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Intercalation Research Project

Project Titles:	**Various meta-analyses around a cardiovascular theme.** **Will be discussed in line with medical students interests.**
Lead Supervisor: **Name:** **Department:** **Email Address:** **Telephone:**	Prof. Mamas Mamas Professor of Cardiology Institute for Science & Technology in Medicine mamasmamas1@yahoo.co.uk +44 (0)1782 671652
Co-supervisor: **Name:** **Department:** **Email Address:** **Telephone:**	Dr. Chun Shing Kwok Academic Clinical Fellow, Honorary Clinical Lecturer Institute for Science & Technology in Medicine shingkwok@doctors.org.uk +44 (0)1782671653

Aims

Please outline the aims of your proposal (250 words):

The group of Professor Mamas regularly undertake meta-analyses around cardiovascular themes. There are several meta-analyses undertaken by the Keele Cardiovascular Research Group at any one time and the group has an international track record in publishing such meta-analyses in the top cardiovascular journals. Several of these publications have received editorials from international leaders in the field. The Keele Cardiovascular Research Group has a track record in working with medical students both at Keele and Manchester University to produce hiqh quality outputs. Interested medical students should contact Professor Mamas and Dr Kwok, who will discuss current areas of current interest to fit in line with the individual students preferences.

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Research Plan & Methodology

Explain how you intend to carry out the study. This includes the sampling strategy you intend to use, the data collection process and an analysis plan (750 words):

This study is a systematic literature review and meta-analysis. The project begins with the student's preparation of a protocol with the assistance of research team lead by (Prof. Mamas and Dr. Kwok) and will require the student to do some searching of the existing literature in the area of intentional and unintentional weight loss and risk of cardiovascular disease. The protocol includes elements defining the inclusion and exclusion criteria of studies, defining the exact methods of searching the literature, preparation of data extraction sheet, data analysis methods and the projected timescale for each element of the research project. The search will then be conducted using an appropriate platform (Ovid SP or NHS evidence) using research databases (Medline and EMBASE). The student will then screen the studies against the inclusion criteria for inclusion in the study. Once studies have been identified they will be retrieved and data extraction onto the preformatted data extraction sheet will be performed. When the data extraction is complete the student will work on the analysis with guidance from Dr. Kwok. Analysis will involve preparation of three tables which cover study design and participants, study quality assessment and study results. Further statistical analysis will be performed using methods such as narrative synthesis, meta-analysis and pooling of outcomes without meta-analysis depending on the availability and the quality of the reported outcomes. Meta-analysis will be conducted using Review Manager 5.3 (Nordic Cochrane Centre, Copenhagen). Extracted data that is dichotomous will be pooled using Mantel-Haenszel method using a random effects model for risk ratios. Data in the form of odds ratios, relative risk, risk ratios or hazard ratios will be pooled using the generic inverse variance method in a random effects model for risk ratios. Sensitivity analysis will be performed considering fixed effects model and stratified analysis for adjustments for specific confounders of interest as well as population subgroups of interest depending on availability of data. Statistical heterogeneity for each study will be evaluated by considering the I^2 statistic where 50% may represent substantial heterogeneity (Higgins JPT, Green S. Cochrane Handbook of Systematic Reviews of Interventions). Substantial heterogeneity will be addressed through sensitivity analysis. Publication bias will be assess by asymmetry testing with funnel plots if the dataset contains more than 10 studies and there is no evidence of significant heterogeneity (Ioannidis JPA, Trikalinos TA. The appropriateness of assymmetry tests for publication bias in meta-analyses: a large survey. CMAJ 2007) . Pooling without meta-analysis will be performed using Microsoft Excel. Once the analysis is complete, the student will prepare a complete manuscript to summarize the overall project which includes presenting the background of the study and why it is necessary, the study methods, the findings of the study, its clinical implications, any explanations of the findings, any limitations of the study and any suggestions for future work.

RESEARCH needs YOU

Keele University

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Professor Mamas and Dr Kwok have published over 40 meta-analyses in high impact journals, with several of these manuscripts having gained >100 citations, media coverage and editorials.. See examples of similar work we have conducted at the end of the document.

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Student Summary

Give a brief summary of how the project will be appealing to students (250 words):

Whether it is taking part in research, clinical audit, assisting in guideline preparation or reviewing current evidence to update one's clinical knowledge, every clinician needs to know how to interpret literature. Aside from answering the interesting and highly relevant question from a medical and public health perspective, taking part in this project will provide for you the skills to learn about research, appraise literature, collect data and produce work towards a publication. Specific things you will learn about are:

1. Systematic review methodology
2. Literature search
3. Types of studies (including strengths and limitations)
4. Screening in systematic reviews
5. Data extraction
6. Data analysis
7. Manuscript preparation

You will be overseen by an experienced team led by Prof. Mamas and Dr. Kwok who can help support you regardless of your research background.

Supervision Plan

Highlight the supervisory support available to the student (250 words):

The student will be supervised by Prof. Mamas and Dr. Kwok and additional support will be derived from other members of the Keele Cardiovascular Research group. We have a strong track record of publishing systematic reviews and meta-analysis of topics related to cardiovascular epidemiology in high impact journals. The student will receive formal guidance from fortnightly meetings with either Prof. Mamas or Dr. Kwok (more frequent if necessary) and informal meetings with members of the research group. Dr. Kwok will be involved in all stages of the research in case any difficulties are encountered.

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Signatures & Declarations

Please ensure that all signatures are collected – otherwise your application may be delayed:

Principal Investigator:	Mamas Mamas
Signature:	Mamas A. Mamas
Clinical Director :	
Signature:	

Deadline: xxxx

***Note: All applications must have ethical approval before they are considered**

Please submit the electronic version of your intercalation project to academic.research@uhns.nhs.uk If you have any enquiries please contact the Academic Development Team on 01782 675385.

RESEARCH needs YOU

Keele University

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Examples of similar work we have done:

1. **Kwok CS**, Khan MA, Rao SV, Kinnaird T, Sperrin M, Buchan I, de Belder MA, Ludman PF, Nolan J, Loke YK, **Mamas MA**. Access and non-access site bleeding after percutaneous coronary intervention and risk of subsequent mortality and major adverse cardiovascular events: systematic review and meta-analysis. Circ Cardiovasc Interv 2015.

2. **Kwok CS**, Sherwood MW, Watson SM, Nasir SB, Sperrin M, Nolan J, Kinnaird T, Kiatchoosakun S, Ludman PF, de Belder MA, Rao SV, **Mamas MA**. Blood transfusion after percutaneous coronary intervention and risk of subsequent adverse outcomes: a systematic review and meta-analysis. JACC Cardiovasc Interv 2015.

3. Cunnington C, **Kwok CS**, Satchithananda DK, Patwala A, Khan MA, Zaidi A, Ahmed FZ, **Mamas MA**. Cardiac resynchronisation therapy is not associated with a reduction in mortality or heart failure hospitalisation in patients with non-left bundle branch block QRS morphology: meta-analysis of randomised controlled trials. Heart 2015.

4. **Kwok CS**, Aslam S, Kontopantelis E, Myint PK, Zaman MJ, Buchan I, Loke YK, **Mamas MA**. Influenza, influenza-like symptoms and their association with cardiovascular risks: a systematic review and meta-analysis of observational studies. In J Clin Pract 2015.

5. **Kwok CS**, Anderson SG, Myint PK, **Mamas MA**, Loke YK. Physical activity and incidence of atrial fibrillation: a systematic review and meta-analysis. Int J Cardiol 2014.

6. **Kwok CS**, Loke YK, Pradhan S, Keavney B, El-Omar M, **Mamas MA**. Renal denervation and blood pressure reduction in resistant hypertension: a systematic review and meta-analysis. Open Heart 2014.

7. **Kwok CS**, Rao SV, Myint PK, Keavney B, Nolan J, Ludman PF, de Belder MA, Loke YK, **Mamas MA**. Major bleeding after percutaneous coronary intervention and risk of subsequent mortality: a systematic review and meta-analysis. Open Heart 2014.

8. **Kwok CS**, Umar S, Myint PK, **Mamas MA**, Loke YK. Vegetarian diet, Seventh Day Adventists and risk of cardiovascular mortality: a systematic review and meta-analysis. Int J Cardiol 2014.

9. **Kwok CS**, Pradhan A, Khan MA, Anderson SG, Keavney BD, Myint PK, **Mamas MA**, Loke YK. Bariatric surgery and its impact on cardiovascular disease and mortality: a systematic review and meta-analysis. Int J Cardiol 2014.