

## Skill Lab manikin specification

### 1. Multi Venous IV arm

- I. The model should be Life like human adult arm with blood vessel palpation
- II. The model should have replaceable injection skin and multi vein system to ensure longevity of training arm
- III. Peripheral IV lines insertion and removal must be performed
- IV. Accessible veins should include median, basilic and cephalic
- V. Infusible veins must allow peripheral therapy with IV bolus or push injection method
- VI. It should be provided with 1 arm reproduction, 1 replacement skin and multi vein system, 1 bottle of red simulated blood, 1 can of manikin lubricant, 1 simulated blood bag with tubing and connector, 1 clamp and hook, 1 set shoulder attachment hardware, 1 carry case and directions for use
- VII. Preferably, there should not be any visible mark (needle holes) on the skin of arm at injection site while practicing
- VIII. Manufacturer must conform to the National or International Quality Certification i.e. ISO / European CE/USFDA, etc.

### 2. Adult Airway Management Trainer

- I. Simulator should be able to teach following Intubation Procedures
  - a. Tracheal (oral and nasal)
  - b. Pharyngeal (oral and nasal)
  - c. Retrograde intubation
  - d. Esophageal
  - e. Fiber optic intubation (oral/nasal)
- II. Possibility of Sellick maneuver
- III. Right mainstem intubation
- IV. Should be able to teach Suctioning techniques
- V. Should be able to perform Bronchoscopy
- VI. It must be able to provide realistic and complete training in all intubation procedures tracheal-oral and nasal and the use of the Laryngeal Mask Airway and Combitube.
- VII. It should provide realistic anatomy, nostrils. Lips, teeth, tongue, pharynx-oral and nasal, larynx with glottis opening, vallecula, arytenoids, vocal cords, sub glottis cricoid ring, trachea, including carina lungs, esophagus and stomach.
- VIII. It should be able to provide realistic complications as, laryngospasm, vomiting, and with excessive laryngoscope pressure on teeth will produce and audio signal.
- IX. It should be supplied with separate model for demonstration airway anatomy.
- X. Manufacturer must conform to the National or International Quality Certification i.e. ISO / European CE/USFDA, etc.

### 3. Cricothyrotomy Trainer

- I. Should provide realistic surgical training platform for cricothyrotomy
- II. Needle and surgical cricothyrotomy skills should be practiced on this model with interchangeable rigid and soft tracheas.
- III. Anatomically accurate landmarks for site training
- IV. Interchangeable tracheas to facilitate realistic simulation of needle and surgical cricothyrotomy procedures
  - i. Rigid trachea with simulated lung

- ii. Soft trachea with simulated lung
- V. Replaceable neck skin allows repeated practice
- VI. Manufacturer must conform to the National or International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 4. Advance life Support simulator ALS Set with manikin)

- I. The manikin should allow for high-quality airway management with supraglottic airway devices
- II. Realistic airway anatomy including cricoid cartilage (Oro- and Nasopharyngeal airway, Sellick manoeuvre)
- III. Spontaneous breathing with realistic chest rise & fall
- IV. Automatically generated carotid pulses synchronized with ECG
- V. Live defibrillation and synchronized ECG
- VI. IV insertion should be possible through multi-venous IV arm
- VII. Blood pressure auscultation (Korotkoff sounds synchronized with ECG)
- VIII. 4 leads ECG monitoring
- IX. Pulse monitoring
- X. Voice, lung and heart sounds for basic sound training
- XI. Quality CPR (Detailed information about chest compression and release, compression rate, ventilation volume) feedback to measure and improve CPR performance
- XII. The manikin should be supplied with patient monitor
- XIII. Manufacturer must conform to the International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 5. Catheterization Trainer Female & Male

##### Female

- I. Life-size female pelvis with interchangeable genitalia designed for practicing urologic and rectal access gastrointestinal care procedures.
- II. Interchangeable female genitalia
- III. Genitalia, when used with urinary connectors and reservoir, should facilitate urologic care procedures such as perineal care, insertion of vaginal medications and indwelling catheter insertion, care, irrigation and removal
- IV. Genitalia, when used with anal connectors and colon reservoir, should facilitate enema administration using fluid for realistic return
- V. Abdominal plate with interchangeable stoma site should allow simulation of cystostomy tube care and urinary diversion stoma care
- VI. Manufacturer must conform to the International Quality Certification i.e. ISO / European CE/USFDA, etc.

##### Male

- I. It should be a life like, anatomically correct simulator for practicing urethral catheterization perineal care and enema by water.
- II. It should be used independently with the detachable and interchangeable male organs.
- III. The balloon catheters should be inserted in the correct perpendicular penis position. Penis should have retractable foreskin.
- IV. It should have provision for urine or water flowage to check the catheter placement at correct position in urinary bladder.
- V. The urinary bladder should facilitate insertion of balloon catheter.
- VI. Enema should be done in lateral position in which tube tip should be blocked by inner walls of rectum when insertion is very deep.




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- VII. The bladder should be compressible for discharging residual urine.
- VIII. Insertion and indwelling of balloon catheter as well as meatus urethra finding should be done.
- IX. Manufacturer must conform to the International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 6. Basic Surgical Skill Traumatic Wound

- I. Should be supplied in handy, compact pack with lid which can be used to retain excised tissue and removed foreign bodies
- II. Should have realistic soft tissue with skin, fat and muscle layers
- III. Wound should contain: Broken bone with splinters, tendon and fluid filled vein; Necrotic tissue and simulated foreign bodies (like glass, dirt, etc)
- IV. For teaching Wound management and Traumatic wound debridement
- V. Manufacturer must conform to the International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 7. Basic Surgical Skill Abscess

- I. Anatomy: Abscess containing simulated pus.
- II. For teaching Abscess drainage and Necrotic wound debridement
- III. Manufacturer must conform to the International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 8. Chest Drain & Needle Decompression Trainer

- I. Reservoirs to fill with fluid or mock blood to represent pleural effusion
- II. Bilateral chest drain and needle decompression pads
- III. Latex free
- IV. Bony and soft tissue landmarks: manubriosternal joint, clavicles, ribs, pectoralis major and latissimus dorsi
- V. Needle decompression of a tension pneumothorax (at both the 2nd and 5th intercostal space)
- VI. Open, or cut-down chest drain insertion: recognition of correct position, surgical incision, blunt dissection through chest wall, perforation of pleura and finger sweep
- VII. Suture of tube to chest wall
- VIII. Management of pleural effusion
- IX. Must enable to practice pericardiocentesis
- X. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 9. Clinical female pelvic trainer

- I. It should be anatomically accurate with realistic tactile representation human part for training of hands-on examination as well as diagnosis of female conditions and minor pathologies in the pelvic area.
- II. It should be washable and latex free.
- III. The complete system shall be able to train on the following uterine conditions - Normal - Nulliparous Cervix, Large Fibroid - Nulliparous Ectropion Cervix, Small Fibroid - Nulliparous Polyp Cervix, Ovarian Cyst - Multiparous Cervix, Retroverted - Multiparous Cervix, 10-12 Weeks Pregnant, 14-16 Weeks Pregnant
- IV. The students shall be able to learn and practice the assessment of following skills – Recognition of perineal and pelvic anatomy including bony landmarks, Digital vaginal examination, Bi-manual examination, Cervical smear procedure, Speculum use, Digital rectal examination




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- V. It should be supplied with Carry case and lubricant.
- VI. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

### 10. Injection trainer

- I. The soft tissue injection training manikin shall be designed for practicing intradermal, subcutaneous and intramuscular tissue injection techniques.
- II. The soft tissue shall be Latex free, soft and warm to feel and durable.
- III. It should have multiple tissue layers representing the epidermis, dermis, fat and muscle layer which can be easily attached to an arm or thigh to help teach professional-to patient communication.
- IV. It should facilitate allowing training for the following skills- Subcutaneous injection, Intradermal and intramuscular injection
- V. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

### 11. Epidural and Lumbar Puncture Model

- I. Should feel when the dura has been punctured
- II. Should practice loss of resistance technique
- III. Obese skin options should be available
- IV. Optional steeper spine and smaller vertebral spaces
- V. Rotatable skin to ensure cost-effective training
- VI. Easy draining and cleaning of the product after each use
- VII. Latex free
- VIII. Anatomy should have Palpable sacrum, iliac crests and vertebrae L2-5
- IX. Skills to be gained: Injection of local anaesthetics, Lumbar Puncture, Collect and measure CSF & Epidural Administration
- X. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

### 12. Episiotomy trainer

- I. It should be a simplified model for teaching safe methods of episiotomy and perineal repair.
- II. The episiotomy and perineal repair pad to learn to suture on a spatial challenge like suturing within the vagina shall comprises of an epidermis, dermal and subdermal layer.
- III. The Episiotomy model shall be realistic representation of tissue to representing a stretched perineum, it should feel like soft skin with human like consistency
- IV. It should have epidermis, dermal and subdermal layer
- V. It should have 3 repair sites (left lateral is pre-incised, with both midline and right lateral uncut
- VI. The training model surface shall be washable using soap and water
- VII. It should facilitate learning of following skills - Episiotomy training Identification of fontanelles, Handling of a stretched perineum, Reducing the risk of damaging the baby or mother Infiltration of perineum prior to episiotomy, Performance of medio-lateral (or midline) episiotomy, Use of instruments, Perineal Repair Training Techniques: Suturing in two planes (inside vagina and on the perineum), Suturing techniques (continuous, subcuticular and knot tying), Perineal Repair Training Procedures: Tissue layer recognition and handling Vaginal mucosal suturing Deep muscle suturing Subcuticular suturing Identification and management of perineal tears Digital rectal examination before and after repair
- VIII. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

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### 13. Adult Quality CPR Manikin (QCPR)

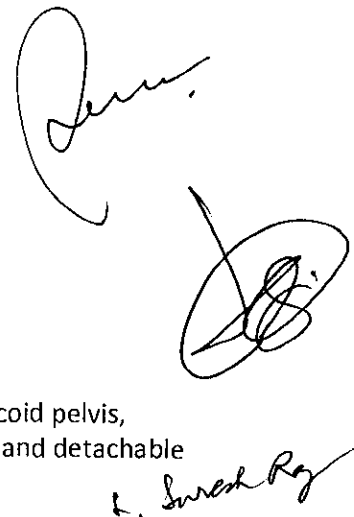
- I. The manikin should be realistic in appearance with modeled hair adult half body torso.
- II. The manikin should have a soft nose which can be occluded using the nose pinch technique.
- III. The manikin should be able to facilitate a head tilt/chin lift technique to open the airway and have an articulating jaw to facilitate a modified jaw thrust maneuver.
- IV. The manikin should have visible chest raise and feedback during ventilation.
- V. Student Feedback (wireless or with wire) – Student Feedback Software shall also be available for free many time as required providing real-time wireless feedback on compressions and ventilations, students can view and monitor their own performance for the following points- Compression Depth and Rate, Incomplete Release, Ventilation volume, It should provide a summative feedback on the: Overall CPR score, Improvement suggestions, CPR duration
- VI. The tethered plug and play feedback device shall also be able to provide detailed live feedback on compression and ventilation along with assessment and Summative Feedback Mode.
- VII. Manufacturer must conform to the International Quality Certification i.e. ISO / European CE/USFDA, etc.

### 14. Knot Tying Trainer

- I. Light and compact
- II. Transparent to allow the trainer to observe and assess trainee competence
- III. Magnetic system to represent tissue strength
- IV. Parallel knotting tubes should be elastic for a realistic tissue response
- V. Latex free
- VI. Model should have true-to-life needle tip resistance
- VII. Perioperative openings represented by: Small, shallow fixed cylinder for tying in a small opening
- VIII. Large, deep removable cylinder, reversible for angled abdominal and gynecological depth tying
- IX. Skills to be gained: One-handed reef knot technique, Instrument tie, Surgeon's knot, Slip knot, Tying in a small opening, Tying at depth vertically in a large opening, Tying at depth, at an angle, in a large opening
- X. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

### 15. Advance Birthing Simulator (Prompt Flex)

- I. Realistic pelvic floor
- II. Articulating thighs
- III. Stretchable perineum
- IV. Soft, flexible birthing canal
- V. Force monitoring for training in shoulder dystocia management
- VI. Normal and breach delivery
- VII. Shoulder dystocia management
- VIII. Forceps and vacuum delivery should be possible
- IX. Delivery of Placenta and cord prolapse
- X. Force feedback on baby's head
- XI. Anatomy should have: Birth canal and cervix, Ischial spines and pubic bone, Gynecoid pelvis, Articulating thighs, Fully articulated baby with clavicles, fontanelles, flexible head and detachable umbilical cord and placenta
- XII. Latex free
- XIII. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.



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## 16. Intra-Osseous Trainer

- I. Needle insertion multiple times on intraosseous
- II. It should be able to provide aspiration of simulated bone marrow
- III. Bone marrow must be replaceable
- IV. Blood should be restored in blood reservoir bag
- V. Needle should be inserted in tibia bone
- VI. Tibia bone must be surrounded by sleeve to perform multiple punctures without excessive leakage
- VII. It should enable students to experience realistic procedures.
- VIII. The puncture areas should simulate the feel of human skin as closely as possible
- IX. Pad should provide a natural resistance during puncture.
- X. The Manikins pads must come pre-filled with simulated blood
- XI. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

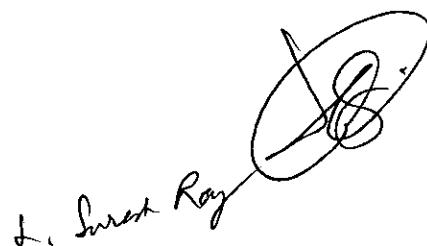
## 17. Manikin for New born Procedure

- I. Positioning to simulate opening the airway via head tilt, chin lift or jaw thrust
- II. Positive Pressure Ventilation (BVM, T-Piece resuscitator, or an anesthesia bag)
- III. ET tube intubation
- IV. LMA insertion
- V. Orogastric tube insertion
- VI. Stomach distension (when ET is misplaced)
- VII. Suctioning (of the nares, nasopharynx, oropharynx, esophagus and the lungs via an ET tube)
- VIII. Meconium module for suction removal
- IX. Bilateral and unilateral (with mainstem intubation) chest rise and fall with mechanical ventilation
- X. Pneumothorax - Needle thoracentesis left mid axillary
- XI. Manual chest compression at appropriate depth (1/3 AP) and force
- XII. Manual umbilical pulse
- XIII. Umbilical Vein/ Artery access via patent umbilicus
- XIV. IO access in left and right lower leg, tibial tuberosity and medial malleolus
- XV. Full articulation
- XVI. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

## 18. NG Tube and Trach Care Trainer

Head should feature anatomical landmarks, trachea, esophagus, simulated lungs, and stomach  
Lungs and stomach may be filled with fluid for realistic practice of many procedures:

- I. Tracheostomy care
- II. Tracheal suctioning
- III. NG tube insertion and removal
- IV. NG tube irrigation, instillation, and monitoring
- V. Feeding tube insertion and removal
- VI. Gastric lavage and gavage
- VII. Nasoenteric and esophageal tube insertion, care, and removal



- VIII. Oropharyngeal and nasopharyngeal insertion and suctioning
- IX. Insertion, securing, and care of endotracheal tubes
- X. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 19. Manikin for basic nursing procedure

- I. Irrigation of the eye and ear
- II. Application/instillation of medications in the eye, ear and nose including nasal packing
- III. Mouth and denture care procedures
- IV. Insertion and suctioning of oropharyngeal and nasopharyngeal airways
- V. Insertion, securing, and care of endotracheal tubes
- VI. Tracheostomy care and tracheal suctioning
- VII. Various oxygen delivery procedures
- VIII. NG tube insertion, care, medication administration, and removal
- IX. Gastric lavage and gavage
- X. Subclavian and Hickman catheter openings
- XI. Manually generated carotid pulse
- XII. Injection sites should include deltoid, bilateral thigh, dorsal gluteal and ventral gluteal
- XIII. Full range of motion for realistic patient handling
- XIV. Abdominal plate with interchangeable stoma locations depicting colostomy, ileostomy and suprapubic cystotomy
- XV. Fingers and toes to allow bandaging
- XVI. Interchangeable Male and Female Genitalia: Urinary valves to give the natural resistance felt when catheterizing, Complete urinary catheterization
- XVII. Female genitalia capable of vaginal douching
- XVIII. Enema procedures using fluid for realistic return
- XIX. Articulating IV Training Arm (Left): Allows peripheral intravenous therapy and site care, Venipuncture is possible in the antecubital fossa and dorsum of the hand, Replaceable skin and infusible vein system
- XX. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

#### 20. Paracentesis Trainer

- I. Internal echogenic anatomy to allow recognition of landmarks under ultrasound
- II. Chambers filled (min 2 with 3 L) with water for drainage practice
- III. Cost effective consumable pads
- IV. Realistic tissue and needle response
- V. Self sealing pads withstand up to min 200 needle or up to min 100 catheter insertions
- VI. Skin surface washable using soap and water
- VII. Latex free
- VIII. Torso featuring bony landmarks and umbilicus
- IX. Internal anatomy to include: Liver, Spleen, Bowel, Floating Bowel
  - X. Skills to gain: Familiarity with the abdominal regions and underlying anatomy, Palpation of anatomical landmarks, Identification of excess fluid, Using ultrasound guidance, trainees can visualize the insertion site and check for vital organs beneath, Insertion of needle into the peritoneal cavity for therapeutic or diagnostic purposes
- XI. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

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## 21. Paediatric Multi-Venous IV arm

- I. Venipuncture possible in the antecubital fossa or dorsum of the hand
- II. Peripheral IV line insertion and removal
- III. Accessible veins include median, basilic and cephalic
- IV. Palpable veins enable site selection and preparation
- V. Infusible veins allow peripheral therapy with IV bolus or push injection method
- VI. Peripheral IV line maintenance including assessment and rotation of site and dressing, solution and tubing change
- VII. Replaceable skin and multi-vein system to allow longevity of model
- VIII. Kit should include: 1 Arm Reproduction, 1 Replacement Skin & Multi-Vein System, 1 Bottle of Red Simulated Blood, 1 Can of Manikin Lubricant, 1 Blood Bag with Tubing and Connector, 1 Clamp and Hook, 1 Set Shoulder Attachment Hardware, 1 Carry Case and Directions for Use
- IX. Manufacturer must conform to the National and International Quality Certification i.e. ISO / European CE/USFDA, etc.

## 22. Breast Examiner Trainer

- I. Skills to be gained - Clinical breast examination (CBE), Self breast examination (SBE), Identification of anatomical landmarks, Identification of lymph nodes (axillary, supra & infraclavicular), Location and diagnosis of pathologies, etc.
- II. Soft tissue breasts look and feel realistic
- III. Clavicular and axilla pads for accurate lymph node placement
- VIII. Can be used with Standardized Patient
- IX. Pathologies can be placed in various predetermined location points and are easily changeable
- X. Comfortable to wear for long periods of time during OSCEs and assessments
- XI. Latex free
- XII. Easily washable with soap and water

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14/1/2020  
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