Optimising case identification of familial hypercholesterolaemia in primary care

Section 1 – Project Details:

Maximum 800 words, using the following headings

Rationale: Familial Hypercholesterolaemia (FH) causes very high cholesterol levels from birth and is the commonest autosomal dominant (monogenic) disorder in the UK, with up to 1 in 250 individuals affected by the more common heterozygote form [1,2]. Left untreated, individuals with FH have a dramatically higher risk of coronary heart disease (CHD), with a 100-fold increased mortality risk compared to the general population [3,4]. CHD in people with FH can be very effectively prevented by high intensity lipid lowering treatment, which results in a 48% reduction in CHD mortality [5]. More recent evidence has shown that statin therapy can lower the risk of coronary artery disease (CAD) and mortality by 44% [6]. Moreover, 50% of their first degree relatives and 25% of second degree relatives will have the condition and thus will also benefit from intervention as well as other approaches to reducing CHD risk (i.e. smoking cessation, dietary and lifestyle changes).

Currently, over 80% of people with FH are still not identified. There is a growing need for better ways for doctors and nurses to identify and treat FH. There are several approaches to identify FH. The Dutch Lipid Clinic and Simon-Broome criteria were developed from secondary care records, whilst the our research group’s FAMCAT tool was developed from primary care records [7]. Policymakers are now trying to produce new up-to-date guidelines for doctors and nurses, but are still unclear of the most appropriate approach to identify FH. This is open to critical evaluation.

Aims and methodology:

The aim of the PhD is to present the value of different strategies to identify familial hypercholesterolaemia in primary care.

This involves integrating new evidence, from existing observational research studies, into a model to evaluate strategies for primary care index case identification.

The candidate will develop and use methodology in conducting systematic and structured reviews of the literature on FH case identification in primary care, and interrogating existing observational study datasets to parameterise models.

Data will be derived from our quasi-experimental studies on identification of FH in primary care, CPRD database studies on profile of FH patients in primary care records and data derived from service providers in Wessex, Leicester and Wales

Benefits and suitability as a PhD project:

The PhD builds on the body of research in the Division of Primary Care on familial hypercholesterolaemia, including systematic reviews, quasi-experimental and database studies [7-13] and the methodological approaches of our project partners in the Centre for Health Economics at University of York. This also complements our work with the NICE guideline development group on identification and management of Familial Hypercholesterolaemia

This maps to progression through the 3 year PhD:
Year 1: systematic review to identify parameters
Year 2: model building to inform parameter to be derived from observational studies
Year 3: finalise and evaluate model with thesis write up

Student will be in an ideal position to start research, without the delays of ethical approval and research governance, as the observational data is already available. Further, the systematic review will be facilitated by the completion of the related Cochrane protocol on identification of FH in non-specialist setting.
Strategically for the School of Medicine and Division of Primary Care, the PhD student will introduce junior health economic expertise. This is a current area of deficit in the School and, more widely, in the University. Further, through this studentship we will have developed a strong relationship with the internationally recognised Centre for Health Economics at University of York.

Key References:

Section 2 – Training Provision:

Maximum of 250 words. Please detail the training provision that will be made available to the student.

Generic PhD training programmes:

This includes
(a) University Graduate courses
- Managing research modules
- Research data management
- Academic writing
- Managing references

(b) Other courses at University
- Managing large word documents
- Writing for publication

(c) Divisional training
- Presentation skills
- Bespoke Annual Research awayday
- Peer-to-peer support

(d) External training
- NICE Systematic review course

Specific external training in health economics:

University of York:

Statistical Methods in Economic Evaluation for HTA - Foundations Course (2 days)
Statistical Methods in Economic Evaluation for HTA - Regression Methods Course (3 days)
Decision Analytic Modelling for Economic Evaluation – Foundations Course (2 days)
Decision Analytic Modelling for Economic Evaluation – Advanced Course (3 days)
Foundations of Economic Evaluation in Health Care (5 days) – York Summer Workshop in Health Economic Evaluation
Advanced Methods for Cost-Effectiveness Analysis: Meeting Decision Makers’ Requirements (5 days)
– York Summer Workshop in Health Economic Evaluation
Outcome Measurement and Valuation for Health Technology Assessment (3 days) – York Summer Workshop in Health Economic Evaluation