

# Teaching surgical residents about non-technical skills

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<b>Registration date</b> 28/05/2012	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 28/05/2012	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Non-technical skills such as communication, teamwork, leadership, situation awareness and decision making have been shown to correlate with patient safety in the operating room. Equally, failures to perform sufficiently in these skills have been identified as root causes in over 60% of major surgical complications. Crew Resource Management (CRM) - training was originally developed by the aviation industry to enhance non-technical skills of flight crews in order to improve flight safety. CRM training has subsequently also been used to train teams in high-risk areas of healthcare such as emergency medicine and anaesthesia, and more recently, surgical teams with positive effects on team performance and safety culture. Although non-technical skills are thought to be essential for safe and efficient team performance in the operating room, these skills are not routinely taught in structured curricula in surgical residency programs in Canada.

The aim of this study is to validate a comprehensive CRM-curriculum to teach non-technical skills to surgical residents early on in their residency training in order to shorten the learning curve and move the acquisition of these skills out of the operating room.

### Who can participate?

All surgical residents in the University of Toronto residency program that begin PGY1 training in July 2012.

### What does the study involve?

The CRM-curriculum will be validated in this study involving three study arms, each comprising 12 surgical residents from the University of Toronto Surgical Residency Program. The study group, consisting of residents in the first postgraduate year (PGY1), will receive structured training in non-technical skills through didactic courses, video material, high-fidelity simulation, and web-based e-learning modules for home study. The control group (PGY1) will receive conventional residency training. A comparison group of senior residents (PGY5) will be evaluated to demonstrate the degree of natural non-technical skills acquisition, i.e. learning on the job. The study and control groups will be evaluated for non-technical skills and performance in a simulated crisis scenario at baseline and after the training period, and re-evaluated at 1 year to test for skill retention. The comparison group will only be evaluated once regarding performance in a simulated crisis scenario.

What are the possible benefits and risks of participating?

Participation in the study may be beneficial for the study group since they will acquire valuable skills that are likely to improve their performance in the operating room, in particular increasing their preparedness and performance in a crisis situation. The control group will be offered to also receive the training at the end of the study period. There are no known risks associated with participation in the study.

Where is the study run from?

Allan Waters Family Simulation Centre and Li Ka Shing Knowledge Institute, at 209 Victoria Street, Toronto, Ontario.

When is study starting and how long is it expected to run for?

The study is expected to begin in July 2012 and end in August 2013.

Who is funding the study?

St. Michael's Hospital (Canada)

Who is the main contact?

Dr. Nicolas Dedy  
dedyn@smh.ca

## Contact information

**Type(s)**

Scientific

**Contact name**

Dr Teodor Grantcharov

**Contact details**

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## Additional identifiers

**EudraCT/CTIS number**

**IRAS number**

**ClinicalTrials.gov number**

**Secondary identifying numbers**

N/A

## Study information

**Scientific Title**

Teaching surgical residents about non-technical skills: Validation of a comprehensive curriculum for CRM -Training in a surgical residency program

**Study objectives**

First hypothesis: Teaching non-technical skills such as communication, teamwork and leadership to surgical residents early on in their training will result in:

1. A change in attitudes towards non-technical skills
2. Enhanced knowledge about non-technical skills, human error and limitations and
3. Measurable behavioral changes with enhanced performance in a surgical crisis simulation

Second hypothesis: Surgical residents that underwent a special training in non-technical skills in their first postgraduate year will demonstrate:

1. A faster learning curve with regards to non-technical skills and performance in a crisis simulation than a control group undergoing conventional training and
2. After the training will perform equally or better in a surgical crisis simulation than a comparison group of postgraduate year 5 residents with no structured non-technical skills training.

Third hypothesis: Non-technical skills learned in a curriculum will be transferable to the real operating room.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Not provided at time of registration

**Study design**

Randomized controlled trial

**Primary study design**

Interventional

**Secondary study design**

Randomised controlled trial

**Study setting(s)**

Not specified

**Study type(s)**

Screening

**Participant information sheet**

Not available in web format, please contact Nicolas Dedy, [Dedyn@SMH.ca](mailto:Dedyn@SMH.ca) to request a patient information sheet

**Health condition(s) or problem(s) studied**

Surgical education; non-technical skills and teamwork training in surgery

**Interventions**

Study group: 12 surgical residents in the first postgraduate year (PGY1), that will receive CRM-training through the curriculum.

Control group: 12 surgical residents (PGY1) that will receive conventional residency training.

Comparison group: 12 senior surgical residents (PGY5) be evaluated regarding non-technical skills acquired "naturally", i.e. without structured CRM-training, during 5 years of conventional residency training.

### **Intervention Type**

Other

### **Phase**

Not Specified

### **Primary outcome measure**

Performance in standardized, simulated crisis scenarios with regard to non-technical skills [Oxford Non-technical skills (NOTECHS) and Non-Technical Skills for Surgeons (NOTSS) rating scales]

### **Secondary outcome measures**

1. Change in attitudes towards safety and non-technical skills and CRM-training
2. Performance in a knowledge test of non-technical skills, human error and -limitations

### **Overall study start date**

01/07/2012

### **Completion date**

01/09/2013

## **Eligibility**

### **Key inclusion criteria**

All surgical residents in the University of Toronto residency program that begin PGY1 training in July 2012 and have given written informed consent to participate in the study

### **Participant type(s)**

Patient

### **Age group**

Adult

### **Sex**

Both

### **Target number of participants**

12 participants in study group, 12 in control group, 12 in comparison group

### **Key exclusion criteria**

1. Pregnant women
2. Residents who declined participation

**Date of first enrolment**

01/07/2012

**Date of final enrolment**

01/09/2013

## Locations

**Countries of recruitment**

Canada

**Study participating centre**

**St. Michael's Hospital**

Toronto

Canada

M5B 1W8

## Sponsor information

**Organisation**

St. Michael's Hospital (Canada)

**Sponsor details**

30 Bond Street

Toronto ON

Canada

M5B 1W8

**Sponsor type**

Hospital/treatment centre

**ROR**

<https://ror.org/04skqfp25>

## Funder(s)

**Funder type**

Hospital/treatment centre

**Funder Name**

St. Michael's Hospital (Canada)

## **Results and Publications**

**Publication and dissemination plan**

Not provided at time of registration

**Intention to publish date****Individual participant data (IPD) sharing plan****IPD sharing plan summary**

Not provided at time of registration