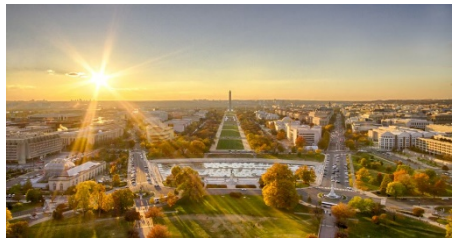
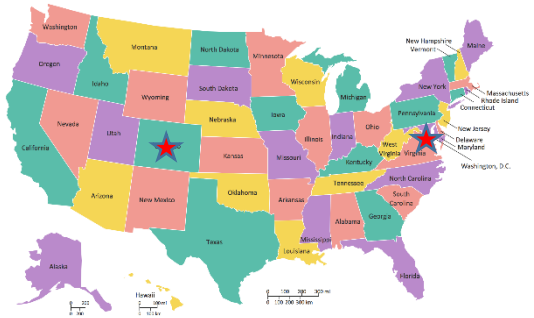
Making the most out of your SPCR award

Dr Stephen Weng
Assistant Professor of Integrative Epidemiology and Data Science
Primary Care Stratified Medicine (PRISM)
University of Nottingham

A little about me…





GRE

University of Nottingham
UK | CHINA | MALAYSIA

THE UNIVERSITY OF CALIFORNIA
UCLA

From post-doc to permanent academic (≈ 5 years)

- Post-doctoral period (Oct 2013 – June 2018)
- University of Nottingham Fellowship (Oct 2013 – May 2016)
- NIHR SPCR Career Launching Fellowship (June 2016 – June 2018)
- Assistant Professor (July 2018 – current)

What I did with my award…

- **Proposed new ideas** – *I proposed developing risk algorithms using machine-learning, a skill which I did not have at the time*

- **Skill up through training** – *7 external short courses on research methodology (hard skills), 3 external training events on soft skills (leadership/communication/media training), 2 grant writing workshops, 3 SPCR training meetings, and 1 visiting researcher attachment with another University.*

- **Spent significant time writing grants** – *At least 20% of my time. Submitted 10 grants of varying sizes, with 6 successful funding decisions as both principal investigator and co-investigator – my current active portfolio stands at £1,741,733*

- **Travelled and networked –** *6 conferences (2 international, 4 within the UK)*

- **Outputs and media –** *12 peer-reviewed publications, 2 radio interviews, various presentations/dissemination/talks*

Reflecting on key themes…

- Something new, something old
- Take ownership of your work
- Think about impact - priority areas
- Offer your services, in particular for writing grants
- Learn how to be an academic
- Connect and talk to people

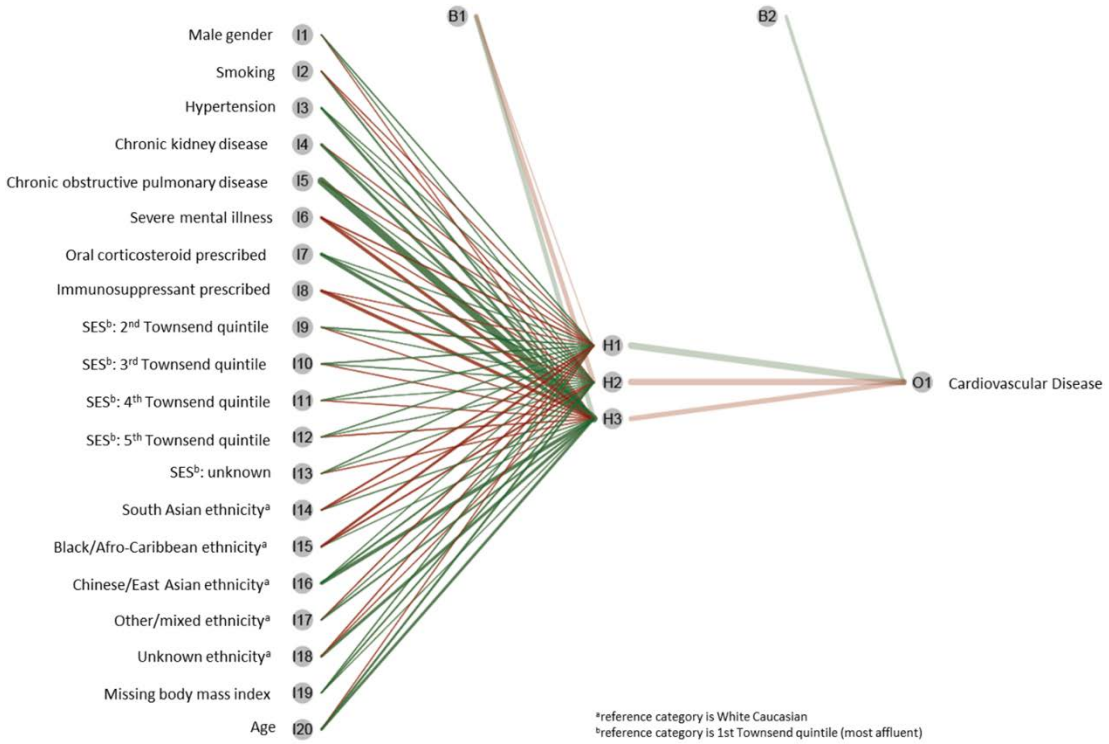
Something new, something old

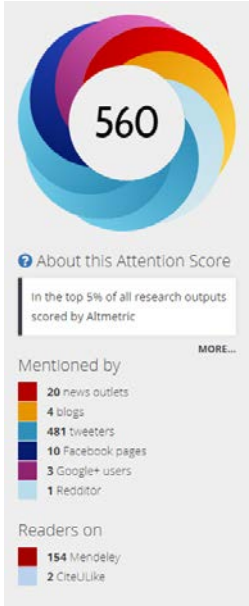
- Project should challenge you
- Will require new skills to be developed
- Will draw on and be relevant to your previous experience and work
- Identify your weaknesses
- Develop a training plan to address those weaknesses

Something old: Previously developed risk algorithms using standard epidemiological approaches:

- Infant Risk of Obesity Tool (*Pediatrics*)
- Inherited Lipid Disorders Tool (*Atherosclerosis)*

Something new: Fellowship proposal included developing and validating four machine-learning algorithms for CVD





Primary Care Stratified Medicine

University of Nottingham
UK | CHINA | MALAYSIA

PLOS ONE

RESEARCH ARTICLE

Can machine-learning improve cardiovascular risk prediction using routine clinical data?

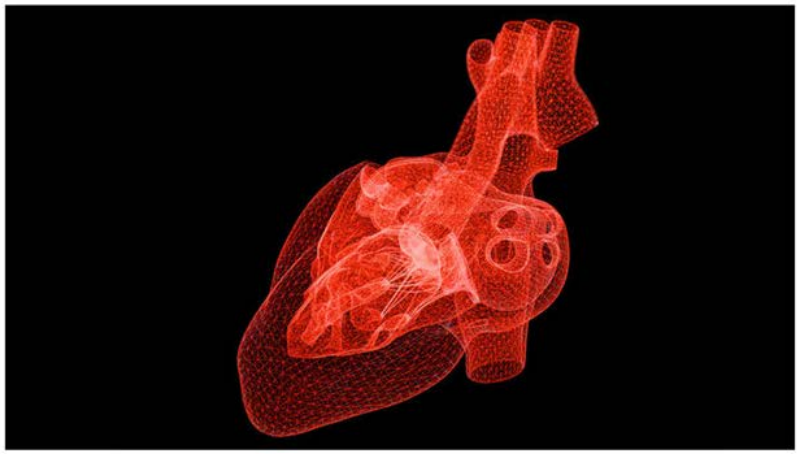
Stephen F. Weng[1,2☯]*, Jenna Reps[3,4☯], Joe Kai[1,2‡], Jonathan M. Garibaldi[3,4‡], Nadeem Qureshi[1,2‡]

1 NIHR School for Primary Care Research, University of Nottingham, Nottingham, United Kingdom, 2 Division of Primary Care, School of Medicine, University of Nottingham, Nottingham, United Kingdom, 3 Advanced Data Analysis Centre, University of Nottingham, Nottingham, United Kingdom, 4 School of Computer Science, University of Nottingham, Nottingham, United Kingdom

67 Citations (2017)

Science Home News Journals Topics Careers

SHARE 17K 276 4K



Artificial intelligence may help prevent heart failure. Devrimb/iStockphoto

Self-taught artificial intelligence beats doctors at predicting heart attacks

By Matthew Hutson | Apr. 14, 2017 , 3:30 PM

My methodological skills training…

Advanced modelling methods for health economic evaluation (University of Glasgow)

Cochrane Systematic Review Course (University of Nottingham)

Advanced Topics in the Analysis & Reporting of Systematic Reviews (University of Oxford)

Introduction to Genetic Epidemiology in the GWAS Era (University College London)

Design and Analysis of Randomised Controlled Trials (University of Bristol)

Using Machine Learning in Health Research (University College London – Farr Institute)

Intensive R Course (Nottingham Trent University)

Visiting researcher at the School of Computer Science (University of Dundee)

Taking ownership

- Put your own stamp on your project
- Write the first draft
- Acknowledge collaborative nature of the project
- Any opportunity for dissemination/presenting your work – take it!
- A supportive team helps

Atherosclerosis 238 (2015) 336–343

Contents lists available at ScienceDirect

Atherosclerosis

journal homepage: www.elsevier.com/locate/atherosclerosis

Improving identification of familial hypercholesterolaemia in primary care: Derivation and validation of the familial hypercholesterolaemia case ascertainment tool (FAMCAT)

Stephen F. Weng [a], Joe Kai [a], H. Andrew Neil [b], Steve E. Humphries [c], Nadeem Qureshi [a,*]

[a] Division of Primary Care, School of Medicine, University of Nottingham, UK
[b] Wolfson College, University of Oxford, UK
[c] Centre for Cardiovascular Genetics, Institute of Cardiovascular Science, University College London, UK

ARTICLE INFO

Article history:
Received 19 September 2014
Received in revised form
18 November 2014
Accepted 9 December 2014
Available online 20 December 2014

Keywords:
Hypercholesterolaemia
Familial
Lipids
Primary care
Epidemiology

ABSTRACT

Objective: Heterozygous familial hypercholesterolaemia (FH) is a common autosomal dominant disorder. The vast majority of affected individuals remain undiagnosed, resulting in lost opportunities for preventing premature heart disease. Better use of routine primary care data offers an opportunity to enhance detection. We sought to develop a new predictive algorithm for improving identification of individuals in primary care who could be prioritised for further clinical assessment using established diagnostic criteria.

Methods: Data were analysed for 2,975,281 patients with total or LDL-cholesterol measurement from 1 Jan 1999 to 31 August 2013 using the Clinical Practice Research Datalink (CPRD). Included in this cohort study were 5050 documented cases of FH. Stepwise logistic regression was used to derive optimal multivariate prediction models. Model performance was assessed by its discriminatory accuracy (area under receiver operating curve [AUC]).

Results: The FH prediction model (FAMCAT), consisting of nine diagnostic variables, showed high discrimination (AUC 0.860, 95% CI 0.848–0.871) for distinguishing cases from non-cases. Sensitivity analysis demonstrated no significant drop in discrimination (AUC 0.858, 95% CI 0.845–0.869) after excluding secondary causes of hypercholesterolaemia. Removing family history variables reduced discrimination (AUC 0.820, 95% CI 0.807–0.834), while incorporating more comprehensive family history recording of myocardial infarction significantly improved discrimination (AUC 0.894, 95% CI 0.884–0.904).

Conclusion: This approach offers the opportunity to enhance detection of FH in primary care by identifying individuals with greatest probability of having the condition. Such cases can be prioritised for further clinical assessment, appropriate referral and treatment to prevent premature heart disease.

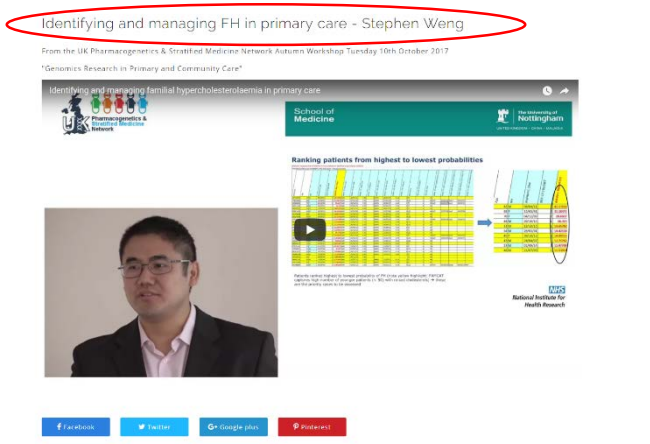
1. Introduction

Familial hypercholesterolaemia (FH) is the commonest autosomal dominant disorder, with between 1/200 to 1/500 individuals having the heterozygote form [1]. This genetic disorder is characterized by high serum cholesterol concentrations and is caused by mutations of the *LDLR* gene [1]. Without treatment, young adults aged 20 to 39 years with heterozygous FH are estimated to have nearly a 100-fold increase in mortality risk from CHD compared to unaffected adults [2,3]. Evidence indicates FH patients have up to a 37% reduction in CHD mortality following treatment with statins and improved life expectancy, emphasizing the major benefit of early identification and treatment [4]. If such patients are not recognized in primary care, they will be treated like other patients with common multifactorial causes for raised cholesterol and prescribed lower potency statins, or offered no medication at all if their global cardiovascular risk score is not elevated.

In the UK, the National Institute for Health and Care Excellence (NICE) recommends the Simon-Broome Register criteria [3] which includes cholesterol concentrations, clinical characteristics such as

* Corresponding author. Address: 1309 Tower, University Park, Nottingham NG7 2RD, UK.
E-mail address: nadeem.qureshi@nottingham.ac.uk (N. Qureshi).

http://dx.doi.org/10.1016/j.atherosclerosis.2014.12.034
0021-9150/



Atherosclerosis 234 (2015) 54–60

Contents lists available at ScienceDirect

Atherosclerosis

journal homepage: www.elsevier.com/locate/atherosclerosis

Improving identification and management of familial hypercholesterolaemia in primary care: Pre- and post-intervention study

Stephen Weng [a,*], Joe Kai [a], Jennifer Tranter [a], Jo Leonardi-Bee [b], Nadeem Qureshi [a]

[a] Division of Primary Care, NIHR School for Primary Care Research, School of Medicine, University of Nottingham, UK
[b] Division of Epidemiology and Public Health, School of Medicine, University of Nottingham, UK

ARTICLE INFO

Article history:
Received 16 March 2015
Received in revised form
18 April 2015
Accepted 27 April 2015
Available online 30 April 2015

Keywords:
Primary health care
Familial hypercholesterolaemia
Family health
Medical genetics

ABSTRACT

Background and aims: Familial hypercholesterolaemia (FH) is a major cause of premature heart disease but remains unrecognised in most patients. This study investigated if a systematic primary care-based approach to identify and manage possible FH improves recommended best clinical practice.

Methods: Pre- and post-intervention study in six UK general practices (population 45,033), which invited patients with total cholesterol >7.5 mmol/L to be assessed for possible FH. Compliance with national guideline recommendations to identify and manage possible FH (repeat cholesterol; assess family history of heart disease; identify secondary causes and clinical features; reduce total & LDL-cholesterol; statin prescribing; lifestyle advice) was assessed by calculating the absolute difference in measures of care pre- and six months post-intervention.

Results: The intervention improved best clinical practice in 118 patients consenting to assessment (of 831 eligible patients): repeat cholesterol test (+75.4%, 95% CI 66.9–82.3); family history of heart disease assessed (+35.6%, 95% CI 27.0–44.2); diagnosis of secondary causes (+7.7%, 95% CI 4.1–13.9); examining clinical features (+6.0%, 95% CI 2.9–11.7). For 32 patients diagnosed with possible FH using Simon-Broome criteria, statin prescription significantly improved (18.8%, 95% CI 8.9–35.3), with non-significant mean reductions in cholesterol post-intervention (total: −0.16 mmol/L, 95% CI −0.78–0.46; LDL: −0.12 mmol/L, 95% CI −0.81–0.57).

Conclusions: Within six months, this simple primary care intervention improved both identification and management of patients with possible FH, in line with national evidence-based guidelines. Replicating and sustaining this approach across the country could lead to substantial improvement in health outcomes for these individuals with very high cardiovascular risk.

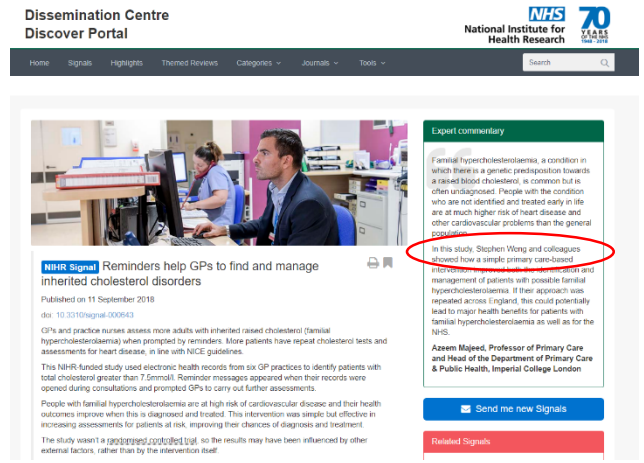
1. Introduction

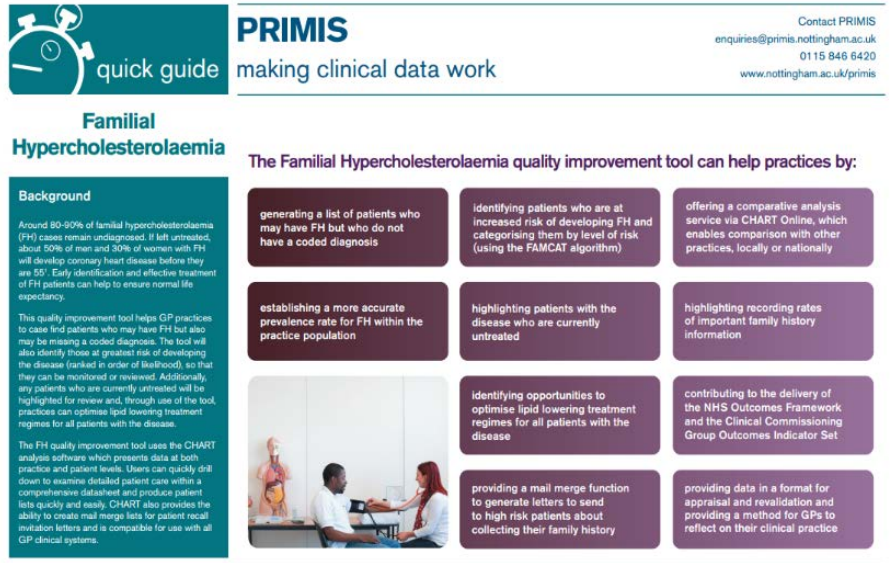
Familial hypercholesterolaemia (FH) is the most common autosomal dominant disorder with at least 1 in 500 individuals affected in the general population [1]. Over 80% of an estimated 120,000 individuals in the United Kingdom remain undiagnosed, with similar rates of under-diagnosis across Europe, which results in major lost opportunities to prevent premature heart disease and death [2]. Left untreated, coronary heart disease (CHD) will develop in approximately 50% of men with FH by the age of 50 and 30% of women with FH by the age of 60 [3]. This results in a 100-fold increase in mortality risk compared to the general population [4,5]. This can be very effectively reduced by high intensity lipid lowering treatment, resulting in a 48% reduction in CHD mortality [6].

Despite established national clinical guidelines in several countries [7–9], people with raised cholesterols are not recognised as having FH. In the UK, cholesterol levels are well captured in primary care electronic health records, offering the opportunity to improve recognition and quality of care of this condition. The English National Institute for Health and Care Excellence (NICE) guidelines introduced in 2008 [8], recommend general practitioners (GPs) use Simon-Broome diagnostic criteria to identify FH [10]. These state individuals with cholesterol levels over 7.5 mmol/L and a relevant family history of premature CHD be diagnosed as

* Corresponding author. Division of Primary Care, 1403 The Tower, University Park, University of Nottingham NG7 2RD, UK.
E-mail address: stephen.weng@nottingham.ac.uk (S. Weng).

https://doi.org/10.1016/j.atherosclerosis.2018.04.017
0021-9150/





PRIMIS

Date of issue: January 2017

The University of Nottingham
UNITED KINGDOM • CHINA • MALAYSIA

NICE National Institute for Health and Care Excellence

Familial hypercholesterolaemia (standing committee update)

Consultation on draft addendum - Stakeholder comments table

12 May 2017 to 09 June 2017

Comments forms with attachments such as research articles, letters or leaflets cannot be accepted.

				validated in primary care? Have any the clinical GP clinical IT systems tried providing a scoring tool like Qrisk? What was the response by Nice GP reference group? Has NICE considered using FAMCAT tool? This paper may help for a GP population. https://www.nottingham.ac.uk/research/groups/primarycarestratifiedmedicine/documents/weng-atherosclerosis-2015-new.pdf	sensitivity and specificity from the identified evidence. The criteria mentioned in recommendation 1.1.1 are not designed to match either of the criteria, but simply to raise awareness of the possibility of FH in a population of people who may be at high risk and therefore appropriate to assess using one of the criteria. No criteria such as QRISK are available for people with FH, and the committee was keen to discourage the use of such scoring systems as the ones currently available all underestimate the risks in people with FH. The committee were aware of the FAMCAT tool, and while the scope of this guideline update was not such that it could be considered as part of it, they agreed that it had promise as a potential way of implementing the recommendations made in the future.
Royal College of General Practitioners	Short	6 7	16 4	1.1.15 and 1.2.1: Most Primary care cannot access genetic testing at present.	Thank you for your comment. The committee were aware that primary care cannot routinely access genetic testing in many areas, and therefore did not consider making a recommendation that this testing should be carried out in primary care. However, they agreed that referral to a specialist service for genetic testing should be feasible for the relevant people.

Think about impact early

- What are the research priority areas?
- Flavour of the month
- Identify stakeholders are you going engage with to generate impact
- Attend and present at international conferences
- Target 4* journals for publications (systematic reviews good for impact)
- Press releases through your own University

Original article

OPEN ACCESS

Systematic review and meta-analyses of risk factors for childhood overweight identifiable during infancy

Stephen Franklin Weng,[1] Sarah A Redsell,[2] Judy A Swift,[3] Min Yang,[4] Cristine P Glazebrook[5]

► Additional appendices are published online only. To view these files please visit the journal online (http://dx.doi.org/10.1136/archdischild-2012-302263).

[1]Division of Epidemiology and Public Health, School of Community Health Sciences, University of Nottingham, Nottingham, UK
[2]School of Nursing, Midwifery and Physiotherapy, University of Nottingham, Queen's Medical Centre, Nottingham, UK
[3]Division of Nutritional Sciences, University of Nottingham, Sutton Bonington Campus, Loughborough, UK
[4]Nottingham Clinical Trials Unit, Nottingham Health Science Partners, Queen's Medical Centre, Nottingham, UK
[5]Division of Psychiatry, Institute of Mental Health, University of Nottingham Innovation Park, Nottingham, UK

Correspondence to
Professor Cris Glazebrook, Division of Psychiatry, Institute of Mental Health, University of Nottingham Innovation Park, Nottingham NG7 2TU, UK; Cris.Glazebrook@nottingham.ac.uk

Received 30 April 2012
Accepted 21 August 2012
Published Online First 29 October 2012

ABSTRACT
Objective To determine risk factors for childhood overweight that can be identified during the first year of life to facilitate early identification and targeted intervention.
Design Systematic review and meta-analysis.
Search strategy Electronic database search of MEDLINE, EMBASE, PubMed and CAB Abstracts.
Eligibility criteria Prospective observational studies following up children from birth for at least 2 years.
Results Thirty prospective studies were identified. Significant and strong independent associations with childhood overweight were identified for maternal pre-pregnancy overweight, high infant birth weight and rapid weight gain during the first year of life. Meta-analysis comparing breastfed with non-breastfed infants found a 15% decrease (95% CI 0.74 to 0.99; $I^2=73.3\%$; n=10) in the odds of childhood overweight. For children of mothers smoking during pregnancy there was a 47% increase (95% CI 1.26 to 1.73; $I^2=47.5\%$; n=7) in the odds of childhood overweight. There was some evidence associating early introduction of solid foods and childhood overweight. There was conflicting evidence for duration of breastfeeding, socioeconomic status at birth, parity and maternal marital status at birth. No association with childhood overweight was found for maternal age or education at birth, maternal depression or infant ethnicity. There was inconclusive evidence for delivery type, gestational weight gain, maternal postpartum weight loss and 'fussy' infant temperament due to the limited number of studies.
Conclusions Several risk factors for both overweight and obesity in childhood are identifiable during infancy. Future research needs to focus on whether it is clinically feasible for healthcare professionals to identify infants at greatest risk.

What is already known on this topic

- There is evidence that overweight or obesity during childhood increases the risk of adult obesity.
- Previous reviews have identified rapid weight gain, high birth weight and maternal smoking in pregnancy as important risk factors for childhood obesity.

What this study adds

- Early rapid weight gain, high birth weight, maternal pre-pregnancy overweight and maternal smoking in pregnancy increase the likelihood of childhood obesity and overweight.
- Breastfeeding and the late introduction of solid foods is moderately protective against childhood overweight.
- Other maternal and infant factors were not associated with childhood overweight.

obesity[6] and to date interventions have focused on nutritional modification through supporting parents regarding, for example, healthy eating and breastfeeding.[7–10] Both the Canadian Paediatric Society[11] and the American Academy of Pediatrics[12] advocate that all typically developing children aged 2 years and older should have their growth monitored to screen for under-development, wasting, overweight and obesity. However, in many countries, early life intervention is not routine clinical

413 Citations (2012)

The first thousand days: an evidence paper
Cited by Analysis & Policy Observatory (APO) on 25 Sep 2017
Analysis & Policy Observatory (APO) is a research database and alert service providing free access to full-text research reports and papers, statistics and other resources essential for public policy development and implementation in Australia and New Zealand.

Proposed policy priorities for preventing obesity and diabetes in the Eastern Mediterranean Region
Cited by World Health Organization on 01 Jan 2017
The World Health Organization (WHO) is the directing and coordinating authority for health within the United Nations system.

Review of WIC Food Packages: Improving Balance and Choice: Final Report
Cited by National Academies Press on 01 Jan 2017
The US National Academies Press (NAP) was created by the National Academy of Sciences to publish the reports of the National Academies of Sciences, Engineering and Medicine, operating under a charter granted by the Congress of the United States. The NAP publishes on a wide range of topics in science, engineering, and medicine, providing authoritative information on important matters in science and health policy.

Review of WIC Food Packages: Proposed Framework for Revisions: Interim Report
Cited by National Academies Press on 06 Jul 2016
The US National Academies Press (NAP) was created by the National Academy of Sciences to publish the reports of the National Academies of Sciences, Engineering and Medicine, operating under a charter granted by the Congress of the United States. The NAP publishes on a wide range of topics in science, engineering, and medicine, providing authoritative information on important matters in science and health policy.

E-cigarette use among youth and young adults : a report of the Surgeon General
Cited by Centers for Disease Control and Prevention (CDC) on 01 Jan 2016
CDC is America's leading public health agency, dedicated to saving and protecting the health of Americans. CDC monitors health, informs decisionmakers, and provides people with information so they can take responsibility for their own health.

Children born to overweight mothers 'more likely to be fat'... but breastfeeding can offset the effect

- **Smoking during pregnancy also increases chances of child being obese**
- **Being heavy at birth and rapid weight gain are factors, say researchers**
- **A third of ten and 11-year-olds in the UK are overweight**

By JENNY HOPE MEDICAL CORRESPONDENT
PUBLISHED: 23:30, 29 October 2012 | **UPDATED:** 19:12, 31 October 2012

Children born to overweight mothers face a higher risk of being fat themselves – but breastfeeding can help offset the effect, a study has shown.

Being overweight and smoking during pregnancy both increase the chances of a child being obese, along with being heavy at birth and rapid weight gain as a baby.

But breastfeeding and the late introduction of solid foods can reduce a baby's risk of becoming overweight by about 15 per cent, claim the researchers.

Getting involved with writing grants

- Start simple – offer to proof-read/tidy references
- Grant writing courses through local research design services
- Offer to peer-review grants
- Understand the role of stakeholder involvement
- Get yourself named as a co-applicant
- Start writing grants as principal applicant (start small)

My Grant Journey

Principal Investigator: 2017 - 2018 "External validation of FAMCAT algorithm" Funder: ***NIHR SPCR***. Award Amount: **£61,736**
Principal Investigator: 2017 - 2019 "Development of risk algorithm for uncontrolled cholesterol" Funder: ***AMGEN***. Award Amount: **£80,000**
Principal Investigator: 2015 - 2018 "Novel methodologies to improve risk prediction in clinical decision tools for use in primary care" Funder. ***NIHR SPCR.*** Award Amount: **£135,000**
Co-investigator: 2016 - 2019 "Evaluating alternative protocols for identifying and managing patients with familial hypercholesterolaemia: cost-effectiveness analysis with qualitative study" Funder: ***NIHR HTA***. Award Amount: **£840,509**
Co-investigator: 2016 - 2018 "Improving identification of familial hypercholesterolaemia in primary care using a new case ascertainment tool" Funder: ***NIHR SPCR*.** Award Amount: **£399,235**
Co-investigator: 2016 - 2018 "Quantifying severity of chronic conditions in English Primary Care using the Clinical Practice Research Datalink". Funder: ***NIHR SPCR.*** Award Amount: **£327,361**
Co-investigator: 2015 - 2016 "Is systematic identification of Familial Breast Cancer risk more cost-effective that the currently recommended opportunistic approach?" Funder: ***NIHR-SCPR.*** Award Amount: **£56,184**
Co-investigator: 2014 - 2016 "Development and feasibility testing of an interactive, educational programme to facilitate Proactive Assessment of Obesity Risk during Infancy" Funder: ***MRC PHIND.*** Award Amount**: £151,576**
Co-investigator: 2014 - 2015 "Improving Identification of Familial Hypercholesterolaemia in General Practice: Intervention Optimisation Study and Systematic Review" Funder: ***Nottingham City CCG.*** Award Amount: **£29,000**
Named Researcher: 2012 - 2013 External validation of the Infant Risk of Obesity Checklist [IROC]. Funder: ***NIHR CLAHRC-NDL.*** Award Amount: **£10,105**
Named Researcher: 2012 - 2013 "Systematic review of interventions to prevent the risk of obesity in infants and development of guidelines for health visitors". Funder: ***Burdett Trust for Nursing*.** Award Amount: **£49,966**
Named Researcher: 2010 - 2012: "Systematic review of the risk factors for childhood obesity and development of an Infant Risk of Obesity Checklist" Funder: ***Nottingham County PCT.*** Award Amount: **£12,995**

Learning how to be an academic

- Learn about mundane tasks
- Get involved with teaching, mentoring juniors and supervision of students
- Understand the importance of REF
- Get involved with School Committees
- Understanding costing templates from various research funders

Understand how to cost a grant

Start Date	01-Sep-2018
End Date	31-Aug-2019
Project Duration	12 (months)
Lead Org Unit	4805 - Primary Care
Other Org Unit(s)	4803 - Epidemiology and Public Health
Report Date	04-Jul-2018
Status	Bid Development
Currency	GBP

Resource Summary

Summary funding heading	*Funding heading*	*Cost to HEI (fEC)*	*Cost to Funder (Submission costs)*	*Price to Funder (Funder Contribution)*
Directly Incurred				
	Staff	62,180.36	62,180.36	62,180.36
	Travel and Subsistence	0.00	0.00	0.00
	Equipment	1,052.86	1,000.00	1,000.00
	Other Costs	57,696.50	54,800.00	54,800.00
	Subtotal	***120,929.72***	***117,980.36***	***117,980.36***
Directly Allocated				
	Principal Investigator	1,859.30	1,859.30	1,859.30
	Co-Investigator	2,766.92	2,766.92	2,766.92
	Estate Costs	17,552.30	17,552.30	5,265.69
	Infrastructure Technician Costs	1,695.51	1,695.51	508.65
	Other Directly Allocated	0.00	0.00	0.00
	Subtotal	***23,874.03***	***23,874.03***	***10,400.56***
Indirect Costs				
	Indirect Costs	71,976.51	71,976.51	21,592.95
	Subtotal	***71,976.51***	***71,976.51***	***21,592.95***
Exceptions				
	Other Costs	0.00	0.00	0.00
	Subtotal	***0.00***	***0.00***	***0.00***
Total		***216,780.26***	***213,830.90***	***149,973.87***

Staff Costs

Staff Type	Principal Investigator
Staff Name	STEPHEN WENG
Salary Scale	R&T Academic 5E
Pay Grade	RT5E-A

Get into supervision/teaching

- 2 PhD Students (Starting Oct ’18)
- 1 NIHR In-Practice Fellow (Starting Nov ’18)
- 2 MPH Students (Past Year)
- 4 GP Academic Clinical Fellows (2 Current)
- Developing R course for data science for School of Medicine

Getting involved

- School of Medicine Research committees
- Writing impact case studies for REF
- Speaking at the SPCR training event
- Writing for the SPCR newsletter
- Methodological reviewer for special edition for PLOS Medicine collection on machine-learning

Talk to people

- Communicate with your line managers what you need for support, request reviews of progress against goals

- Network with people – don't be afraid approach new collaborators

- Take any opportunities to join external committees (*CPRD Independent Scientific Advisory Committee Member, Genomics England Clinical Interpretation Partnership Member for Machine-Learning and Cardiovascular Disease*)

- Have a strategy at conferences – read the programme before hand and highlight presentations and speakers of interest and get into contact before the conference to schedule meeting

Most of all…enjoy your post-doctoral/training period

With thanks to my mentors and supervisors

Professor Nadeem Qureshi

Professor Joe Kai

Most importantly, just remember to put it all in perspective