "Science or showbizz? Using the media to support your public health interventions"
PHRI Research Rounds. McMaster University, Hamilton, Canada (03/6/2014)

23. "Preventing cardiac deaths in Canada: past and future"
Cardiology Grand Rounds, McMaster Hospital, Hamilton., Canada (02/6/2014)

24. 4th Annual PHRI Lecture. "NCD prevention politics: pills or policies?"
McMaster University, Hamilton, Canada (02/6/2014)

25. NCD prevention: relative importance of food, tobacco, alcohol and inactivity. NI Chest Heart & Stroke Association Annual Away Day. Belfast (22/5/2014)

26. COLLABORATION: the key to successful research EuroPrevent 2014: Research after your PhD: Network Options. Amsterdam, (09/5/2014)

27. The role of the food industry in cardiovascular disease prevention at population level: good vector?? Hot debates in nutrition and globesity. EuroPrevent, Amsterdam (10/5/2014)

28. Is Sugar the New Tobacco? Using media to support public health messages.
Plenary, International Conference on Urban Health (ICUH) Manchester (5/3/2014)

29. Preventing cardiovascular diseases globally – gains achieved from tackling the major risk factors. Promoting brain health: Developing a prevention agenda linking dementia & non-communicable diseases. Public Health England & UK Health Forum. London (30/01/2014)

Work on contributions of statins to the decline of CHD mortality and inequalities highlighted in major newspapers and media outlets (23/01/2015):

NHS Choices (<http://www.nhs.uk/news/2015/01/January/Pages/Statin-use-may-be-widening-health-inequalities-in-England.aspx>)

Daily Mail (<http://www.dailymail.co.uk/health/article-2922674/Fall-heart-deaths-healthy-living-not-statins-Reductions-blood-pressure-cholesterol-saved-20-000-lives-seven-years.html>) ,

The Independent (<http://www.independent.co.uk/life-style/health-and-families/health-news/mass-prescription-of-statins-will-widen-social-inequalities-9996555.html>) ,

The Telegraph (<http://www.telegraph.co.uk/news/science/science-news/11363785/Statins-save-fewer-lives-than-exercising-and-eating-sensibly-say-scientists.html>).

Work on trans fats policy options to reduce the unequal burden of coronary heart disease received substantial media coverage:

BBC radio 4 Today Programme, Daily Mirror (<http://www.mirror.co.uk/news/uk-news/banning-trans-fats-could-prevent-6451082>),

The Guardian (<http://www.theguardian.com/society/2015/sep/15/trans-fats-ban-could-save-7200-lives-study>)

Yorkshire Post (<http://www.yorkshirepost.co.uk/news/main-topics/general-news/scientists-claim-ban-on-trans-fats-could-save-lives-1-7462511>)

Daily Mail (<http://www.dailymail.co.uk/health/article-3236209/Ban-trans-fats-processed-food-save-7-000-lives-five-years.html>)

	<p>The Independent (http://www.independent.co.uk/life-style/health-and-families/health-news/banning-trans-fats-could-prevent-7000-deaths-from-heart-disease-over-next-five-years-claim-experts-10502552.html)</p> <p>The Telegraph (http://www.telegraph.co.uk/news/science/11867767/Banning-trans-fats-in-Britain-would-save-lives-research-suggests.html)</p> <p>Irish Examiner (http://www.irishexaminer.com/examviral/science-world/trans-fats-should-be-banned-in-britain-to-save-lives-researchers-argue-354137.html)</p> <p>The Times (http://www.thetimes.co.uk/tto/health/news/article4558376.ece)</p> <p>The Conversation</p>
11.	<p>Public and participant involvement Please provide comment on your experiences, any changes made and lessons drawn:</p> <p>N/A</p>
12.	<p>What impact has the research already achieved or what might it achieve? (i.e. policy, practice, academic):</p> <p>Our work around statins and transfats has attracted substantial media attention including remarks from BHF Chief Executive, other academics and the Food Industry</p> <p>Presentations to Scottish Faculty of Public Health and Scottish CMO (6 Nov 2015), Public Health England and the English CMO (3 Dec 2015).</p>

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Department of Health Disclaimer:

The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the NIHR School for Public Health Research, NIHR, NHS or the Department of Health.