BSc in Reproductive & Developmental Sciences &

BSc in Surgery and Anaesthesia Project Outline 2011-2012

**Project Title: Validation of a Novel Cognitive Task Simulator (orthopaedics)**

**Academic Supervisor: Mr Colin Sugden, NIHR Academic Clinical Lecturer**

**Division: Surgery & Cancer**

**Section: Surgery**

**Co-supervisor: Mr Sanjay Purkayastha, Senior Lecturer & Consultant Bariatric Surgeon**

**Who will be responsible for day-to-day supervision? Ian Flindall, Clinical Research Fellow**

**Contact Details of Person whom Medical Student should contact for further details:**

**Name: Colin Sugden Email: c.sugden@imperial.ac.uk Tel: 07590529497**

**Group’s Research Interest: Cognitive Enhancement, Fatigue, Simulation**

(Double click the appropriate check box to indicate your choices below)

**Is this a clinical [ ]  or laboratory [x]  project?**

**Suitable project for: Reproductive and Development**  **Sciences** Yes **[ ]** No **[ ]**

**Surgery and Anaesthesia** Yes **[x]** No **[ ]**

**Synopsis of project (background/research question/methods to be used/relevant key references):**

Surgical operative experience involves cognitive decision-making (based on procedural knowledge) and technical ability. Often it is the latter that is the focus of surgical training models. However, intra-operative decision-making is arguably more important than technical skill in the successful completion of a surgical procedure. Despite its importance procedural knowledge and decision-making is poorly taught in the current surgical curricula internationally.

Touch Surgery (TS) is a novel mobile cognitive task simulator delivered on touch-screen devices (it is available to download for free from the apple app store). It simulates operative surgical steps and allows the trainee surgeon to learn on a decision-making level. Furthemore, TS has an inbuilt assessment tool that measures errors, decision times and movements for a defined procedure. These metrics can be used to provide the user with feedback and map a learning curve.

This study aims to determine the construct and face validity of a selection of the orthopaedic TS modules (dynamic hip screw & lateral approach to the hip). Face validity is a measure of realism and will be determined by administering a questionnaire to experienced subjects. Construct validity will be determined by comparing the performance of novices, intermediates and experienced subjects. We will require around 10 participants in each group.

The student will be expected to run the study and liaise closely with the day to day supervisor throughout the course of their BSc. They will be well supported in all aspects of the project from study design, recruitment & data collection to the analysis of data and final write up of the project.

Previous students involved with this group have produced projects of a very high standard, published high impact papers and won international prizes for their work.

This study will allow the student to become familiar with a small validation study. They will be expected to become familiar the TS cognitive simulator & the methodology used to develop modules and be able to follow protocols whilst accurately recording the information obtained. The day to day supervisor is based at St Mary’s & will help with the running of the study & data collection. The academic supervisor will meet with the student on a regular basis & will arrange sessions to teach basic data analysis techniques using STATA, academic writing & presentation skills. Previous students have become proficient in these skills.

General papers of interest:

Sugden, C., & Aggarwal, R (2010). Assessment and feedback in the skills laboratory and operating room. Surg Clin North Am, Surg Clin North Am, 90(3), 519-533. doi:10.1016/j.suc.2010.02.009

Sugden, C., Aggarwal, R., Banerjee, A., Haycock, A., Thomas-Gibson, S., Williams, C. B., & Darzi, A (2012). The Development of a Virtual Reality Training Curriculum for Colonoscopy Ann Surg. doi:10.1097/SLA.0b013e31825b6e9c

Smink, D. S., Peyre, S. E., Soybel, D. I., Tavakkolizadeh, A., Vernon, A. H., & Anastakis, D. J (2012). Utilization of a cognitive task analysis for laparoscopic appendectomy to identify differentiated intraoperative teaching objectives Am J Surg, 203(4), 540-545. doi:10.1016/j.amjsurg.2011.11.002

Will the research involve work done under the Animals (Scientific Procedures) 1986 Act? Yes **[ ]** No **[x]**

**If YES*,***

Will the student be required to undergo Home Office training? Yes **[ ]** No **[ ]**

Are the appropriate project and personal licences in place? Yes **[ ]** No **[ ]**

**Project licence**:

Licensee

Date of issue

Number

**Personal licence**:

Licensee

Number

**Will the research involve the use of genetically modified tissue?** Yes **[ ]** No **[x]**

**If YES**

Has the work been approved by the relevant GM Committee Yes **[ ]** No **[ ]**

Date approval was granted

Reference Number

**Will the project involve work on human subjects, human tissue or access to confidential patient information?** Yes **[x]** No **[ ]**

## If YES

## has ethical approval been obtained Yes [ ]  No [x]

## Date approval was granted

## IC REC or IRAS REC number

**Note: Approval for any of the above MUST be in place before the student begins the project.**

**A risk assessment form will be required.**

**Project Payment**: I have an F account Yes **[ ]** No **[x]**

## If you have an F account please give full account code: