BSc in Reproductive & Developmental Sciences &

BSc in Surgery and Anaesthesia Project Outline 2012-2013

**Project Title: The Impact of Teamwork in the Operating Theatre on Technical Performance and Patient Outcomes**

**Academic Supervisor: Miss Louise Hull**

**Co-supervisor: Dr Nick Sevdalis**

**Who will be responsible for day-to-day supervision? Miss Louise Hull**

**Which of the following sites will the student be based for the research:**

(Double click the appropriate check box below)

**St Mary’s [x]  Charing Cross [ ]  Chelsea & Westminster [ ]  South Kensington [ ]**

**Hammersmith [ ]  other (give details)**

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

**Name: Miss Louise Hull Email: l.hull@imperial.ac.uk Tel:**

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

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

**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):**

**Background**

Analyses of adverse events in healthcare have altered the way in which surgical performance is understood and analysed. Empirical evidence supports the idea that although technical expertise is essential, it is not sufficient to consistently achieve high levels of surgical performance (Gawande et al, 2003). Other high-risk, high-reliability industries such as aviation, offshore oil production, and nuclear power have adopted programmes that focus on non-technical and team skills to enhance performance and reduced the risk of errors (Flin et al, 2002). Non-technical skills reflect the interpersonal (e.g. communication, teamwork, and leadership) and cognitive skills (i.e. decision-making, situational awareness, and mental readiness) that complement clinician’s technical skills. Failures in non-technical and team skills, in the operating theatre have been frequently implicated in adverse events to surgical patients (Lingard et al, 2004, Greenberg et al, 2007; Mills et al, 2008; Davenport et al, 2007). In contrast, superior teamwork is associated with fewer errors in the operating theatre (Mishra et al, 2008; Catchpole et al, 2008).

At present, there is a lack of understanding regarding the precise nature of the impact of non-technical and team skills on technical performance as many studies have failed to directly explore the relationship between non-technical skills and technical performance in the operating theatre. This study will fill this gap in the literature.

**Study Aims & Questions**This research study aims to answer the overarching research question:

* What is the impact of non-technical skills (specifically teamwork) on technical performance in the operating theatre?

The 2 primary research questions are:

* What impact does the team performance of the 3 core theatre sub-groups (surgeons, anaesthetists, and nurses) have on the technical performance of the surgeon?
* Does the quality of teamwork in the operating theatre have an impact on clinical outcomes?

**Methods**

**Setting:** General surgeryoperating theatre teams at Imperial College Healthcare NHS Trust will be recruited.

**Participants:** A purposive sampling strategy will be employed to recruit 50 general surgery teams, each consisting of 6 team members (primary operating surgeon, surgical assistant, anaesthetist, anaesthetic assistant/Operating Department Practitioner (ODP), scrub nurse, & circulating nurse). In order to minimise the effect of surgical procedure, the study will only include four-port Laparoscopic Cholecystectomy procedures (Single Incision Laparoscopic Surgery (SILS) will not be studied).

**Outcome measures:** (1) surgical team performance (OTAS), (2) surgeons’ technical performance, (3) team-members’ self-assessment of teamwork in their operating theatre

**Procedure:** An observer (the student carrying out this project) will be present in the operating theatre during each surgical case and will assess team performance of the operating theatre teams using the Observational Teamwork Assessment for Surgery (OTAS) tool. The observer will receive training in OTAS usage prior to doing the assessments. The technical performance of the operating surgeon will be obtained from the laparoscopic stack and recorded onto DVD. The recorded technical performance will be rated blindly by 2 experienced laparoscopic surgeons experienced in video assessment retrospectively. Furthermore, at the end of the procedure, all team members will be asked (by the student observer) to complete a short questionnaire regarding their perceptions of their own teamwork and that of all other sub-groups.

**References**

Catchpole K, Godden P, Giddings AEB, et al. Identifying and reducing errors in the operating theatre. Final report to the Patient Safety Research Programme.Available at: <http://www.haps.bham.ac.uk/publichealth/psrp/documents/PS012_Final_Report_DeLeval.pdf>. (last accessed 06 Sep 2010)

Davenport DL, Henderson WG, Mosca CL, Khuri SF, Mentzer RM Jr. Risk-adjusted morbidity in teaching hospitals correlates with reported levels of communication and collaboration on surgical teams but not with scale measures of teamwork climate, safety culture, or working conditions. *J Am Coll Surg*. 2007;205(6):778-84.

Flin R, O’Connor P, Mearns K. Crew resource management: improving teamwork in high reliability industries. Team Performance Management: An International Journal. 2002;8(3/4):68-78.

Gawande AA, Zinner MJ, Studdert DM, Brennan TA. Analysis of errors reported by surgeons at three teaching hospitals. *Surgery*. 2003;133(6):614-621.

Greenberg CC, Rogenbogen SE, Studdert DM, et al. Patterns of communication breakdowns resulting in injury to surgical patients. *J Am Coll Surg*. 2007;204(4):533-540.

Lingard L, Espin S, Whyte S, et al. Communication failures in the operating room: an observational classification of recurrent types and effects. *Qual Saf Health Care*. 2004;13(5): 330-345.

Mills P, Neily J, Dunn E. Teamwork and communication in surgical teams: Implications for patient safety. *J Am Coll Surg*. 2008;206(1):107-112.

Mishra A, Catchpole K, Dale T, McCulloch P. The influence of non-technical performance on technical outcome in laparoscopic cholecystectomy. *Surg Endosc*. 2008;22(1):68-73.

Vincent C, Neale G, Woloshynowyvh M. Adverse events in British hospitals: preliminary retrospective record review. *BMJ.* 2001;322:517-519.

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 **[x]**

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

**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 **[ ]**

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