The GATE frame approach to critical appraisal in Primary Care undergraduate medical education.

**Research Question**
Does the Gate frame approach to critical appraisal a) improve the medical student understanding of a research paper b) improve the medical student experience of critical appraisal teaching in the AUPMC?

**Background**
A key research theme in the Academic Unit of Primary Medical Care is in the area of medical decision making and patient centred care. Projects in the department range from the evaluation of a patient decision aid (PANDAs project – cluster RCT), qualitative research methods to understand GP decision making in diabetes, patient experience in breast cancer, evaluation of a decision aid for osteoarthritis of the knee and depression management in general practice.

The AUPMC recognises that developing and utilising the skills of critical appraisal of evidence is fundamental to best clinical practice and is of particular importance for generalists, because of the range of conditions that present in primary care and the weight of evidence relating to general practice. Teaching of evidence based medicine has been identified as a difficult task and requires an approach that can break the learning into manageable parts. One part of EBM practice is the appraisal of research papers. It is this aspect of developing medical student education in the APUMC department that this project will be analysing. The objective is to evaluate a tool for teaching critical appraisal of evidence to medical students in the group setting.

The Graphical Appraisal Tool for Epidemiological Studies (GATE) frame is a conceptual framework tool developed to help students understand a research article as well as its component parts. The student is able to “hang” the study and the EBM Working Group Appraisal questions on to the visual GATE frame.

**Hypothesis and Aims**
The hypothesis for this research project is that a group teaching method of the GATE frame would be effective in improving the medical student understanding of critical appraisal.

**Aims**
1. To research how the GATE framework can improve the medical student understanding of a research paper.
2. To analyse the focus group experience of using the frame from themes during the discussions and feedback of the GATE frame. This will inform on the medical student experience of using this critical appraisal tool.

As a result, this evaluative piece of medical education research will inform further development of the medical curriculum in the AUPMC.

**Research plan**
The researching student will be based in the department for the duration of the SURE project with other researchers. The student will be expected to consider the ethical issues of any methodology used in the study and discuss this in their report.

**Methodology**
A qualitative methodology will be used to perform this piece of action research with medical students. There will be a focus group approach with recruited students. As a qualitative approach it is iterative and the method detail may vary to the outline set below.

Two qualitative, semi-structured focus group interviews will be undertaken with participants from Phase 3B of the MBChB course. Questions and focus group guide will be developed following a review of the literature. The focus group interviews will be digitally recorded and transcribed verbatim. No participant details will be collected at any time during the study, apart from the year of study. The transcripts will be anonymised by the researchers prior to data analysis. The raw data will be stored on a password protected university system. Data will be subjected to thematic analysis.

**Recruitment**
Students within existing predetermined groups in phase 3B (Specialty placement in General Practice) will be invited to participate in the focus group interviews. A “snowballing” method of recruitment will be used to recruit 6 to 9 students from phase 3B to take part in the study with a time commitment of approximately 3 hours per phase. To aid recruitment other methods such as poster advertisement of the project and gift vouchers will be considered by the researching student. An information sheet will be provided outlining the details of the project. The interviews will last for approximately 30 minutes.
Methods

Week 1 and 2
Project tutor and department involvement in developing the qualitative research knowledge of the researching medical student.
Recruitment of students will begin in week 1.
One of the outcomes in this week would be to produce an initial literature review on the research question.

Week 3 and 4
1. Phase 1 – students receive a research study paper to appraise for 20 minutes prior to a seminar on the GATE framework for critical appraisal. In association there will be handouts.
2. Phase 2 – A focus group of medical students will be conducted and audio taped discussing a research paper using the GATE frame approach.
3. Phase 3 – Assessment of understanding.
   • The students then appraise a paper individually for 20 minutes – they must answer questions based on the paper and the GATE frame,
   • In groups of 2 or 3, the students will discuss the same paper and the answers to the questions set.
   • Finally the whole group will be again audio taped discussing the answer to the questions previously set and any unresolved questions about the paper are outlined. They will also feedback on the GATE frame and the learning experience during the session.
Analysis of the audio taped focus groups - this will be using thematic analysis of learning issues and experience discussion during the event.

Week 5 and 6
The researcher student will undertake the data analysis with the aid the project tutor. The final stage will involve writing a report on the outcomes. The aim would be to produce a publishable piece of work for a medical education journal.

Research training which will be provided by the project.

Qualitative research methodology, ethical processes and critical Appraisal of evidence based medicine using the GATE framework. Being part of the department for 6 weeks the student will be involved in the Academic Training Fellow teaching seminar programme, have support from other researching department members, including Professor Mathers, Dr Henry Smithson and Dr Chirk Jenn Ng.