

# A randomized cross-over trial focused on breast core needle biopsy skill acquisition and confidence using high fidelity versus low fidelity simulation models in Rwanda

<b>Submission date</b> 23/05/2018	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 08/06/2018	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 18/09/2018	<b>Condition category</b> Cancer	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Breast cancer (BC) is the most common cancer diagnosed in low and middle-income countries (LMICs). It is a leading cause of cancer related death for women worldwide. It is the most common type of cancer diagnosed in women at Rwanda's national referral hospitals. As community awareness of BC increases, the number of patients seeking care for breast complaints, including cancer, has risen. It is critical to increase the number of health care providers who are skilled in diagnosing and treating breast disease in order to provide quality care to patients. As medical education changes from traditional apprenticeship models towards competency-based education, simulation has become increasingly important. Concerns of teaching novice physicians on live patients, patient safety, quality, and operating room time and costs are addressed by training novice physicians on simulators before examining real patients. These simulation models are described in terms of fidelity, which is determined by the extent of their realism to human patients or anatomic structures through visual and tactile features. Low fidelity (LF) simulators sacrifice realism for cost whereas high fidelity (HF) simulators are costly but appear very similar to a patient or anatomic structure. Studies demonstrate that training on LF models confers the same benefit as training on HF models. Breast core needle biopsy (BCNB) is a procedure to remove a small amount of suspicious tissue from the breast with a hollow needle. A BCNB simulation training course has been developed using low (LF) and high fidelity (HF) models. The aim of this study is to find out whether training residents on LF models confers similar BCNB skill acquisition and confidence as training on HF models.

### Who can participate?

Residents training in either surgery or obstetrics and gynecology (OB/GYN) in any post-graduate year at the University of Rwanda, rotating at University Teaching Hospital (CHUK) in Kigali, Rwanda

### What does the study involve?

Participating residents are randomly allocated to use either an LF or HF model. Residents

perform a BCNB exam on the model to which they are allocated (Exam 1). After the exam, participants listen to a four-hour lecture session and they have 60 minutes of hands-on training with an attending physician with the simulator model to which were originally allocated. After the lectures and hands-on simulation practice, participants take a second BCNB exam (Exam 2) and then participate in a third BCNB exam where they cross over to the other model (Exam 3). At the end of the course, participants take a confidence survey.

What are the possible benefits and risks of participating?

The benefits to participants are that they will gain skills in ultrasound guided BCNB techniques. There are no real risks to participating in the study.

Where is the study run from?

1. University Teaching Hospital, Kigali (CHUK) (Rwanda)
2. Center For Surgery and Public Health (USA)

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

May 2014 to May 2017

Who is funding the study?

Investigator initiated and funded

Who is the main contact?

1. Dr Shilpa Murthy
2. Dr Robert Riviello

## Contact information

### Type(s)

Scientific

### Contact name

Dr Shilpa Murthy

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# Additional identifiers

## Study information

### Scientific Title

A randomized cross-over trial focused on breast core needle biopsy skill acquisition and confidence using high fidelity versus low fidelity simulation models in Rwanda

### Study objectives

A randomized cross-over trial focused on breast core needle biopsy (BCNB) skill acquisition using high fidelity (HF) versus low fidelity (LF) simulation models to determine whether training on LF models for post-graduate residents confers similar breast BCNB skill acquisition and confidence as training on HF models.

### Ethics approval required

Old ethics approval format

### Ethics approval(s)

Ethics Committee at University Teaching Hospital, Kigali (CHUK), 18/07/2014, ref: NHRC/2014/PROT/0182, and the Ministry of Health of Rwanda (MOH). It was granted exempt study status by the institutional review board at Partners Healthcare in Boston at Brigham and Women's Hospital.

### Study design

Single-center randomized education cross-over trial

### Primary study design

Interventional

### Study type(s)

Other

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

Benign or malignant breast disease

### Interventions

A one-day, five-hour BCNB educational training course for surgical residents was implemented after baseline assessment. Similar sessions were conducted for OB/GYN residents on different days. During the first course for surgical residents, instructors included two fellowship trained Rwandan and United States (USA) breast surgeons, one radiologist, and one emergency department physician with fellowship training in ultrasound. The OB/GYN training sessions were identical in lecture and evaluation content except only one USA fellowship trained breast surgeon and one USA trained radiologist were available as instructors and evaluators.

Residents performed a baseline BCNB exam prior to any educational intervention on the model to which they were randomized (Exam 1). After the baseline exam, participants listened to a four-hour lecture session. Subsequently they had 60 minutes of hands-on training by an attending physician with the simulator model to which they were originally randomized. After the lectures

and hands-on simulation practice, participants took a second BCNB exam (Exam 2) and then participated in a third BCNB exam where they crossed over to the other model (Exam 3). At the end of the course, participants took a confidence survey.

Prior to the course, the instructors were trained on how to evaluate participants in a similar manner using the US guided BCNB evaluation tool.

### **Intervention Type**

Other

### **Primary outcome(s)**

The mean difference in BCNB exam scores between HF and LF groups, measured on the day the education intervention was implemented (exam 1, 2 and 3)

### **Key secondary outcome(s)**

1. Provider level traits that may affect mean difference in exam scores
2. Participant confidence assessed using survey at the end of the course

### **Completion date**

20/05/2017

## **Eligibility**

### **Key inclusion criteria**

Residents training in either surgery or obstetrics and gynecology (OB/GYN) in any postgraduate year (PGY) at the University of Rwanda, rotating at CHUK hospital in Kigali, Rwanda

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

Health professional

### **Healthy volunteers allowed**

No

### **Age group**

Adult

### **Sex**

All

### **Key exclusion criteria**

Medical students and anyone who was not a postgraduate Rwandan resident in surgery or OB-GYN rotating at University Teaching Hospital, in Kigali, Rwanda

### **Date of first enrolment**

01/10/2014

### **Date of final enrolment**

31/03/2015

## **Locations**

## Countries of recruitment

Rwanda

United States of America

## Study participating centre

University Teaching Hospital, Kigali (CHUK)

Department of Surgery

Kigali

Rwanda

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## Study participating centre

Center For Surgery and Public Health

1620 Tremont St

Boston

United States of America

02120

## Sponsor information

### Organisation

Center for Surgery and Public Health

### ROR

<https://ror.org/03vek6s52>

## Funder(s)

### Funder type

Other

### Funder Name

Investigator initiated and funded

## Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from Dr Shilpa Murthy. The data will be readily available only on a case by case basis if it is approved in collaboration with their Rwandan colleagues.

**IPD sharing plan summary**

Available on request