“Patient Safety Begins With You”

Monday September 10th 2012

Toronto Ontario

Surgery
UNIVERSITY OF TORONTO

MOUNT SINAI HOSPITAL
Joseph and Wolf Lebovic Health Complex
Bright Minds. Big Hearts. The Best Medicine.

"Learning Through Simulation"

University of Toronto
Surgical Skills Centre
at
Mount Sinai Hospital

Lisa Satterthwaite, Manager
Shunne Leung, Assistant Manager

Objectives

- The University of Toronto Surgical Skills Centre at Mount Sinai Hospital.

……Who are we?

- Who do we train?
- What is simulation?
- How is it incorporated into learning?
- International collaborations

Accredited Education Institute with the American College of Surgeons

Where Are We Located?

Mount Sinai Hospital

Level 2 Room 250

The Lab Then …..

- Opened in 1998
- Focus on Technical Skills Training for Surgical Residents
- Limited funds
- Limited commercial models available
- Less than 500 clientele

The Lab Now….

- Still Limited Funds
- Expanded training to Undergrads, Ophthalmology, Ob Gynae, OHNS, Respirology, Emergency Medicine, Internal Medicine, Nursing, Allied Health, Outreach, and Industry
- Many commercial companies available
- More than **10,000** clientele per year!

The Staff…

- Director
- Manager
- Assistant Manager
- 4 Surgical Technicians
- 1 Simulation Technician
- 1 Business Administrator

What People?

- ❖Residents
- ❖Surgeons
- ❖Physicians
- ❖Nurses
- ❖Researchers
- ❖Undergrads
- ❖Industry
- ❖**Co op Students**
- ❖Volunteers

Surgeon Educational Path

- ❖University Bachelors Degrees
- ❖4 Medical School
- ❖2 Year Masters Option
- ❖5 Years Post Graduate in Surgery
- ❖2 Year Specialty Fellowship

You begin your career @ age 33

A Great Place to Be !

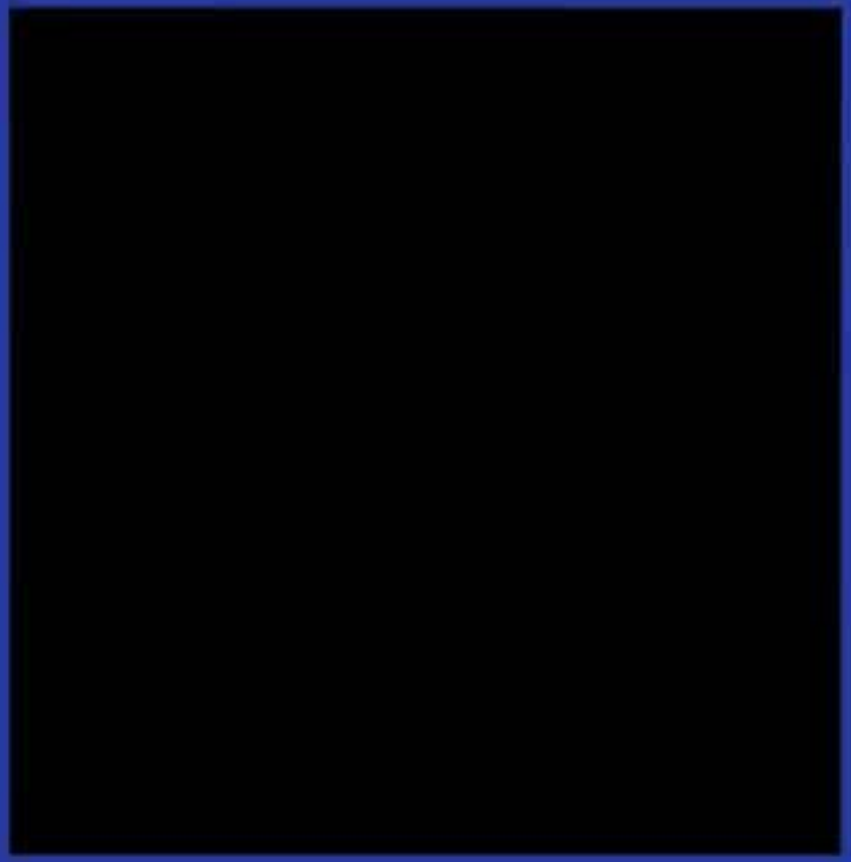
Full Class Teaching Session

A Place Where People LEARN !

Bone Fixation

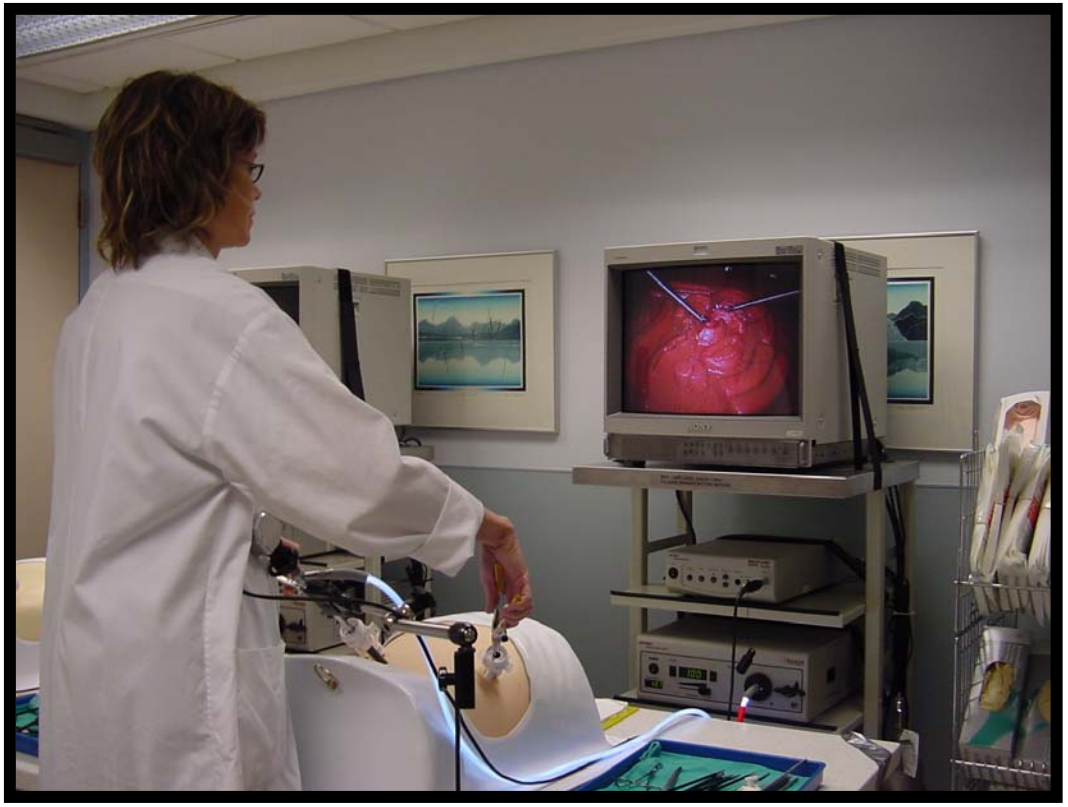
Learning to Sew
"A Stitch in Time Saves Nine"

The Professional



The New Professional

Always Interesting !



Laparoscopic Suturing

Simulated Gall Bladder Removal

Not a Real Arm

Arterial Line Insertion

Yes, A Real Leg

Gift of Life Cadaveric Specimens

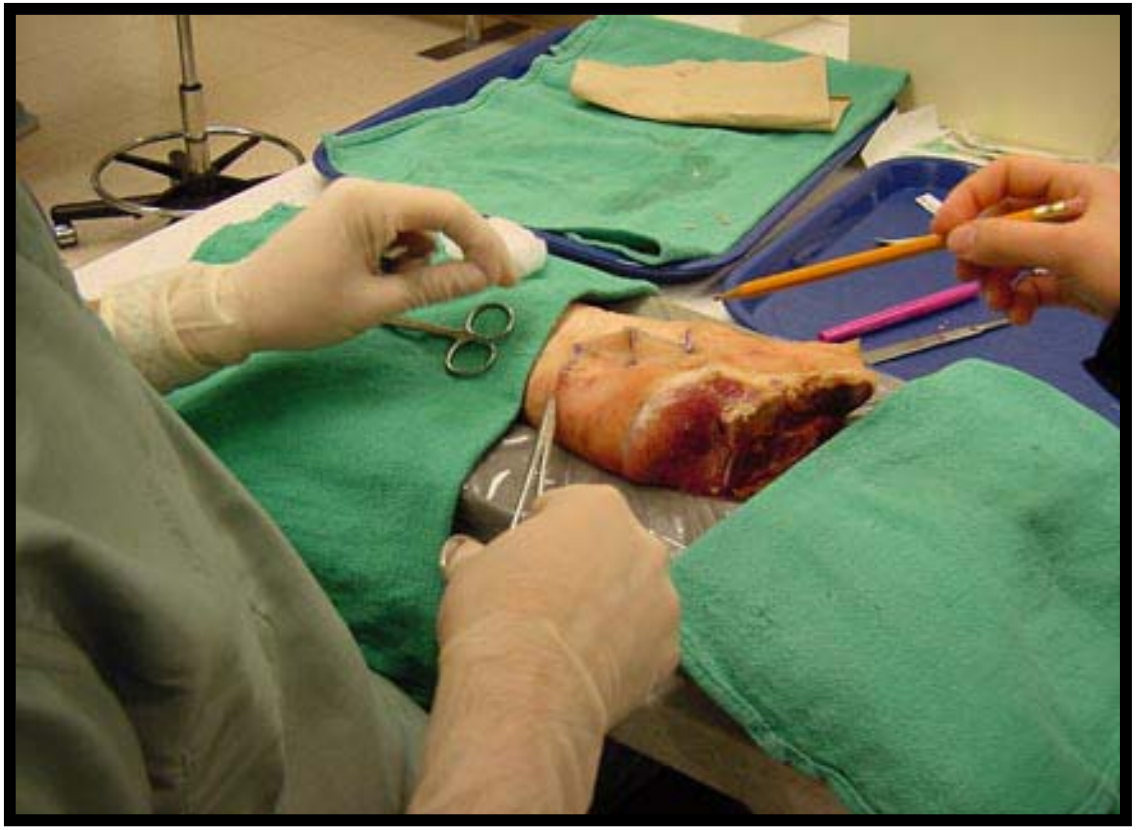
Not the Dentist

Airway Intubation Model

Not a Real Bone

Knee Replacement Surgery

Yes a Real Piece of Meat….



Pork Hoc !

Zed Plasty

Mission Accomplished

Lunch Break!

Just Kidding…

You Never Stop Learning...

A New Student….??

Obstetrics and Gynaecology Training Model

Simulation in Surgical Education

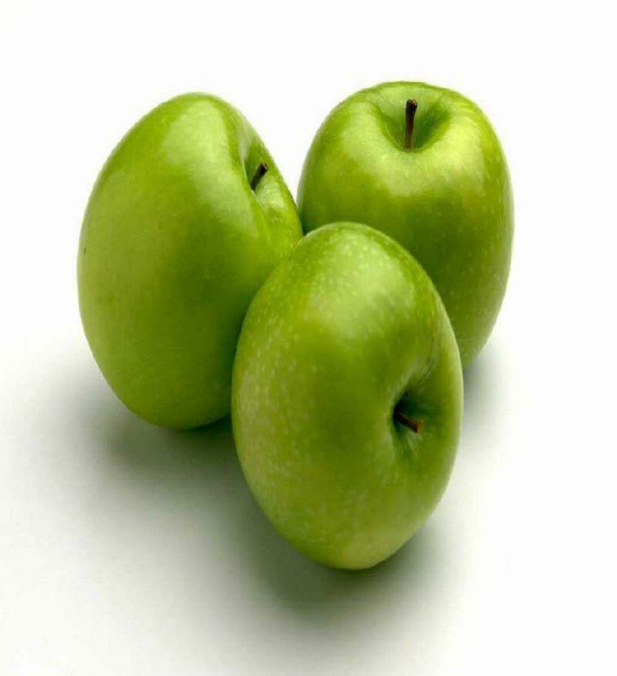
Simulation…. What is it ?

"Building artificial objects and dynamically acting out roles with them."

Simulator……What is it ?

The piece (object) of equipment on which simulation is accomplished.

The term model and simulator are often used interchangeably



Historical Facts

One of the greatest figures in the medical history of India is Susruta of the 5th century AD. He was trained by Dhanvantari, the physician of the gods !

He advocated the dissection of dead bodies as indispensable for students and gave detailed advice on the acquisition of manual skills.

The qualifications and equipment as set down by Susruta mimic those as recommended in the present day …

Historical Facts

Practice included:

•Incisions should be taught by cutting into the body of a gourd, Watermelon or cucumber both up and down with BOTH hands.

•Excisions or evacuations should be demonstrated by taking seeds out of fruit, making openings in the body of a full water bag, bladder of a dead animal or the side of a leather pouch filled with water or slime.

•Bandaging should be practised on full sized mannequins made of stuffed linen.

The Early History of Surgery
W.J. Bishop

Background

Most medical student and residency training programs offer some preparation for surgery placements although each program has inherent differences. With the new LCME requirements for surgery clerkship, a greater emphasis will need to be placed on acquisition of skills in a protected environment.

Purpose

❖To assist in identifying and developing more effective methodologies for skills acquisition

❖Identify and discuss models used and tried in training and their success rates

Cost effective model making… Using your imagination!

Simulation

Classification of Simulators

Their level of fidelity (from low to high)

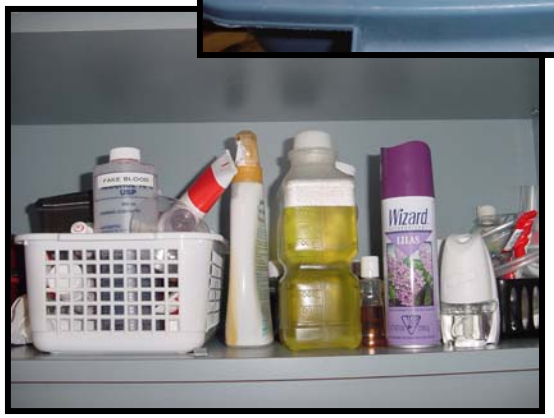
The task they simulate (part task or whole task trainers)

The "technology" they employ :

- ✓ **bench models**
- ✓ **animal**
- ✓ **human cadavers**
- ✓ **mannequins**
- ✓ **computer based simulator**

Technical Skills Education in Surgery
ACS Website

Simulation Supplies



Pick up odd supplies from craft stores, hardware, dollar stores, garden centres, grocery chains and business supply Stores.

Simulation Supplies

Supplies from your local slaughter house, meat vendor, butcher, ethnic grocery store.

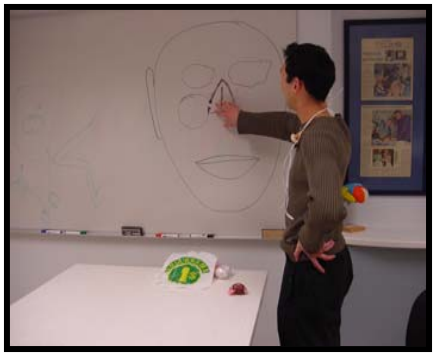
A freezer purchase is a good Investment !

What is this ?

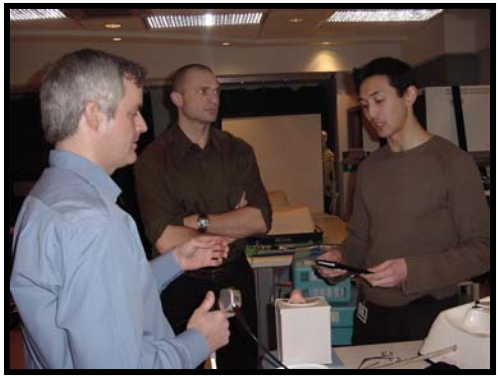
Model Creation

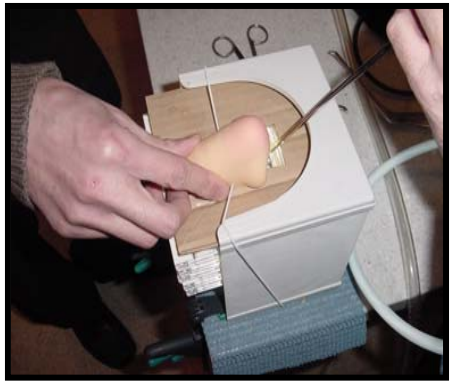
Before **After**

Model Creation…
One Man's Story !





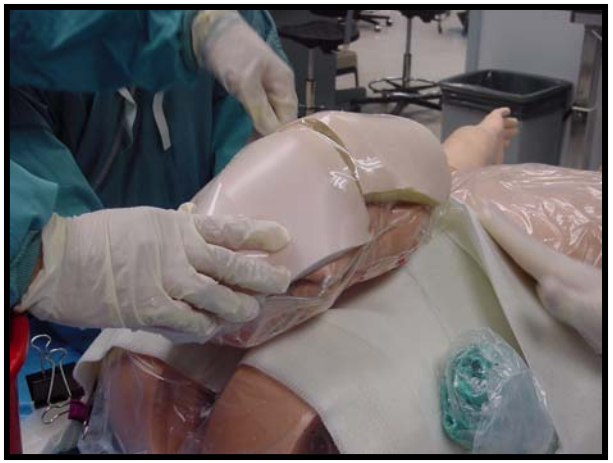


To be continued…

Up to NO GOOD !!!

Water and Electricity !

Casting tech turned Obstetrician



Not quite a fit?

And when one is not enough !

Staff Repair Man

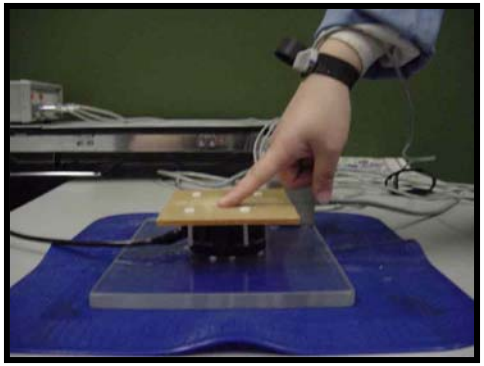
Research

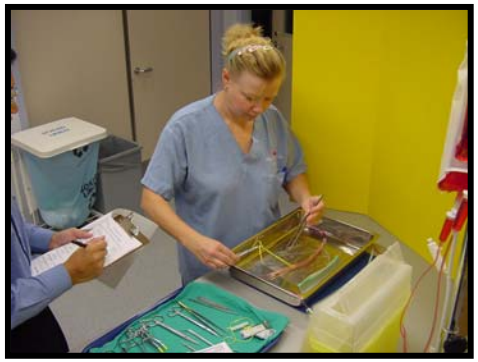
The Research Support

Research project developed to support the actual ability of the model to do what you believe it can do from a training aspect.

Construct Validity of a Measuring Instrument

The ability of the instrument to detect differences that are believed to exist.





BREAK TIME… Safety Dance

Test Time…

Objective Structured Assessment of Technical Skills

The OSATS is a 15 minute bell ringer exam comprised of **8 stations** that tests technical specific skills in both the surgical and clinical domain.

Timing of the exam is:

10 mins + 2 mins (end time warning) = 12 mins

3 mins for station turnover, candidate rotation and stem reading outside of station

TOTAL 15 mins

Do you have in stock?

Ensure you have a variety
Of forceps to choose from

Checklists for Station Verification

UofT Surgical Skills Centre PGY 2 OSAT May 21st, 2002

STATION #1 - Excision of Skin Lesion

Instructions to Candidates:
A patient comes to you with a lesion on his back that is suspicious to you. You decide to remove the skin lesion. You have already prepared and draped the area and infiltrated with local anaesthesia. Excise the skin lesion and repair the defect in the skin with simple sutures.

ITEM	Not done or Incorrect	Done Correctly
1. Draws skin incision with marking pen	0	1
2. Applies traction to skin with opposite hand	0	1
3. Proceeds to make elliptical incision around the lesion ensuring there is a 3-5mm margin	0	1
4. Selects a toothed forceps to hold the incised edge	0	1
5. Excises ellipse of skin with a depth of >2mm and <5mm	0	1
6. Does not cut into lesion during dissection	0	1
7. Uses simple interrupted stitches for closure	0	1
8. Bites appropriate distance from skin edge (2-5mm)	0	1
9. Spaces sutures appropriately (2-5mm) and even	0	1
10. Skin edges together throughout incision	0	1
11. Skin edges everted with closure	0	1
12. Follows curve of needle- on greater than 80% of bites	0	1
13. Loads needle correctly ½ to 2/3 down needle- on greater than 80% of bites	0	1
14. Protects needle when tying	0	1
15. Square knots with appropriate tension (no air knots)	0	1
16. At least 4 throws on nylon suture knots.	0	1
17. Minimal handling of needle with hands (i.e. uses forceps)	0	1

MAXIMUM TOTAL SCORE (17)

TOTAL SCORE GIVEN

EXAMINER STICKER | **CANDIDATE STICKER**

Station Developed by:
University of Toronto
Department of Surgery
OSATS

Surgical Skills Centre Core Curriculum OSATS

Global Rating Scale

Circle **ONE** number **Only** on each line!

University of Toronto
Department of Surgery
OSATS Globel Rating Scale

PGY2 OSATS, May 21st, 2002

Station #1

GLOBAL RATING SCALE OF OPERATIVE PERFORMANCE

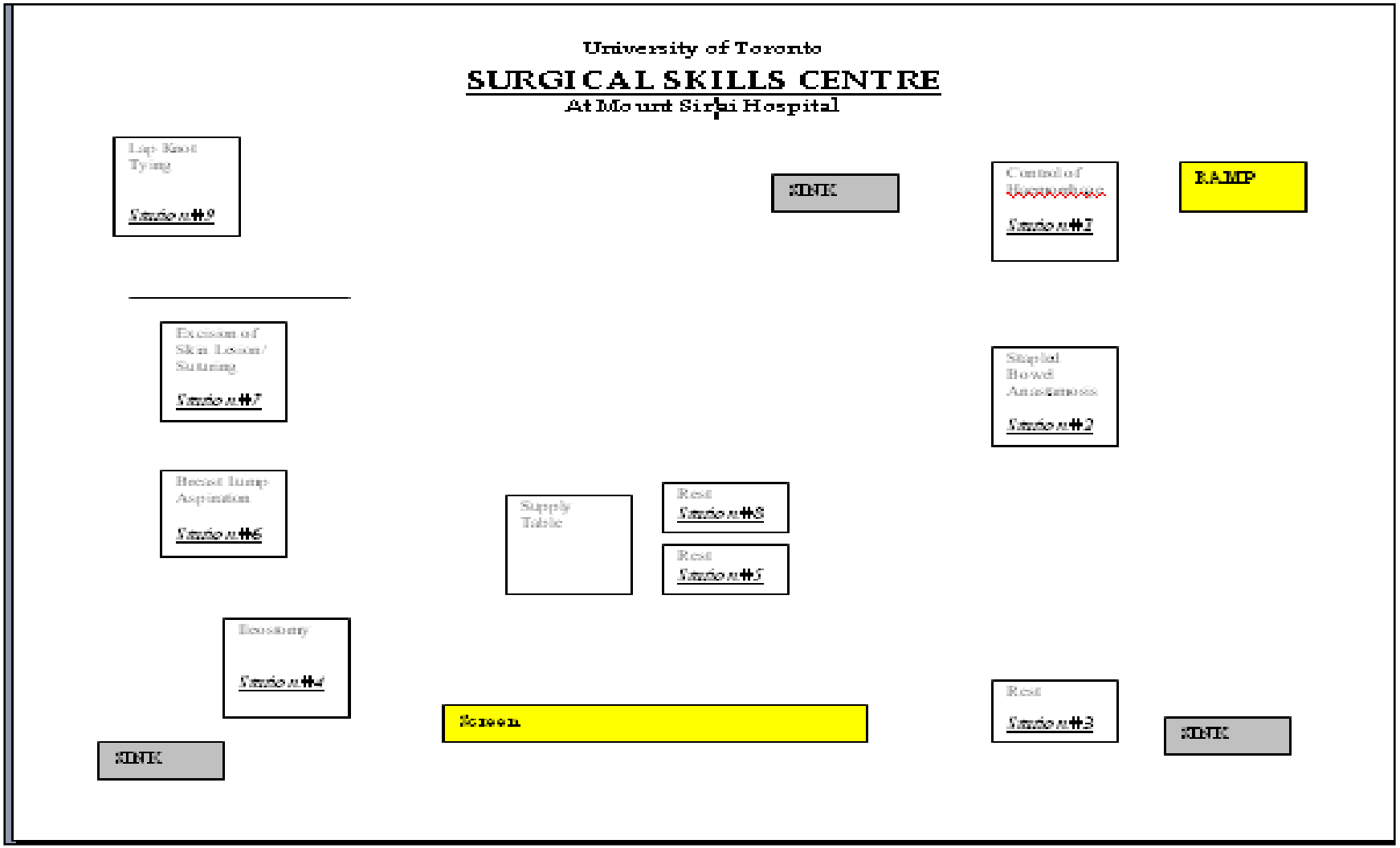
Please circle the number corresponding to the candidate's performance regardless of the candidate's level of training.

	1	2	3	4	5	
Respect for tissue	Frequently used unnecessary force on tissue or caused damage by inappropriate use of instruments		Careful handling of tissue but occasionally caused inadvertent damage		Consistently handled tissue appropriately with minimal damage to tissue	
Time and motion	Many unnecessary moves		Efficient time/motion but some unnecessary moves		Clear economy of movement and maximum efficiency	
Instrument handling	Repeatedly makes tentative or awkward moves with instruments through inappropriate use		Competent use of instruments but occasionally appeared stiff or awkward		Fluid movements with instruments and no stiffness or awkwardness	
Knowledge of Instruments	Frequently asked for wrong instrument or used inappropriate instrument		Knew names of most instruments and used appropriate instrument		Obviously familiar with instruments and their names	
Flow of Operation	Frequently stopped operating and seemed unsure of next move		Demonstrated some forward planning with reasonable progression of procedure		Obviously planned course of operation with effortless flow from one move to the next	
Use of Assistants (if applicable)	[illegible] assistants poorly or failed to use assistants		Appropriate use of assistants most of the time		Strategically used assistants to the best advantage at all times	NA
Knowledge of Specific Procedure	Deficient knowledge. Required specific instruction at most steps of operation		Knew all important steps of operation		Demonstrated familiarity with all steps of the operation	
OVERALL PERFORMANCE	Very poor		Competent		Clearly superior	
QUALITY OF FINAL PRODUCT	Very poor		Competent		Clearly superior	

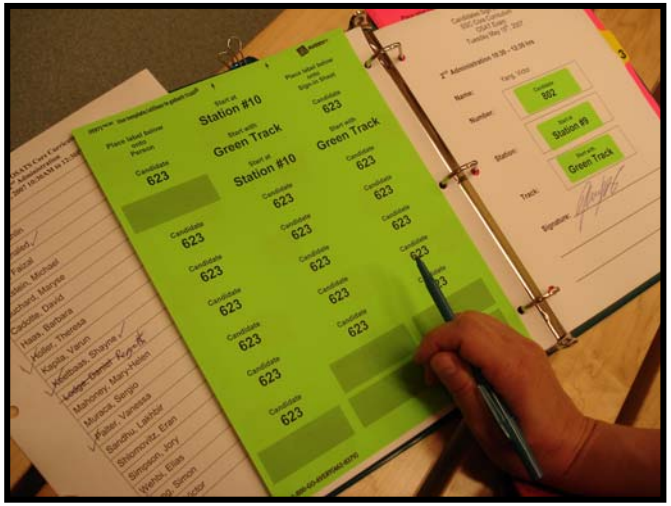
Examiner Sticker

Candidate Sticker

PLANING PHASE

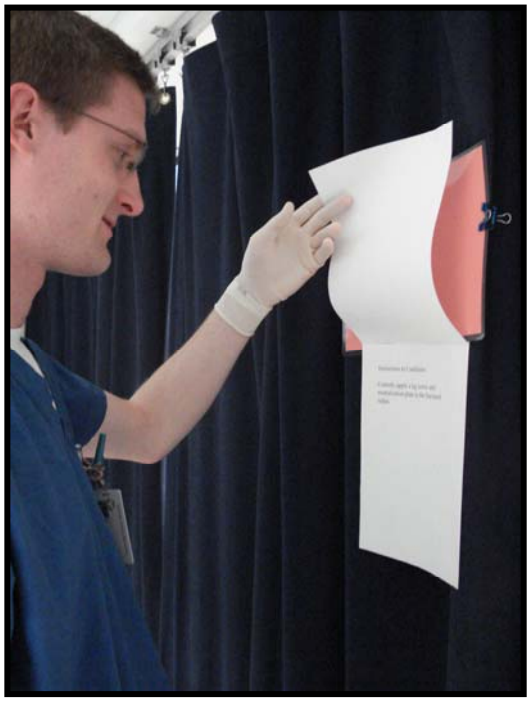


SPACING AND DISCRETION



Exam Stickers & Sign In

Stem Outside Station



Stations numbered

EXAMINATION CHECKLIST

- ✓ Preplanning Meetings
- ✓ Attention to “Table Set Up” Details
- ✓ Validation Testing of Models
- ✓ Paperwork Prepared
  - ❖ Checklists and Global Rating Sheets
  - ❖ Examiner and Resident ID Stickers
- ✓ Staffing, Examiners & Assistants Confirmed
- ✓ Residents are anxious, have food available!

SET-UP CONSIDERATIONS

- ✓ Room flow – Do you have enough space either in a single area OR in consecutive rooms?
- ✓ Consider noise levels and lighting needs
- ✓ Do you need water for the station?
- ✓ What type of power? Nitrogen or Battery
- ✓ Do you have discretionary draping/boards?
- ✓ How are you managing your exam timing?
- ✓ Is suction required?
- ✓ Do you have enough electrical outlets?

SIMULATORS (MODELS)

- ✓ Check your model inventory a month in advance to ensure you have all the replacements required for the number of candidates (deliveries can take time)
- ✓ Order specimens early
- ✓ Defrost meats 3 days in advance
- ✓ Repair any broken models
- ✓ **CHECK, CHECK AND CHECK AGAIN!**

SUPPLIES

- ✓ Instruments need to be in good working condition
- ✓ Sharp scissors!!!
- ✓ Order in supplemental supplies such as drapes, sutures, staplers, catheters, casting material early
- ✓ Use your exam checklists as a stock checklist for each station

STAFFING, EXAMINERS, CANDIDATES

Hire/Book enough staff to help run the exam

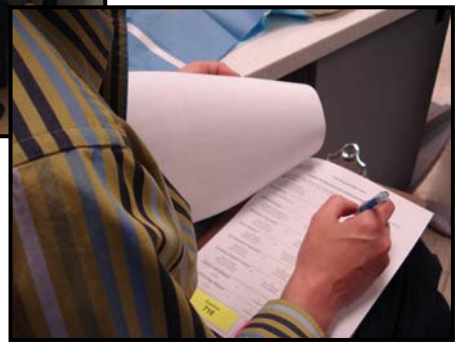
Hire professional station “assistant” if required.
(They need to be booked early to ensure availability)

Take time to give orientations to the:

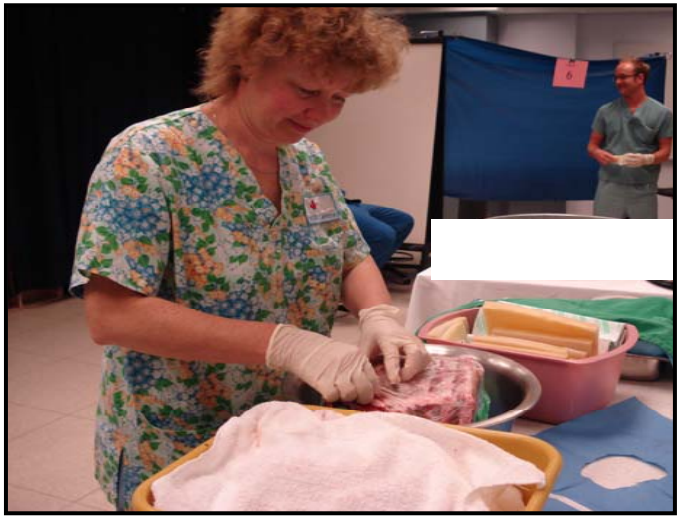
- Station models and how they work for the examiner
- Paper work to be completed by examiner
- Flow of the exam and timing for both candidate and examiner
- Examiner expectations
- Candidate expectations

Double Station Set Up

Comfortable Examiner



Station set up & supply area



FLS
Fundamentals of Laparoscopic Surgery

The FLS is a **VALIDATED** exam based on laparoscopic skills which includes both a computer cognitive test and a technical skills examination.

The exam is **MANDATORY** for any resident planning to write the US board exam for General Surgery from any country.

INCREASE IN VALIDATED EXAMS are planned for resident qualification exams and maintenance of certification.

IPPI

The Integrated Procedural Performance Instrument (IPPI) consists of clinical scenarios in which bench top models are positioned on standardized patients (SP). The learner performs a technical skill while engaging with the patient.

The exam includes video taping, checklists and immediate feedback from the SP utilizing the recorded video and checklist data.

IPPI

- Incorporates both the technical skill with challenging communication scenarios

Sample IPPI GRS

The Technical Skill is a companion event

Student_____ Case #_____ Time_____ Examiner_____

OVERALL ASSESSMENT OF THE KNOWLEDGE AND SKILLS DEMONSTRATED IN THE INTERVIEW		
1 2 Responds **inappropriately** and **ineffectively** to the task indicating a **lack of knowledge** *and/or* **undeveloped interpersonal and interviewing skills.**	3 4 5 Responds **effectively** to some components of the task indicating **an adequate knowledge base** *and* **some development of interpersonal and interviewing skills**	6 7 Responds **precisely and perceptively** to the **consistently integrating all components.**

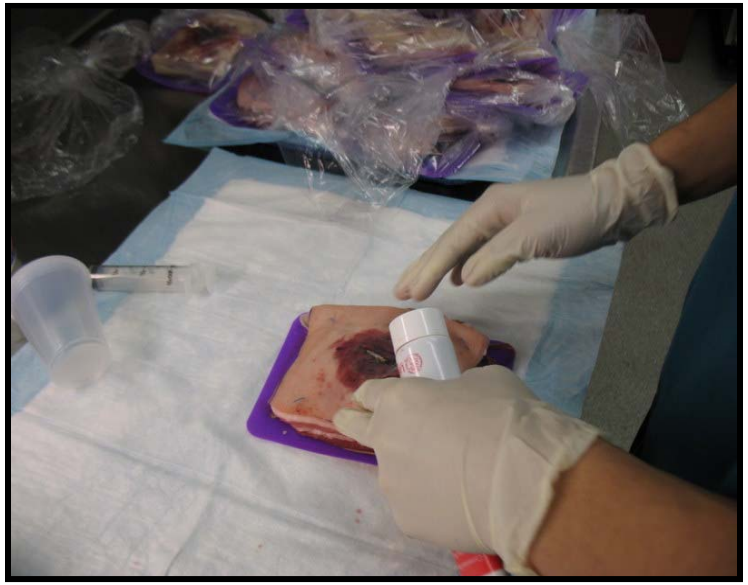
GLOBAL RATING SCALES

Circle the rating which best reflects your judgement of the student's performance in the following categories:

RESPONSE TO PATIENT'S FEELINGS AND NEEDS (EMPATHY)		
1 2 Does **not** respond to obvious patient cues *and/or* responds **inappropriately**	3 Responds to patient's needs and cues, but **not always effectively.**	4 5 Responds **consistently** in a **perceptive** and **genuine** manner to the patient's needs and cues.
DEGREE OF COHERENCE IN THE INTERVIEW		
1 2 **No recognizable plan** to the interaction, the plan does **not** demonstrate cohesion, *or* the **patient** must determine direction of the interview	3 Organizational approach is **formulaic** and **minimally flexible** *and/or* control of the interview is **inconsistent**	4 5 **Superior organization**, demonstrating **command** of cohesive devises, **flexibility**, and **consistent control** of the interview
VERBAL EXPRESSION		
1 2 Communicates in manner that **interferes with** *and/or* **prevents understanding** by patient	3 Exhibits **sufficient control** of expression to be **understood** by an active listener (patient)	4 5 Exhibits **command** of expression (fluency, grammar, vocabulary, tone, volume and modulation of voice, rate of speech, pronunciation)
NON-VERBAL EXPRESSION		
1 2 **Fails to engage, frustrates** *and/or* **antagonizes** the patient	3 Exhibits **enough control** of non-verbal expression to **engage** a patient willing to overlook deficiencies such as passivity, self-consciousness, or inappropriate aggressiveness	4 5 Exhibits **finesse and command** of non-verbal expression (eye contact, gesture, posture, use of silence, etc.)

Key Points **Yes** **No** **Comments:**

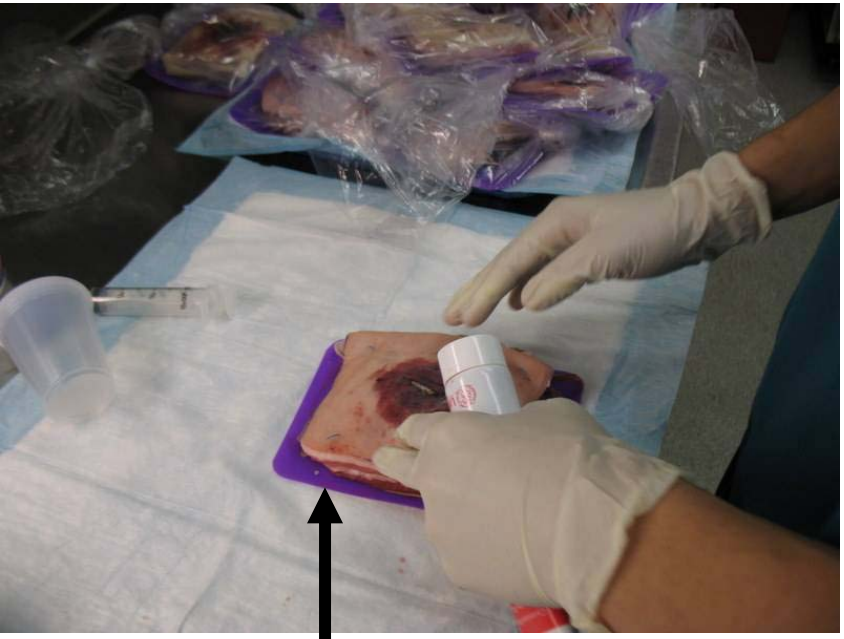
Simulation in Surgical Education



PUTTING IT TOGETHER

APPLYING TO
Standardized Patient

MODEL CREATION AND SP SAFETY



Note purple protective plastic layer

Final model attached on SP

CONSIDERATIONS

SP SAFETY!

- Use protective flexible plastic material under all models to prevent any possible cutting or puncture wounds
- Ensure all models can be applied firmly to the SP using duct tape, knee highs, soft roll, opsite ect.
- A good supply of moulage material needed such as food coloring, gravel, fake pus, thick liquid soap ect.

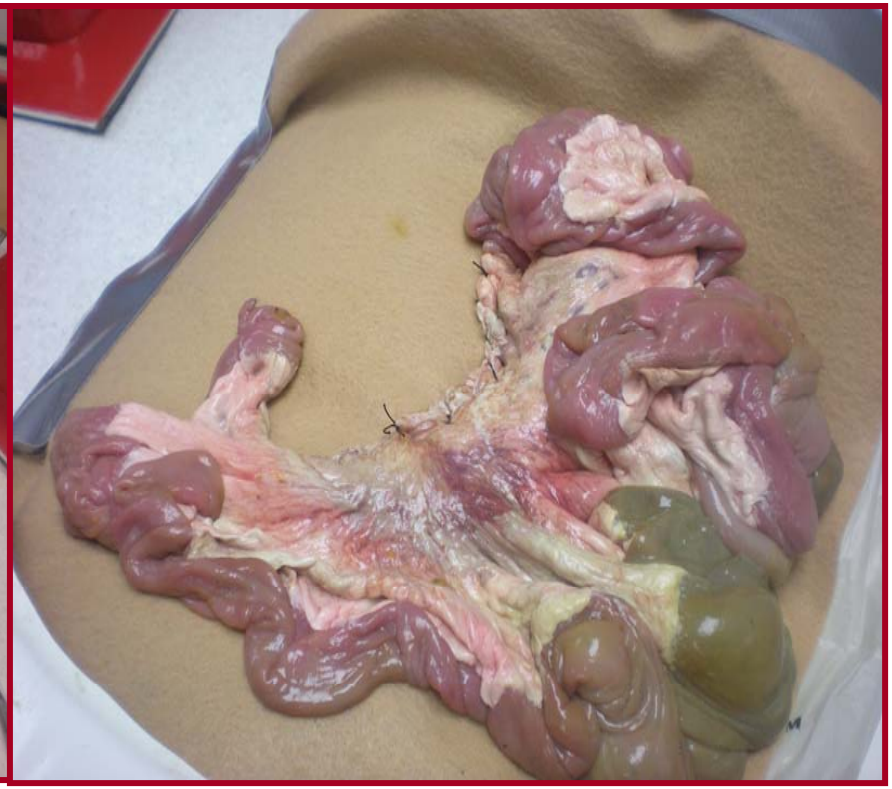
COSATS

A specific colorectal technical skills exam based in the OSATS format for colorectal fellows in their final year

- ❖Aiming to be used as a **CERTIFICATION** exam
- ❖Has evidence of validity
- ❖Still in research format

STATIONS IN DEVELOPMENT

Post Sacral Bleed



Ileal Pouch Creation

NO MATTER WHAT EXAM YOU ARE DOING….

Model Check

Model Validation

EARLY TRIALS AND TESTING

THE RULE

CHECK
CHECK
CHECK
AND
CHECK AGAIN!!!

What is it…?

Look at these objects and try to determine what type of simulation they could be used for?

Shunne will be Vanna White !!!

Helping Hands…..

We extend our knowledge to places around the world!

Holland Project…

Simulated Patient Interview

Iqaluit Project…

Ethiopia Project…

We Supply…..


LIGHTOLIER
SHARP
12-20's
SWADDLERS
Newborn
84963914
Baxter

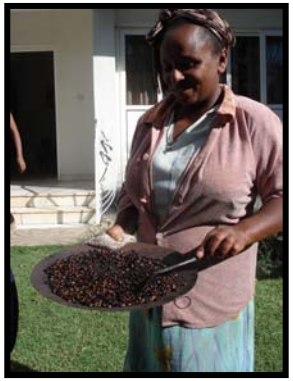
We Teach….


SESSION OBJECTIVE
GENERAL OBJECTIVE
SPECIFIC OBJECTIVES

The Culture…

- ❖Read about customs and traditions
- ❖Learn a few words !
- ❖Do you have appropriate dress?

Anyone familiar with this food?



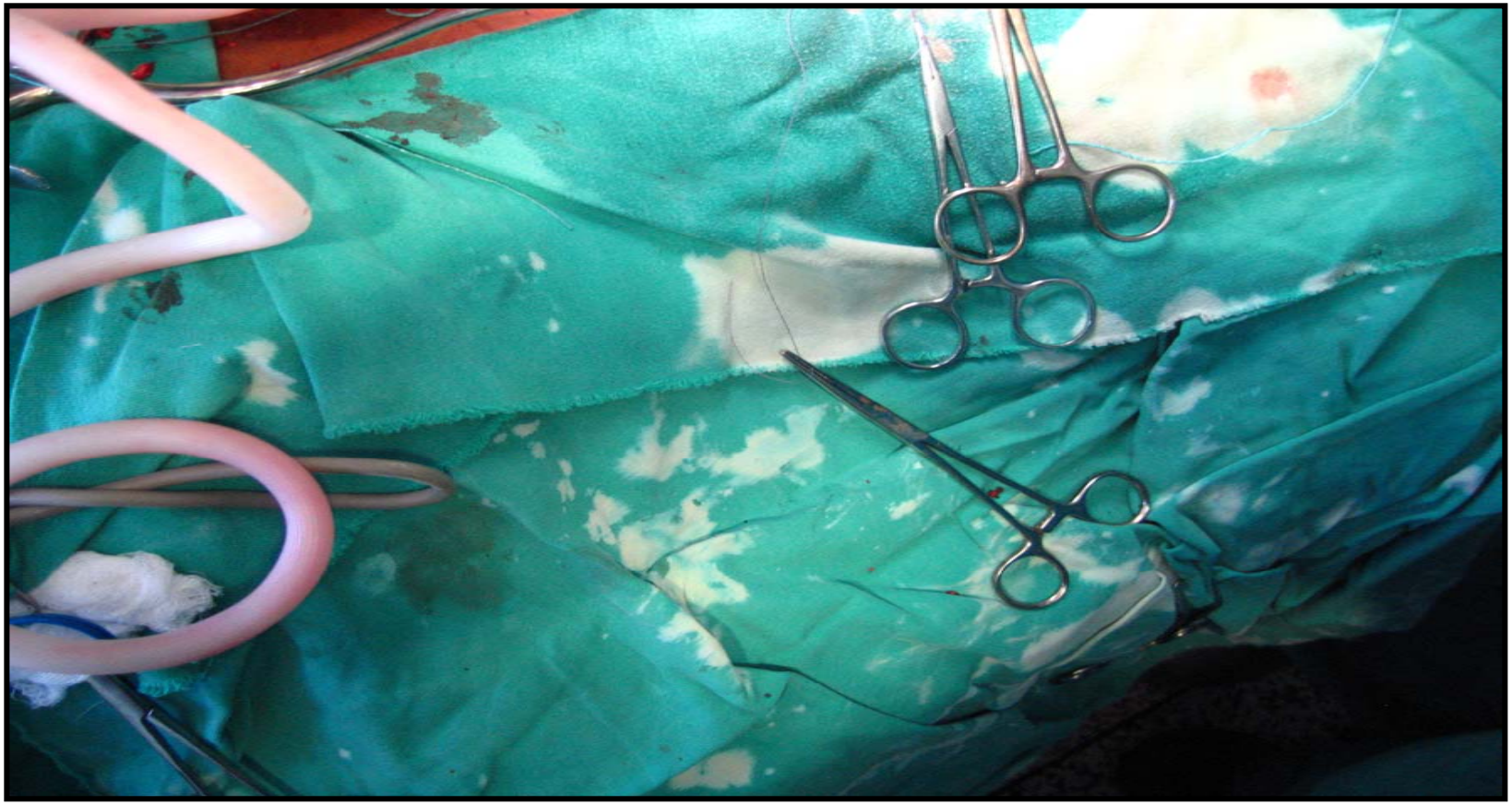
Why Help? …

There is currently only 1 doctor per 35,493people in Ethiopia

Do not work above your capabilities!

Maintain your personal scope of practice

Follow Aseptic Guidelines !!!



Protection…

- Bring your own scrubs
- Bring OR specific shoes
- Bring gloves and masks if possible
- Bring your own eye protection !!!
- Wash your hands regularly
- Your own first aid kit may not be a bad idea!

Scrub sink

Change Rooms

The Bethune Round Table is a unique international conference devoted entirely to surgical *issues in the developing world, held annually in Canada.*

Cesarean Section

Final Thought…

"A man travels the world in search of what he needs and returns home to find it."

Thank You

Visit us at www.utoronto.ca/ssc