SCHOOL OF HEALTH SCIENCES
CLINICAL SIMULATION LABORATORY

Our Mission

The clinical simulation laboratory represents a state of the art facility that encourages all learners to engage in an exceptional clinical education experience in a safe, realistic and effective environment. In the simulated environment learners can practice in a risk free and realistic environment that enables students to build self-confidence through skills mastery.

Our Vision

Humber College Institute of Technology and Advanced Learning School of Health Science Clinical Simulation Laboratory will be the best in the country. Utilizing the clinical simulation laboratory the faculty and students will advance knowledge through research and scholarship and set the standard for evidence-based practice and quality care.

Our Goals

- Enhance and promote patient safety and quality health care by integrating simulation within the Health Sciences curriculum.
- Allow students the opportunity to learn in a risk-free environment and to practice to mastery
- Improve the competency and efficiency of our students’ clinical skills through simulation experiences and repetitive practice in a realistic setting.
- Provide opportunity for self reflection to improve and practice patient care utilizing clinical simulation to meet the self regulatory needs of all health professionals
- Provide our clinical partners with the opportunity to enhance health professional education to support and incorporate interprofessional education into the work place
PROGRAM USAGE

Bachelor of Nursing
Practical Nursing Diploma
Part Time/Continuing Education for School of Health Sciences
Occupational Therapy Assistant & Physiotherapist Assistant
Personal Support Worker
Paramedic

STAFFING

Clinical Simulation Program Coordinator
Sandra Cop  sandra.cop@humber.ca  x4849  RM# M315

Clinical Simulation Technologist
Sonia Deleo  sonia.deleo@humber.ca  X 5325  RM# M315/E459

CLINICAL SIMULATION LABORATORIES

<table>
<thead>
<tr>
<th>Room #</th>
<th># of beds</th>
<th>Tele ext.</th>
<th># of people accommodated</th>
</tr>
</thead>
<tbody>
<tr>
<td>E459</td>
<td>2 bed</td>
<td>X 5515</td>
<td>private consult/evaluation</td>
</tr>
<tr>
<td>E458</td>
<td>9 beds – 5 simulators</td>
<td>X 5514</td>
<td>up to 30 students</td>
</tr>
<tr>
<td>E455</td>
<td>8 beds – 3 simulators</td>
<td>X 5513</td>
<td>up to 30 students</td>
</tr>
<tr>
<td>E445</td>
<td>8 beds – 4 simulators</td>
<td>X 5512</td>
<td>up to 30 students</td>
</tr>
<tr>
<td>E439</td>
<td>8 beds – 4 simulators</td>
<td>X 5511</td>
<td>up to 30 students</td>
</tr>
<tr>
<td>E437/E438</td>
<td>Seminar/Debriefing rooms</td>
<td></td>
<td>up to 16 students</td>
</tr>
</tbody>
</table>

• If you need a door opened please call security at X 4007
• Due to high demands of space there may be times that there are more than 30 students in one lab. However we will provide teachers with a seminar room in this case
CODE OF CONDUCT

The following are mandatory practices for everyone using the clinical simulation learning laboratory. These have been designed to ensure that all users of the lab will be able to enter the lab and engage in teaching and learning without delay. Since the lab is designed to represent a realistic clinical environment, all rooms are to be left tidy and ready to be used by the next group of learners. Therefore…

- No food or fluid allowed at any time in the labs
- No jacket, coats, school bags or purses are to be placed on the beds.
- No pens allowed in the labs, pencil only

• All users of the Clinical Simulation Laboratory must sign and follow the Clinical Simulation Lab Code of Behaviour (faculty, part time clinical teachers and students). This can be found in the “I” drive “I:Departmental\Health Sciences\lab policy”
• Simulators are to be treated with respect as if they were real patients. Handle them gently and with care
• Only manikin lubricant can be used on the simulators when inserting and objects. (e.g. catheters, NG tubing etc…)
• Never write or draw on the simulators because it will permanently remain on the skin
• Gloves must be worn when coming in to contact with the simulators
• All personal items are to be left at the back of the room in the shelving space provided
• All equipment and supplies must be returned to the marked location
• Before leaving the simulation laboratory all beds need to be lowered and neatly made
• All chairs need to be stacked neatly on the cart provided or in 2 rows at the front of the room
• All over the bed tables need to placed in front of each bed
• Ensure the room looks like the picture on the back of each lab door before you leave
CLINICAL SIMULATION LABORATORY EQUIPMENT

Each clinical simulation laboratory is equipped with teaching materials and medical supplies. They are locked in the large cabinets at the back of each lab. These cabinets are all labelled.

Clinical instructors/faculty must sign out the keys from M200 reception before class begins return the keys ASAP and sign them back in after your class has ended. The contents of the cabinet are your responsibility during the time the keys are signed out. Students are not allowed to go into the cabinets at any time. If a student has forgotten their nursing pack they are expected to share with a fellow student; the lab does not provide replacements or alternatives!

Each lab is equipped with the following:

**Nursing teaching kit** cabinet that has 2 kits of the following:
- Vital Sign
- PO and other meds
- Hand washing
- Sub Q and IM injections
- Oral Care
- Isolation kit
- NG insertion
- Simple Dressing
- Complex Dressing
- Respiratory Care
- Ostomy Care
- Urinary Catheterization

All contents of the Medical Supply Cabinets must be returned to its packaging neatly and placed in the designated area. Please dispose of all perishable supplies. (e.g. needles)

Medical Supply cabinets are locked and contain the following for instructional use:
- Various sized needles/ syringes
- Catheters / catheter trays
- Vials
- IV bags
- Simulated blood
- Dressing trays
- Trach trays
- Suture removal kits
- Sterile water
- Sodium chloride
- Tongue depressors
- Tape
- Swab sticks
- Cotton pads
- Suction catheters
- Miscellaneous
The medical supply cart is fully stocked with demonstration vials and oral medications for clinical teachers to demonstrate with and provide realistic simulation scenarios.

The linen supply cabinet is stocked with clean linen, gloves, masks, blue pads, and alcohol swabs. The blue nursing teaching kits cabinet contains low fidelity simulators and models. Both cabinets remain unlocked.

Remember that the medical supply cabinet and nursing teaching kits cabinet are to be locked at all times after use and keys must be returned to M200 reception ASAP. If any inventory or supplies are missing or needed please contact Sonia Deleo at X5325 or sonia.deleo@humber.ca

Each clinical simulation lab includes the following equipment:

- Mobility aids
- IV Poles
- BP machines
- Video Recording devices
- AV equipment
- wheelchairs
- otoscope
- scales

E439 contains a ceiling lift unit. A portable mechanical lift is available for all other labs.
CLINICAL SIMULATION

The simulation lab is designed to present health care professionals/students with clinical scenarios in a controlled setting to enable the student/professional to process and analyze clinical decision-making. The simulation lab enables students/professionals to make errors in a controlled setting, by providing the student with an evaluation of their clinical decision making immediately, through computer workstations. Individual students can use this simulation lab for self-appraisal, faculty can use the simulation lab for evaluative purposes as well the simulation centre can be used by our hospital partners to enhance clinical practice and orientation. Further, we have established solid partnerships with our simulation equipment vendors and they are able to use this lab as a showcase for demonstrations and design in Canada.

WHY USE SIMULATION?
• Reduces human error
• Increase learner’s skill development
• Practice skills in a controlled and safe environment
• Facilitate on-demand access to patients

WHAT SKILLS MAY BE TAUGHT WITH SIMULATION
• Assessment and decision making skills
• Communication skills
• Hemodynamic monitoring
• Appropriate and affective behaviour
CLINICAL SIMULATORS

THE CLINICAL SIMULATION LAB IS EQUIPPED WITH:

Medium fidelity simulators, called Vital Sim. The following simulation learning can be performed:

- Auscultation of normal and abnormal sounds – cardiac, lung and bowel
- Simulated Irrigation of the eye, ear and nose
- Blood pressure has realistic palpitation and auscultation. Systolic and diastolic pressures, auscultatory gap and volumes are variable
- Palpitation of carotid, brachial and radial pulses with pulse strength that varies with blood pressure
- Patient voices and sounds
- Cardiac capabilities include 1400+ ECG rhythm variations
- Catheterization – Fluid can be used for realistic return (Indwelling or straight catheter)
- Enema – Colon Reservoirs and can perform using fluid for realistic return
- Application/installation of medications in the eye, ear and nose including nasal packing
- Mouth and denture care procedures
- Oropharyngeal and Nasopharyngeal airways – Insertion and Suctioning
- Endotracheal Tubes – Insertion, Securing and Care
- Oxygen delivery
- Tracheostomy – Care and suctioning
- NG tube – Insertion, Care, medication administration and removal
- Gastric lavage and gavage
- Nasoenteric and Esophageal tube – Insertion, care and removal
- Injections – deltoid, dorsal gluteal, vastus lateralis, IM
- Venipuncture – Antecubital Fossa and dorsum of the hand
- Accessible veins – Median and basilica and cephalic
Vital Sim body parts:

- Full-body anatomically accurate simulators with realistic articulation
- Head with anatomical landmarks
- Genitalia – Interchangeable female and male with connector valves to urinary reservoirs
- Simulated lungs
- Simulated stomach
- Belly plate - Interchangeable stomas, Colostomy (colostomy may be irrigated), Ileostomy, Suprapubic cystomy
- Mastectomy Module – Staples and drain tube, and post surgical mastectomy care
- Breast Exam Module – interchangeable abnormalities for recognition of breast disorders, their sizes and relative locations, fibroadenoma, cyst, solid lump or mass nodule
- Fundus Module – interchangeable contracted and “boggy” uteri, fundus offset secondary to bladder distension, anal hemorrhoids visible, and 2nd degree midline episiotomy.

Please note although a simulator has the capability to perform an action, you may need a staff member from the simulation lab to prepare the simulator (E.g. fill fluid reservoir for catheterization) You must contact a staff member from the simulation lab 5 days in advance at the minimum to prepare a simulator. Please contact Sonia Deleo at X5325 or sonia.deleo@humber.ca
THE CLINICAL SIMULATION LAB IS ALSO EQUIPPED WITH:

High fidelity simulators, called 3G SimMan and SimBaby.

Our highest fidelity simulator is called 3G. Below are only a few of the features that the 3G provides

Multiple Airway Skills/Features:
  • Oral tracheal intubation
  • Nasal tracheal intubation
  • Needle/surgical cricothyrotomy
  • Lung resistance/compliance
  • And much more

Airway Complications:
  • Tongue edema
  • Pharyngeal swelling
  • Decreased cervical range of motion

Breathing Features:
  • Simulated spontaneous sounds
  • Bi/Unilateral chest rise/fall
  • CO2 exhalation
  • Normal/abnormal breath sounds
  • Oxygen saturation and wave forms

Breathing Complications:
  • Cyanosis
  • Needle thoracentesis – bilateral
  • Uni/bilateral chest movements/lobar breath sounds
  • Chest tube insertion

Cardiac Features:
  • Extensive ECG library
  • Heart sounds – four anterior
  • Ecg rhythm monitoring
  • 12 lead ecg display
  • Defibrillation/carioversion/pacing

Circulation Features:
  • BP measured manually
  • Carotid, femoral, brachial, radial, dorsalis pedis, popliteal and posterior tibialis pulses synchronized with
    ECG (pulse palpation detected and logged)
  • Pulse strength variable with BP

Vascular Access:
  • IV access (RA)
  • Intraosseous access (tibia and sternum)
  • Automatic Drug recognition System
CPR:
- CPR compressions generate palpable pulses, blood pressure waveform, and ECG artefacts
- Realistic compression depth and resistance
- Detection of depth, release and frequency of compressions
- Real time feedback on quality of CPR

EYES:
- Blinking normal and abnormal
- Open, close and partial
- Pupillary accommodations normal and sluggish speed reactions

OTHER FEATURES:
- Seizure/fasciculation
- Bleeding
- Urine output
- Secretions eyes, ears, nose, mouth, blood, mucous, cerebrospinal fluids
- Diaphoresis
- Bowel sounds
- Patient voice

The following can be performed on the Sim Man:
- Perform relevant ALS skills and scenarios
- Simulation-based education to challenge and test students clinical and decision making skills
- Airway system allows accurate simulation of airway management
- Realistic practice of chest tube insertion
- Needle and surgical Cicothyrotomy
- Bronchial tree is anatomically accurate in size, colour and texture and features the accurate anatomical landmarks necessary to facilitate realistic fiberoptic bronchoscopy
- Simulated patient monitor can provide snap shot of x-ray, 12-lead ECG and trends
- Scenarios are pre-programmed as well instructors can also design and save their own patient cases
- User entered comments can be automatically added to the log to aid in evaluation of performance during debriefing.
- Scenarios can generate automatic comments in the log
The following can be performed on Sim Baby

- Realistic anatomy and clinical functionality
- Video debriefing and interactive technology
- Realistic airway system
- Realistic infant breathing patterns and complications
- IV training arm
- IV legs allow practice of peripheral intravenous and intraosseous therapy

Please note although a simulator has the capability to perform an action, you may need a staff member from the simulation lab to prepare the simulator (E.g. fill fluid reservoir for catheterization) You must contact a staff member from the simulation lab 5 days in advance at the minimum to prepare a simulator. Please contact Sonia Deleo at X5325 or sonia.deleo@humber.ca
Please read and sign the code of conduct and policies and procedures form provided by the coordinator of the program.

Enjoy your time in our clinical simulation laboratory, both the program coordinator of clinical simulation and the clinical simulation technologist are here to support you and the learners. We welcome you to contact us with any ideas, concerns, questions or help in anyway.
Injections
Only use water to inject the designated areas of the simulators. Foam should be removed from pads immediately following training. Squeeze out fluid and air dry.

Urinary Catheterization
Catheters should be well lubricated ONLY with manikin lubricant located in the linen supply cabinet. A size 16 french catheter is suggested for urethral catheterization. If you would like to see fluid return you must arrange with the simulation technologist 5 days prior to have the reservoirs filled. The simulator must be placed in sitting for gravity to assist in the drainage.

NG Tube Insertion
NG tube should be well lubricated with manikin lubricant ONLY located in the linen supply cabinet.
**Dressings**
A realistic wound with simulated blood can be provided to enrich the task training. Simulated blood can be added as desired.

**Ostomy Care**
An abdominal part can be added to simulate ostomy care.

**Oxygen/Suctioning**
Our headwalls have oxygen flowmeters and suction regulators that use compressed air to provide a realistic treatment.

- Clinical simulation technologist requires five days advance notice to set up the lab and necessary equipment
- Always treat and care for the simulators as you would a real patient
- Always wear gloves when you are handling the simulators
- Only manikin lubricant can be used on the simulators when inserting and objects. (e.g. catheters, NG tubing etc…)
- Never write or draw on the simulators because it will permanently remain on the skin
- Most importantly have FUN