Simulation in Medical Schools Survey

Introduction and Background

The Association of American Medical Colleges (AAMC), working jointly with the Society for Simulation in Healthcare (SSH), the Association for Standardized Patient Educators (ASPE), and the American Association of Colleges of Nursing (AACN), developed this survey to better understand how simulation is being used for education and assessment and determine the operational impact of simulation at our constituent institutions (U.S. and Canadian accredited medical schools and teaching hospitals).

Objectives of the survey:
- Define how and where AAMC-member institutions are using simulation for academic purposes
- Determine some current operational attributes for simulation at medical schools and teaching hospitals
- Report data for AAMC constituent institutions
- Foster research about the use of simulation across institutions and among disciplines

Participation in the survey will help us meet our constituents’ needs by understanding the prevalence and use of simulation. In turn, participating institutions will have access to data for planning and research purposes.

Instructions

This survey should not take more than 20 minutes. Please use the most recent fiscal year to complete the operational questions. We recognize that many organizations have one or more simulation programs and/or sites. If possible please represent the organizations simulation activities as fully as possible and provide explanation where needed. If the organization has several discrete simulation programs and/or sites that cannot be captured and reported in aggregate, please complete a separate survey for each program and/or site and provide comments where needed.

If you are not the appropriate person to complete this survey, please let us know whom we should contact. Send the name and contact information to Bridgette Waldron at bwaldron@aamc.org, 202.828.0953.

Data Release Policy

The data collected with this web-based application are restricted. The survey and data are distributed only to survey participants and to AAMC staff. In order to maintain a high level of survey participation, we ask that any user of this survey adhere to AAMC policies restricting individual identification. Users of this data may NOT disseminate data or output that identify individual institutions. Restricted data concerning individual institutions may be provided to scholars or research institutions at the discretion of the President of the Association of American Medical Colleges.

For more information about data confidentiality or this survey, please contact Morgan Passiment, mpassiment@aamc.org, 202.828.0476 or Bridgette Waldron, bwaldron@aamc.org, 202.828.0953.

By continuing, you acknowledge that you have read the above information and agree to participate in this survey.
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Is there a permanent space dedicated to simulation?

☐ Yes
☐ No

69%

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Where do simulation activities take place? Check all that apply.

- Multi-purpose location - this space is used for purposes other than simulation activities
- In-situ (in the place of healthcare delivery, such as patient rooms or clinic rooms)
- Other - explain:

76%

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Operations and Facilities

These questions refer to the simulation program or center indicated in the first section of the survey. If there is more than one program or center under separate management please complete a separate survey for each.

Is the simulation facility centralized or decentralized? Check all that apply.

- [ ] Centralized - the vast majority of our simulation activities (excepting in-situ activities) take place in a single physical location
- [ ] Decentralized - the vast majority of our simulation activities (excepting in-situ activities) take place in various non-contiguous physical locations
- [ ] Mobile Unit
- [ ] Other - Explain: __________________________________________

Is the simulation facility owned or leased?

- [ ] Owned
- [ ] Leased/rented
- [ ] Other - Explain: __________________________________________

Does the medical school and/or teaching hospital have ownership of the facility?

- [ ] Medical school partial ownership
- [ ] Medical school complete ownership
- [ ] Teaching hospital partial ownership
- [ ] Teaching hospital complete ownership
- [ ] Other - Explain: __________________________________________

Indicate how many of each type of room are dedicated to simulation and/or the estimated square footage, if known. Do not count a room more than once. For a multipurpose room, please choose the single function that corresponds to the activity most frequently taking place there.

<table>
<thead>
<tr>
<th>Number of rooms</th>
<th>Estimated Square Footage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debriefing</td>
<td></td>
</tr>
<tr>
<td>Training/scenario room</td>
<td></td>
</tr>
<tr>
<td>Exam/SP room</td>
<td></td>
</tr>
<tr>
<td>Partial task trainer/procedure room</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td></td>
</tr>
<tr>
<td>Observation</td>
<td></td>
</tr>
<tr>
<td>Control room</td>
<td></td>
</tr>
<tr>
<td>Conference room/classroom</td>
<td></td>
</tr>
<tr>
<td>Storage and equipment room</td>
<td></td>
</tr>
<tr>
<td>Mixed-use</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

If in-situ simulation is conducted indicate what in-situ space is used.
(simulation activities take place in the place of healthcare delivery, such as patient rooms or clinic rooms.)

☐ Ambulatory
☐ Inpatient
☐ Field
☐ Mobile units
☐ Other - Explain:

Estimate the usage of the simulation program (alternatively, the most recent calendar year).

Estimate the number of unique learners in a 12 month period:

Contact hours are defined as the length of time a learner spends within a simulation-based curriculum, including instruction, structured practice, and debriefing/feedback. Using this definition, estimate the number of contact hours per learner per year:

Estimate the number of unique sessions available:

A session is defined as single, non-contiguously scheduled simulation-based activity. For ex., a course on pharmacology may include 3 separate simulation sessions over the course of 6 weeks. Using this definition, estimate the total number of session conducted in a 12 month period:

If you have other numeric measures of learner usage, please provide them here:

84%
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Financial and Staffing

These questions refer to the simulation program or center indicated in the first section of the survey. If there is more than one program or center under separate management, please complete a separate survey for each.

How is the simulation program financed? Check all that apply.

- Medical school
- Nursing school
- Teaching hospital
- University
- Government, City
- Government, State
- Government, Federal
- Grants/foundation
- Philanthropy
- For-profit entities
- Revenue generated by courses and service to individuals and groups
- Other - Explain: ____________________________________________

Based on last year’s budget, what were annual operating expenses?

Indicate which of the following components are included in the above reported budget. Check all that apply.

- This number includes compensation for faculty
- This number includes compensation for contractors who work on an hourly basis
- This number includes space rental/operation
- This number includes administrative cost

Please describe any other relevant factors related to the above reported budget

In the following questions, FTE refers to full-time-equivalent personnel, not number of individuals employed. For the purposes of this survey, please calculate FTE based on a 40-hour work week over the course of the full fiscal year (or approximately 2,000 hours per year).

Estimate the total paid full-time equivalents (FTE) working in the simulation program.

Total FTEs: ____________________________________________

Which of the following positions are engaged in your simulation program?

Do not count an individual more than once.
Do not include contractors paid on an hourly basis.
For individuals who have multiple or overlapping responsibilities, please choose the title that most closely corresponds to their job description or >50% of their regular tasks.

The list below provides a description of the position.

Position Description:

Administrator - responsible for clerical functions, such as scheduling sessions

Course director - responsible for overseeing a series of simulation activities unified by a discrete set of educational objectives

Curriculum author - creates simulation scenario, curriculum, educational goals and/or debriefing methodology, relying on
## Content Expertise

**Director of the program** - responsible for overall direction, personnel management, and budget of a simulation program

**Educator** - specialized in ensuring the educational soundness of simulation content; usually not a content expert

**Instructor/trainers/facilitator** - responsible for running a simulation scenario

**Operations manager** - responsible for the day-to-day functioning of the simulation program

**Researcher/statistician/psychometrician** - responsible for research design and data analysis in simulation activities

**Simulation technician/specialist/IT support** - responsible for running the technical and logistic aspects of simulations

**SP trainer** - responsible for instructing standardized patients on standardized scripts

<table>
<thead>
<tr>
<th>Role</th>
<th>Unique People</th>
<th>Total FTEs paid through simulation program budget</th>
<th>Total FTEs supported externally (e.g., by a department)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course director</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Curriculum author</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Director of the program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educator</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Instructor/trainers/facilitator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations Manager</td>
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<td></td>
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<td>Researcher/statisticist/psychometrician</td>
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</tr>
<tr>
<td>Simulation technician/IT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP trainer/educator</td>
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</tr>
</tbody>
</table>

### Estimate the number of Standardized Patient hours contracted every year

Contracted Hours: ________________

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Please provide any additional information you think would be helpful for us to understand your responses to this survey.

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Definitions

For the sole purposes of this survey, we rely on the following definitions:

Simulation is a method used in health care education to replace or amplify real patient experiences with scenarios designed to replicate real health encounters, using lifelike mannequins, physical models, standardized patients, or computers.

Simulation Facility is the physical space where the simulation takes place, excluding in-situ simulation activities.

Simulation Program is a curriculum, whether informal or formal, using simulation as the primary modality to teach learners.

Standardized Patient is a person trained to portray a clinical scenario or an actual patient using his or her own history and physical exam findings for the instruction, assessment, or practice of skills in health care delivery.

Full-scale Mannequin is a life-sized robot that mimics various functions of the human body, including respiration, cardiac rhythms, and pulsation. It can be low-fidelity (having limited or no electronic inputs like Laerdal’s Resusci Anne) or high-fidelity (connected to a computer that allows the robot to respond dynamically to user input, like METI’s Human Patient Simulator).

(Part or partial) Task Trainer is a physical model that simulates a subset of physiologic function to include normal and abnormal anatomy. Examples include IV arm, airway models and virtual reality endoscopic devices.

Screen-based Simulation is a program, exclusively computer-based, that allows learners to interview, examine, diagnose, and treat patients in realistic clinical scenarios. Examples include virtual patients, virtual environments, or physiologic simulations.

Hybrid Simulation is the use of two or more simulation modalities. Examples include standardized patient with task trainer and other combinations.

In-Situ simulation activities take place at the point of healthcare delivery, such as patient rooms, clinic rooms or in the community.

Administrator - responsible for clerical functions, such as scheduling sessions.

Course Director - responsible for overseeing a series of simulation activities unified by a discrete set of educational objectives.

Curriculum Author - creates simulation scenario, curriculum, educational goals and/or debriefing methodology, relying on content expertise.

Program Director - responsible for overall direction, personnel management, and budget of a simulation program.

Educator - specialized in ensuring the educational soundness of simulation content; usually not a content expert.

Instructor/Trainers/Facilitator - responsible for running a simulation scenario.

Operations Manager - responsible for the day-to-day functioning of the simulation program.

Researcher/Statistician/Psychometrician - responsible for research design and data analysis in simulation activities.

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Simulation technician/specialist/IT support - responsible for running the technical and logistic aspects of simulations.

SP trainer - responsible for instructing standardized patients on standardized scripts.

FTE refers to full-time-equivalent personnel, not number of individuals employed. For the purposes of this survey, please calculate FTE based on a 40-hour work week over the course of the full fiscal year (or approximately 2,000 hours per year).
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Organizational Characteristics

Contact Information

Name of person completing this survey: 

Email Address: 

Title at Institution: 

Title within simulation (if different than above): 

Title of simulation initiative reported in this survey (e.g., center, program, course): 

Indicate for which medical school you are responding: 

If your institution is not listed above please indicate the institution for which you are responding 

Institution: 

Additional Contacts

If you are only reporting for one simulation initiative at your organization and there are other simulation initiatives, please provide the name(s) and email address(es) for individual(s) who can provide information about the other simulation initiatives at the above identified medical school and/or teaching hospital.

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Organizational Characteristics

Please answer question(s) before continuing.
Please answer question(s) before continuing.
Please answer question(s) before continuing.
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Contact Information

Name of person completing this survey: ____________________________
Email Address: ____________________________
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Title within simulation (if different than above): ____________________________
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Please answer question(s) before continuing.
Indicate for which medical school you are responding:

If your institution is not listed above please indicate the institution for which you are responding:

Institution: ____________________________

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____________________________________________________________________________________

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Is simulation currently used at your institution?

☐ Yes
☐ No

30%

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Does this organization plan to use simulation in the next year?

☐ Yes
☐ No

If yes, please indicate at what stage the organization is in planning. Check all that apply.

☐ Assembled a committee or task force
☐ Secured funding
☐ Identified dedicated space
☐ In the process of implementing simulation
☐ Other: ____________________________

Please share any other comments about simulation that may be relevant to this survey.


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38%

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From the list below identify the simulation initiative(s) being reported in this survey:

- All simulation initiatives within a medical school
- A single simulation initiative within a medical school
- Other - Explain: ________________________________

Indicate which entity listed below oversees the simulation initiative being reported in this survey. Check all that apply.

- Department within a hospital
- Hospital
- Health sciences center
- School of medicine
- School of nursing
- University
- Independent simulation center
- Other - Explain: ________________________________

Indicate all the types of simulation currently available at your institution. Check all that apply.

- Standardized patients
- Full scale mannequins
- (Part or partial) task trainers
- Screen-based simulation
- Other - Explain: ________________________________

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## Simulation in Medical Schools Survey

### Users and Content

From the categories listed below indicate the target audience for simulation at the institution? Check all that apply.

**Medical students in an accredited MD-degree granting program**

- [ ] 1st year medical student
- [ ] 2nd year medical student
- [ ] 3rd year medical student
- [ ] 4th year medical student and above

**Medical students in an accredited DO-degree granting program**

- [ ] 1st year medical student
- [ ] 2nd year medical student
- [ ] 3rd year medical student
- [ ] 4th year medical student and above

**Resident trainees**

- [ ] Post Graduate Year 1
- [ ] Post Graduate Year 2
- [ ] Post Graduate Year 3
- [ ] Post Graduate Year 4
- [ ] Post Graduate Year 5+

**Other physician training**

- [ ] Subspecialty clinical fellows
- [ ] Practicing physicians

**Other healthcare professionals**

- [ ] Dentists
- [ ] Dieticians
- [ ] EMT/pre-hospital
- [ ] Nurses
- [ ] Nursing assistants
- [ ] Occupational therapists
- [ ] Pharmacists
- [ ] Physical therapists
- [ ] Physician assistants
- [ ] Respiratory therapists
- [ ] Social workers
- [ ] Speech therapists
- [ ] Other - explain:

**Non-health related professionals**
The following series of questions about education and assessment utilize a list of ACGME competencies and other specific skills. For the following competencies and skills indicate for what purpose(s) is simulation used? Check all that apply.

<table>
<thead>
<tr>
<th>Competency</th>
<th>Education</th>
<th>Assessment</th>
<th>QI or Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical knowledge</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Patient care</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Interpersonal communication skills</td>
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<tr>
<td>Professionalism</td>
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<td></td>
<td></td>
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<tr>
<td>Practice-based learning and improvement</td>
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<td></td>
<td></td>
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<tr>
<td>System-based practice</td>
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<td></td>
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<tr>
<td>Psychomotor tasks</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Leadership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Team training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical thinking/decision making</td>
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<td></td>
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</tr>
</tbody>
</table>

For the below competencies and skills indicate if they are taught in a multidisciplinary and/or interprofessional environment: (Multidisciplinary = incorporating more than one specialty within a single profession, e.g., anesthesia and surgery. Interprofessional = incorporating more than one profession, e.g., RNs and MDs.)

<table>
<thead>
<tr>
<th>Competency</th>
<th>Multidisciplinary</th>
<th>Interprofessional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient care</td>
<td></td>
<td></td>
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<tr>
<td>Interpersonal communication skills</td>
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<td>Professionalism</td>
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<td>Team training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical thinking/decision making</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other - Explain:

For the below competencies and skills how is simulation used specifically for assessment? Check all that apply.

<table>
<thead>
<tr>
<th>Competency</th>
<th>Feedback</th>
<th>Evaluation (e.g., grades, scores)</th>
<th>Validation/certification</th>
<th>Remediation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical knowledge</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Other - Explain:

What content is covered in the simulation program (i.e., was simulation used as a teaching component in this course)?

Pre-Clinical Courses

- Anatomy
- Biochemistry
- Biostatistics
- Cell Biology
- Clinical Neuroscience
- Clinical Skills/Doctoring
- CNS/Neuroanatomy/Neuroscience
- Embryology
- Epidemiology
- Genetics
- Histology
- Human Behavior
- Immunology
- Intro To Ambulatory Care
- Intro To Clinical Medicine
- Medical Ethics
- Micro Anatomy
- Microbiology
- Nutrition
- Pathology (Basic Science)
- Pathophysiology
- Pharmacology
- Physical Diagnosis
- Physiology
- Preventive Medicine
- Public Health
- Public Health and Preventive Medicine
- Other - explain:
### Clinical Clerkships

- Ambulatory Care
- Anesthesiology
- Clinical Medicine
- Community Medicine
- Critical Care
- Dermatology
- Emergency Medicine
- Family Practice
- Geriatrics
- Interdisciplinary
- Internal Medicine
- Neurology
- Obstetrics-Gynecology
- Ophthalmology
- Orthopedic Surgery
- Otolaryngology
- Pathology, clinical
- Pediatrics
- Physical Medicine and Rehabilitation
- Primary Care
- Psychiatry
- Radiology
- Other - explain: 

### Residency Programs

- Anesthesiology
- Emergency Medicine
- Dermatology
- Family Practice
- Internal Medicine
- Neurology
- Obstetrics-Gynecology
- Ophthalmology
- Pathology
- Pediatrics
- Physical Medicine and Rehabilitation
- Primary Care
- Psychiatry
- Radiology
- Surgery, Cardiothoracic
- Surgery, General
- Surgery, Otolaryngology
- Surgery, Pediatric
- Surgery, Plastic
- Surgery, Transplant
- Surgery, Urologic
- Surgery, Vascular
- Other - explain: 

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Subspecialty Fellowships

- Cardiology
- Critical Care Medicine
- Endocrinology
- Family Medicine
- Gastroenterology
- Genetics
- Gynecologic Oncology
- Hematology
- Hospice and Palliative Medicine
- Infectious Disease
- Maternal and Fetal Medicine
- Neonatal-Perinatal Medicine
- Oncology
- Palliative Care
- Pulmonary Medicine
- Reproductive Endocrinology/Infertility
- Rheumatology
- Sports Medicine
- Other - explain: ____________________________

Other

Explain: ____________________________

53%

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From the list below please indicate what simulation equipment is available. Check all that apply.

**Full-Scale mannequin**

- [ ] Adult, basic body
- [ ] Adult, multiple characteristics, non-computerized
- [ ] Adult, multiple characteristics, computerized
- [ ] Pediatric, basic body
- [ ] Pediatric, multiple characteristics, non-computerized
- [ ] Pediatric, multiple characteristics, computerized
- [ ] Infant, basic body
- [ ] Infant, multiple characteristics, non-computerized
- [ ] Infant, multiple characteristics, computerized
- [ ] Other - Explain: ____________________________

**Vascular Access**

- [ ] Adult IV arm, peripheral/arterial
- [ ] PICC Line
- [ ] Peds IV Arm, peripheral/arterial
- [ ] Infant IV Arm, peripheral/arterial
- [ ] Infant Scalp Vein
- [ ] Cutdowns
- [ ] Central Venous Access, internal jugular/subclavian
- [ ] Intraosseous Access, Peds leg
- [ ] Intraosseous Access, Adult (FAST I, etc.)
- [ ] Arterial Puncture, wrist
- [ ] Femoral Access
- [ ] Other - Explain: ____________________________

**Genitourinary**

- [ ] Pelvis, birthing
- [ ] Pelvis, birthing with Force Monitoring
- [ ] Vaginal ultrasound-ectopic pregnancy
- [ ] Urethral catherization, female
- [ ] Urethral catherization, male
- [ ] Prostate/rectal
- [ ] Testes
- [ ] Circumcision
- [ ] Vasectomy
- [ ] Cordocentesis
- [ ] Pelvic Trainer-bimanual exam/pap smear
- [ ] Hysteroscope
- [ ] Anal Sphincter
- [ ] Episiotomy

**Miscellaneous**
Hernia
Lumbar puncture
Nasogastric tube/Tracheostomy Care
Ulcer staging

Anatomical Replicas

- Full body skeleton
- Solid body torso
- Skeletal parts
- Digestive system
- Circulatory system
- Respiratory system
- Urinary system
- Neurological system
- Genitalia, Male
- Genitalia, Female
- Reproductive system
- Muscle system
- Endocrine system
- Ophthalmic system
- Dental

- Nodes Recognition-ultrasound
- Breast
- Thyroid
- Thoracentesis
- Femoral Access
- Echocardiogram
- Abdominal Aortic Aneurysm
- Leg masses/DVT
- Paracentesis
- Amniocentesis
- Sonohysterography
- Sonosalpingography
- Endovaginal
- Soft Tissue Mass

Joint Injections

- Knee
- Shoulder
- Elbow
- Hand/wrist

Suturing

- Practice Pads, various types
- Wound Closure
- Local Anesthesia Injection

Knot Tying
Practice Pads, various types

**Fundamentals of Laparoscopy Skills Training Box, FLS training**
- Training Box, lighted, multiple ports
- Free-standing Lap Trainer, surgical camera/light source

**Sound Recognition**
- Heart sounds
- Lung sounds
- Auscultation

**Trauma**
- ALS trainer
- ATLS trainer
- Various bleeding extremities for mannequins
- Trauma bags
- Crash Carts
- Defibrillators

**CPR trainers, torso, various types**
- CPR trainers, defibrillate
- CPR full body trainers
- Code Rhythm Generator

**Airway Management**
- Airway Head
- Difficult Airway Head
- Cricoid ET insertion, various types
- Thoracentesis
- Pneumothorax

**HEENT**
- Eye examinations
- Ear examinations

**Virtual Reality**
- Laparoscopic Skills
- Cholecystectomy
- Ventral Hernia
- Gastric Bypass
- Arthroscopy
- Ophthalmic Surgery
- GI Skills, endoscopy
- Bronchoscopy
- Endovascular Skills
- Cystoscopy
- Interventional radiography skills, angiography/percutaneous/catherization
IV Access, Adults
IV Access, Pediatric
IV Access, Infant

Other - Explain:

61%

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