

## Specifications of Mannequins and Equipments for Skill Lab

### **General specifications desired for all Mannequins:**

- The color of the mannequin should be Caucasian simulating Indian babies / adult in medium skin tones.
- The material of the mannequin should be of polyvinyl and silicone rubber, free from any carcinogenic agents.
- The texture of the mannequin should be soft and smooth and close to the feel of baby / adult skin as relevant. The texture must be friction free to demonstrate the desired procedure.
- The Internal parts of mannequin must be realistically sculpted, anatomically accurate and feel must be smooth / resilient / bony as relevant and suitable for simulation.
- The mannequins must be portable and any fittings used in mannequins must be of aluminium or polycarbonate or equivalent.
- The mannequin's durability must be of minimum 2 years.
- The material of the mannequin should withstand extremes of temperature (upto 45 degree Celsius)
- The supplier must ensure manufacturer's warranty / guarantee for the specifications and also against manufacturing defects.
- The manufacturing units must have an internal system of quality control and supplier should produce the process and certificate from the manufacturers.
- The supplier will be responsible for service, maintenance, replacement, etc. against any complaints up to the satisfaction of the users, irrespective of the location of manufacturing unit.
- The Lead time must not be more than 6 weeks after confirmation of written supply order.
- The supplier must ensure the availability of on- call service agent from state headquarters within 48 hours, from local within 24 hours, from outside state within 7 days and incase the problem is not rectified on site at the time of service then its need to be rectified with in next 7 days for minor defects and within 28 days for major defects.
- The warranty for mannequins must be two years from the date of receiving at consignees address.
- All mannequins should include a soft / Hard Carrying Case and study questions, Dos and Dont's, instructions manual, maintenance guide, , background information, videotape for demonstrating the use of mannequin, user manual with trouble shooting guidance, technical manual with maintenance and first line technical intervention instructions and any other relevant teaching / training materials in English
- The mannequins should have additional accessories as listed and also talcum powder or silicone gel to avoid friction, list of accessories and spare parts with cost and contact details of its supplier preferably within State / Delhi.
- The supplier / manufacture should list the name and address of technical service providers in India.

- The payment of the mannequin is linked with installation at consignee address, demonstration to service providers at consignee address and certification of installation and functionality by the head of the concerned department.
- The suppliers should agree for 10% of payment to be released after 2 years (Warranty Period)
- The material used for equipment's should be of rust proof, high quality PVC / stainless steel / polyvinyl and silicone rubber as applicable and free from any carcinogenic agents.
- The stainless steel composition must be of 8 to 10% nickel, 18 to 20% chromium.
- The fittings of all equipment's must be of stainless steel / aluminum.
- The equipment's should be durable of minimum 3 years for repeated use by trainers / trainees.
- The supplier must ensure manufacturer's warranty / guarantee for the specifications and also against manufacturing defects.
- Every manufacturing unit must have an internal system of quality control and supplier should produce the process and certificate from the manufacturers.
- The supplier will be responsible for service, maintenance, replacement, etc. against any complaints up to the satisfactions of the users irrespective of the location of manufacturing unit.
- The lead time of all equipment's should not be more than 6 weeks after confirmation of written supply order.
- The supplier must ensure the availability of on- call service agent from state headquarters within 48 hours, from local within 24 hours, from outside state within 7 days and incase the problem is not rectified on site at the time of service, then it need to be rectified with in next 7 days for minor defects and within 28 days for major defects.
- The equipment's should have three years comprehensive warranty and two years of extended comprehensive warranty.
- Equipment's should include a Hard Carrying Case and study questions, Dos and Dont's, maintenance guide, use of equipment's, background information, transparencies and videotape, user manual with trouble shooting guidance, technical manual with maintenance and first line technical intervention instructions and any other relevant teaching / training materials, in English.
- The equipment's should have detailed information of the device features, functions, detection capabilities, method of operation, materials, alarm capabilities, software, specifications and operating ranges, power source, parameter detection ranges, etc wherever applicable. This description should contain engineering drawings, pictures, and all devices labeling, such as instructions for use and promotional materials.
- The equipment's should have additional accessories as listed and also material / gel / oil to avoid friction and enhance smooth function, list of accessories & spare parts with cost & contact details of its supplier preferably within State / Delhi.

- The payment of the equipment's is linked with installation at consignee address, demonstration to service providers at consignee address and certification of installation and functionality by the head of the concerned department.
- The supplier / manufacturer should list the name and address of technical service providers in India.
- The equipment's should have power cord wherever required, temperature electrode and fittings with at least 10 meters of standard wire and accessories
- The suppliers should agree for receiving 10% of payment of equipment's after 3 years (Warranty Period).
- All equipment's should have device safety certification.

### **Theme 1: Antenatal Care**

- **Skill station:** Antenatal abdominal palpation and auscultation of fetal heart sound

#### **➤ HUMAN FETUS REPLICAS**

##### **Features:**

- Human fetus replicas should be very close to real
- Human fetus replicas should have actual size showing external development and growth of the fetus for corresponding gestational age
- Human fetus replica should be available to represent different gestation period- 5th and 7th month
- Human fetus replicas should have features, color and skin texture simulating Indian babies
- Human fetus replicas should be feasible for teaching external development and growth of the fetus
- Human fetus replicas should be flexible enough to fit inside the abdominal palpation mannequin while demonstrating the Leopold maneuver during pregnancy

#### **➤ ABDOMINAL PALPATION MANNEQUIN FOR LEOPOLD MANEUVERS DURING PREGNANCY**

##### **Features:**

- The abdominal palpation mannequin should have full size adult female lower torso (abdomen and pelvis)
- The abdominal palpation mannequin should have a one-piece full term fetus with palpable fontanelles, spine, shoulders, elbows, and knees.
- The abdominal palpation mannequin should have upper and lower inflatable cushions with independent inflating devices in the abdominal part of the mannequin
  - Lower cushion when inflated should raise the fetus to desired position
  - Upper cushion when inflated should create a firm abdomen as in the ninth month of pregnancy
- The abdominal mannequin should be able accommodate the fetus in vertex, breech, or transverse positions.
- The abdominal mannequin should have the facility to accommodate the fetus of different

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gestational age, demonstrate vertex / Breech / transverse position delivery, and attach the perineum to demonstrate the episiotomy repair.

➤ **Dictaphone**

- Dictaphone should be able to give a simulation of fetal heart sound
- Dictaphone should have 4GB Digital Voice Recorder
- Dictaphone voice recorder should work for recording digitally all the voices and reproduce it with good quality sound.
- Dictaphone should have different recording settings.
- Dictaphone should have digital pitch control / facility for different Scene Selection
- Dictaphone should have Intelligent Noise Cut / Low Cut Filter / Digital VOR
- Dictaphone should have Linear PCM / MP3 / WMA / AAC Playback
- Dictaphone should have Track Mark

**Theme 2: Family Planning**

➤ **Skill Station:**

- Interval IUCD Postpartum IUCD
- **HAND HELD UTERUS MANNEQUIN**
- Hand held uterus model should show coronal section of uterus, ovaries and fimbriae
- Hand held uterus model should have a clear plastic window permitting easy view of IUD
- Hand held uterus model should permit easy demo of inserting and removing of IUD
- Hand held uterus model should be Made of PVC
- **FEMALE LOWER TORSO MANNEQUIN WITH NORMAL AND POSTPARTUM UTERUS AND ACCESSORIES**
- Should have full size adult female lower torso (abdomen and pelvis) with relevant internal landmarks
- Should have palpable normal and pregnant uteri with realistically sculpted and anatomically accurate ovaries and fimbriae
- Should have accessories to enhance visual recognition of normal and abnormal cervixes
- Should have removable introits
- Should have "screw" design between Uterus and Cervix for fast and easy change-out
- Should be suitable for teaching / practicing bi-manual pelvic examination
- Should be suitable for vaginal examination, including insertion of speculum, uterine sounding and

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### IUD insertion & removal

- Should have distal end of vagina to facilitate introduction of a female condom
- Should have features to demonstrate Minilaparotomy (both interval and postpartum tubal occlusion), Manual vacuum aspiration (MVA), visual recognition of normal and abnormal cervixes, 48 hours postpartum fundal massage
- Additional Accessories:
  - One anteverted uterus
  - One retroverted parous uterus
  - Five normal cervixes
  - Four abnormal cervixes
  - Ten fallopian tubes
  - 2 x 48 hour postpartum uterus with 'duckbill' cervix and fallopian tubes
  - 2 Extra locking pins and thin cervical locking ring

### Theme 3: Intranatal care

- **Skill Station:**
- Pelvic examination includes cervical dilatation and pelvic assessment
- Normal Delivery
- AMTSL & Checking placenta
- Initial dose of MgSO<sub>4</sub> for severe pre-eclampsia / eclampsia management.
- Episiotomy repair
- Initial Management of atonic PPH
- Complicated delivery (Twin, breech, shoulder dystosia, ventouse and Forceps)

### ➤ CHILD BIRTH SIMULATOR ALONG WITH ATTACHMENT FOR CERVICAL DILATATION (CLOSED OS, 4 CM, 6CM, 8CM, FULLY DILATED CERVIX)

#### Features:

- Should have hemi pelvis of adult female with anatomical landmarks like pelvic cavity, spine etc. Should have manual mechanical birthing system to enable the user to control the rotation and speed of fetus delivery etc.
- Should have articulating fetal baby with adaptors to fit with manual birthing system
- Should be versatile to change the position of the fetus during the process of birth including descend, flexion, extension, internal and external rotation, restitution.
- Should have features for training normal and breech deliveries
- Should have Inflatable cushions to lift fetus for Leopold maneuver during pregnancy

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- Shall have adaptive birth canal to demonstrate dystocia and deal with its relief
- Should have features to demonstrate cord prolapse
- Shall allow demonstration and practice of placenta previa
- Should have cervical dilatation attachment for closed Os, 4cm, 6cm, 8cm and fully dilated cervix
- Should have features simulating / represent conditions of the cervix and vagina prior to labor, during labor and at birth in a primigravid woman

**Additional Accessories:**

- One detachable padded stomach cover
- Detachable Manual mechanical birthing system with mounting flange
- One fully articulating fetal baby with adaptors to fit with manual birthing system
- One elevating cushion for Leopold maneuvers
- 6 detachable dilating cervices
- 6 detachable Vulva
- 9 vulvar inserts
- 6 placentas
- 9 umbilical cords
- One 48 hour postpartum uterine activity assembly
- One postpartum perineal insert
- Reusable episiotomy repair module (set of 3 including medial tears, mediolateral tears and standard mediolateral episiotomy)
- 2 sets cervical dilatation attachment for closed Os, 4cm, 6cm, 8cm and fully dilated cervi
- **POSTPARTUM SUTURING TRAINER**
- Should enable use of standard needle holder with "00" or "000" chromic sutures
- Should have three separate modules for episiotomy
- Should have one model featuring medial episiotomy with tears in labia-minora
- Should have one model featuring mediolateral episiotomy with peri-urethral tears
- Should have one model featuring standard episiotomy
- Should have features to attach with child birth simulator

**Additional accessories:**

- 3 nos. of medial episiotomy model with tears in labia-minora
- 3 nos. of mediolateral episiotomy model with peri-urethral tears
- 3 nos. of mediolateral episiotomy model

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➤ **MANNEQUIN FOR SIMULATION AND MANAGEMENT OF PPH:**

- The mannequin should be highly realistic for simulating postpartum hemorrhage
- The mannequin should have features to manually control the amount of bleeding and the conditions of uterus.
- The mannequin should have features to control dilation of the cervix.
- The mannequin should have the following
  - Full term fetus with placenta and umbilical cord
  - Blood concentrate
  - Fluid collection tray
  - Fluid drain
  - Urine catheter
  - - 20 ml syringe
  - - Carrying bag
- The mannequin should have features for training the following
  - Urine catheterization
  - Normal delivery
  - Complete and Incomplete placenta delivery
  - Oxytocin injection
  - Controlled cord traction
  - Bimanual compression of uterus

**Theme 4: COMPLICATION MANAGEMENT (MNH)**

- **Skill Station:**
- BCA approach
- Management of Shock (IV catheterization and Urinary catheterization)

**ADULT CPR MANNEQUIN**

- Adult CPR mannequin should have features to demonstrate opening of airway, head tilt / chin lift and jaw thrust techniques.
- Adult CPR mannequin should have disposable airways
- Adult CPR mannequin should have removable, reusable faces
- Adult CPR mannequin should have a "clicker" which confirms correct compression depth
- Adult CPR mannequin should have compression spring for consistent resistance

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- Adult CPR mannequin should have weight: 3.9 kg and H x W x D: 25 in x 8.5 in x 13.5 in
- Additional Accessories:
  - 6 reusable mannequin faces
  - 6 airways
  - 50 mannequin wipes

#### **ADULT IV TRAINING ARM KIT**

- Adult IV training arm should have full adult arm with clenched fist and tornique position
- Adult IV training arm should be suitable for practicing IV injections
- Adult IV training arm should have prominent venous network
- Adult IV training arm should have anatomically located venous grooves, fitted with soft latex tubes, closely simulating consistency of human veins
- Adult IV training arm must have a pliable translucent latex skin stretched over venous network
- Adult IV training arm should have cephalic, basic, antecubital, radial, and ulnar veins
- Adult IV training arm should have veins in dorsum of hand
- Adult IV training arm should feature 'realistic pop' as needle enters vein
- Adult IV training arm must have a Smoked Lucite base with metal stand
- Adult IV training arm veins and skin must be replaceable
- Additional Accessories:
  - 4 set of kit with simulated blood concentrate, pressure bulb, blood dispensing bag
  - 4 sets of spare arm skin for future replacement
- **FEMALE CATHETERIZATION MANNEQUIN**
- Female catheterization mannequin should have adult female lower torso with realistic vulval area and urethral opening
- Female catheterization mannequin must have internal bladder reservoir for standard catheterization exercises
- Female catheterization mannequin should have external reservoir bladder mounted on Smoked Lucite with metal stand
- Female catheterization mannequin should have modular urethral valve to prevent fluid leakage
  - Female catheterization mannequin should have detachable upper skin to show bladder, inflatable bag and foam
  - Female catheterization mannequin should show connection to bladder and vagina with locking ring and rectum
  - Female catheterization mannequin should have removable urinary assembly

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- Additional Accessories :
- 6 spare bladder tanks
- 6 urethra inserts

### **Theme 5 : ESSENTIAL NEWBORN CARE**

#### **➤ Skill Stations:**

- Essential New Born Care
- New Born Resuscitation
- KMC
- Measurement of Body Temperature –Newborn
- Radiant Warmer
- Use of Suction machine
- Setting up an IV line on child arm
- Inserting NG Tube
- Phototherapy
- Glucometer
- Oxygen administration
- Nebulization and Multi dose inhaler
- **ESSENTIAL NEW BORN CARE & RESUSCITATION MANNEQUIN**
- The Newborn mannequin should be realistic in size and appearance and also natural weight, feel and touch.
- Newborn mannequin should have features for training essential newborn care (ENBC) and newborn resuscitation.
- Newborn mannequin should facilitate effective bag and mask ventilation, chest must rise only with correct technique.
- The newborn mannequin should include the following:
- Squeeze bulbs for simulation of cord pulsation, spontaneous breathing, auscultation of heart sound and cry

#### **Additional Accessories:**

- 4 External umbilical cords and 6 umbilical ties
- 4 baby sheets or towels
- 2 Head cap

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- 2 Neonatal mucus sucker (easy to open, clean, autoclavable and reusable)
- 2 Training Stethoscope
- **NORMAL NEW BORN BABY MANNEQUINE (KMC)**
  - Newborn mannequin should weigh close to normal newborn (2.5 – 3.5 kgs)
  - Newborn mannequin should have actual size showing external development & growth
  - Newborn mannequin should be close to normal skin colour, texture and bony feel
  - Newborn mannequin should have moving head, flexible upper and lower limbs
  - Newborn mannequin should have baby cap, nappy, mittens, socks, Kangaroo Mother Care (KMC) dress / shawl / bed sheet (for wrapping the mother and baby)
- **PEADIATRIC IV ARM KIT**
  - Should have pediatric arm
  - Should have replacement skin and multi-vein system
  - Should have simulated blood pack
  - Should have blood bag with tubing and connector
  - Should have clamp and hook
  - Should have 5 syringes
  - Should have mannequin lubricant
  - Additional Accessories:
    - 5 – replacement skin , 5 – multi – vein system , 3- simulated blood pack
    - 3 – blood bag with tubing and connector , 3- lubricant

**4. NG TUBE INSERTION MANNEQUIN:**

- Should look like 0-8 weeks old and Caucasian colour
- Should have soft and flexible and replaceable face skin and upper body skin
- Should offer NG exercises to demonstrate tube feeding and gastric suction
- Placing NP / OP tubes must be possible
- Should have markings for ear canal
- Should have removable internal parts