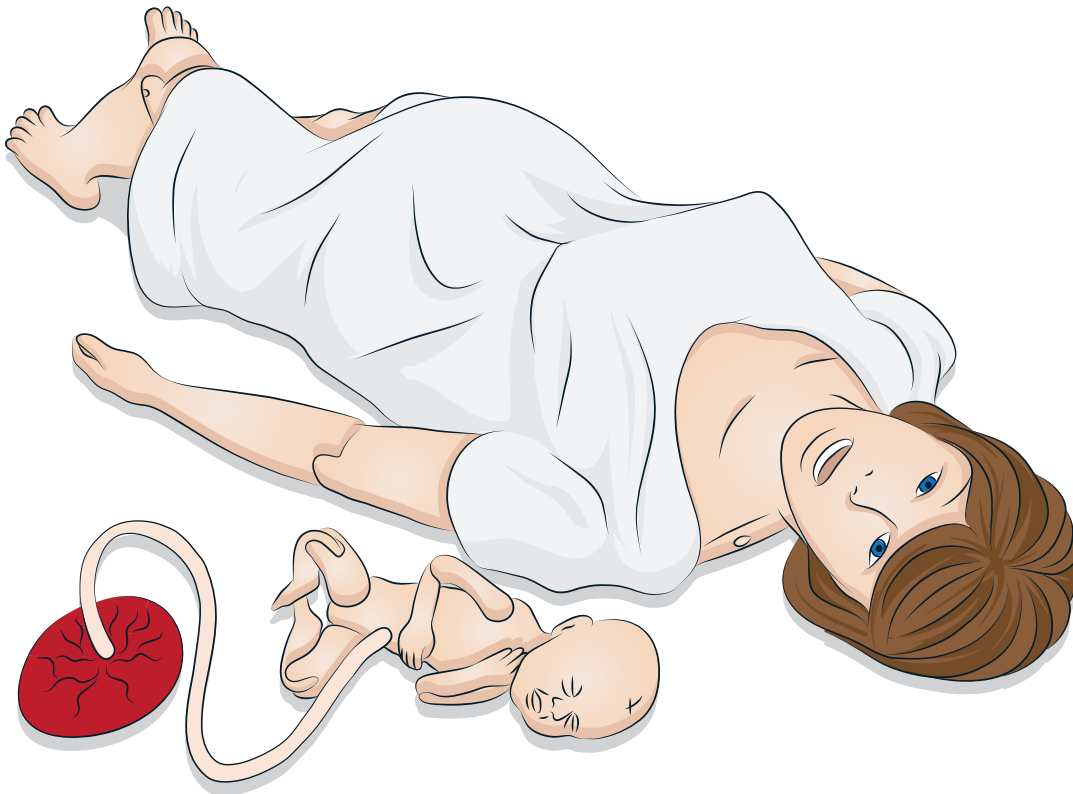


SimMom

User Guide



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SimMom Birthing Simulator

SimMom is a tetherless birthing simulator, representing a full term pregnant adult woman.

SimMom responds to clinical intervention, instructor control, and pre-programmed scenarios, and allows for the observation of both maternal and fetal vital signs. Instructors can articulate mother and baby in multiple positions in order to simulate various types of deliveries. Students can practice diagnosis and treatment of the mother and fetus.

SimMom can be used to teach skills such as airway management, CPR, heart and lung sound auscultation, and blood pressure auscultation.

Main Components:


- *SimMom* comes with 4 interchangeable modules for Manual Delivery. In addition there is an optional module for Automatic Delivery.
- The Instructor PC controls the simulation and interventions can be logged by the instructor and used for later debriefing. The headset allows the instructor to simulate interactive voice communication between the patient and the learner.
- The Instructor PC is connected wirelessly to the *SimMom* and uses the LLEAP interface for instructor control.
- Laerdal Patient Monitor can be configured to replicate most patient monitors. The Patient Monitor also doubles as display for other functions, such as EFM, 12-lead ECG, X-ray images and lab results to view the patient's case history. In the system, software is included, like LLEAP for controlling scenarios,
- *SimDesigner* for creating and editing scenarios, or *Session Viewer /SimView Mobile* for debriefing simulation sessions with video capture from a web-camera, and an application for the Patient Monitor.


CAUTIONS AND WARNINGS

General Simulator Handling

Take the following precautions to avoid personal injury or damage to the product:

- Introduce fluids into the simulator only as directed in this document. Failure to do so may result in damage to the simulator and its components.
- Lubricate the oral and nasal airways with the lubricant provided prior to inserting any instrument, tube, or airway device. Also, lubricate instruments and tubes prior to use.
- Lubricate cervix, birth canal, and baby before each delivery.
- Do not introduce humidified air into the system during ventilation.
- Do not use the simulator if the internal tubing and cabling is disconnected.
- Never use the SimMom simulator outdoors in wet conditions, as this may pose a shock hazard or damage the simulator.

 **Warning:** Do not use automated external chest compression machines on the simulator.

 **Caution Latex:** This product contains Natural Rubber latex, which may cause allergic reactions when in contact with humans.

Environment


In cold conditions, wait until the simulator has reached room temperature before starting up the simulator.

To avoid overheating and reduce wear:

- Simulator should not be used in temperatures above 40C (104 F)
- When using in a bed, simulator should not be covered with heavy bedding that prevents heat transfer from the simulator.

Do not use the SimMom simulator if:

- Limbs are not attached to the torso
- Skins are torn or not properly fastened
- Internal or external cables, tubes or connectors are damaged.
- There is fluid leakage in or on the simulator
- There are unusual sounds indicating air leakage or mechanical damage
- There are signs of electrical malfunction, such as an unresponsive simulator or unusual smell or smoke


 **Warning:** Avoid pinch hazards - Do not use the simulator without the external skins.

General Care

To maintain simulator skins, wash hands before use and place the simulator on a clean surface. Laerdal recommends the following:

- Use gloves during simulation scenarios. Avoid using colored plastic gloves, as they may cause discoloration of the simulator skin.

- Do not use felt-tipped markers, ink pens, acetone, iodine, or other staining medications near the simulator. Take care not to place the simulator on newsprint or colored paper. Staining may be permanent.
- Clean simulator skins with mild soap and water.
- If a training session involves the use of fluids in the IV arm or blood and urine bags, drain the fluid immediately after the training session.

 **Warning:** If fluids are used during the simulated birth the side panel cover should be secured firmly in place to prevent fluid ingress that could damage the internal components of the manikin. Ensure this is firmly in place at all times during any scenario involving fluids.

- Use only Laerdal Airway Lubricant for airway lubrication, and apply liberally.
- Use only SimMom & PROMPT Birthing Lubricant (Laerdal Catalogue No. 377-18850, Limbs & Things Catalogue No. 10193) to lubricate baby, cervix, birth canal, and modules. Do not use any other lubricant. Do not use PROMPT Birthing Lubricant (Laerdal Catalogue No. 376-02950, Limbs & Things No. 50181) or SimMom Birthing Lubricant (Laerdal Catalogue No. 377-14450, Limbs & Things No. 10191). Non-approved lubricants can damage the system.


 **Warning:** SimMom & PROMPT Birthing Lubricant is not for personal use.



- Rinse, clean and dry simulator component modules.
- Fold the torso skin back and powder the inside of the torso skin to decrease friction. Do not spill powder into simulator chest cavity.
- Do not attempt to perform the following techniques on this simulator due to the inability to properly sanitize the airway:
 - Mouth-to-mouth ventilation
 - Mouth-to-mask ventilation
 - Insertion of simulated vomit or fluids for suctioning

Storage and Transportation

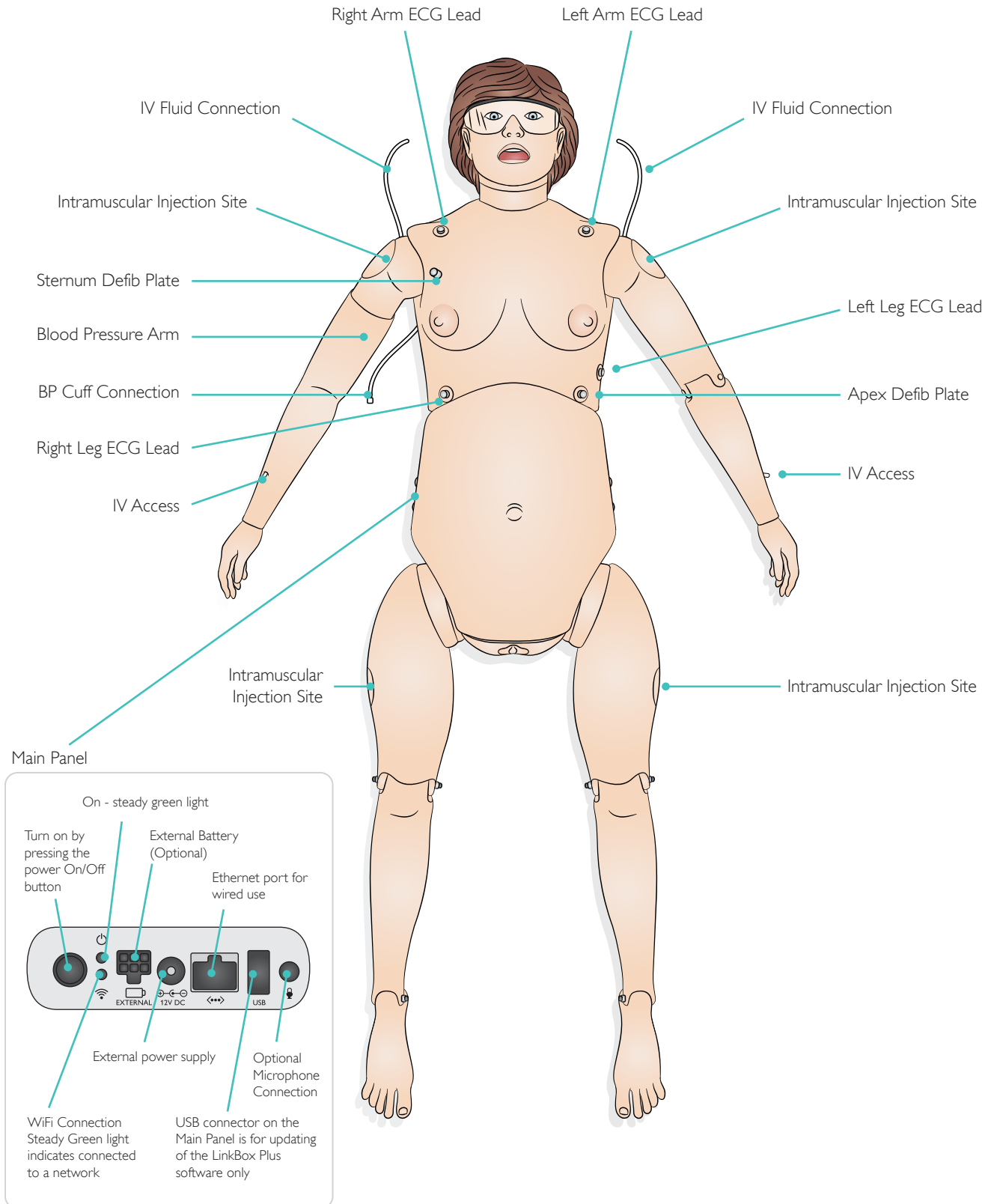
The SimMom simulator and accessories are heavy when packed in boxes or combined in optional carrying cases. Always ensure that SimMom is firmly secured during transportation and storage to prevent personal injury or damage to the product.

 **Note:** ADM Bag is not suitable for air transport.

 **Note:** The Birthing Baby should not be stored inside SimMom.

FEATURES

SimMom Overview



General

Pelvic Components

- Interchangeable uterus modules
 - Cervix that dilates from 4 cm to full
 - Amniotic bag for intrapartum fluids
 - PPH uterus with tonic and atonic states and with retained placenta and placental fragment
 - Uterine inversion
 - Optional Automatic Delivery Module (ADM)
- Optional Non-Gravid Abdominal Skin.
- Optional Ultrasound Training Modules.
- Bony pelvis with landmarks
- Realistic vulva and anus for digital exams
- Realistic “at term” abdominal skin
- Pre-incised C-section skin
- Fluids (e.g. blood, stained amniotic fluid and urine)
- Urine catheterization/instillation
- Pelvic floor
- Birth canal

Movement

- Seizure indicator
- Able to position on all fours:
 - Realistic rotation of the shoulder and hip joints
 - Legs bend at the knees
 - Arms bend at the elbow

Airway

- Obstructed airway
- Tongue edema
- Right lung, left lung and bilateral lung blockage
- Head tilt/Chin lift
- Jaw thrust
- Suctioning techniques
- Bag-valve-mask ventilation
- Oropharyngeal and nasopharyngeal airway insertion
- Combitube, LMA and other airway device placement
- Endotracheal intubation (ET)
- Nasotracheal intubation
- Digital intubation
- Retrograde intubation
- Nasal and oral fiberoptic intubation
- Trans-tracheal jet ventilation
- Right mainstem intubation
- Surgical and needle cricothyrotomy
- Chest tube insertion
- Cricoid pressure
- Needle decompression



Note: It is recommended that a 7.5 endotracheal tube, #4 LMA, Large Adult or Trainer Combitube, and a KING LT – #4 be used during simulation.

Airway adjuncts and laryngoscope should be sprayed with Laerdal Airway Lubricant prior to use. Do not spray directly into the manikin.

Breathing

- Simulated spontaneous breathing
- Variable respiratory rates (0-60 bpm)
- Bilateral chest rise and fall
- Normal and abnormal lung sounds
 - 4 anterior auscultation sites
 - Bilateral midaxillary sites
- Tension pneumothorax

Circulation

Cardiac Features

- Extensive ECG library
- Normal and Abnormal Heart sounds synchronized with ECG
- ECG rhythm monitoring
- 12 lead ECG display
- Defibrillation and cardioversion
- Responds to external pacing with settable pacing threshold (20-200 mA)

Circulation Features

- BP measured manually by auscultation of Korotkoff sounds
- Bilateral carotid pulse, brachial and radial pulses (right side only) synchronized with ECG
- Pulse strength variable with BP
- Pulse palpation is detected & logged

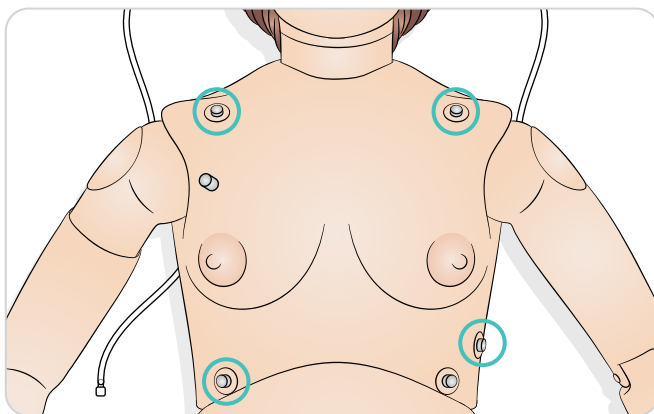
Chest Compressions

- CPR compressions generate palpable pulses, blood pressure wave form, and ECG artifacts
- Detection and logging of a series of compressions.

Warning: Do not use automated chest compression machines on the patient simulator.

ECG

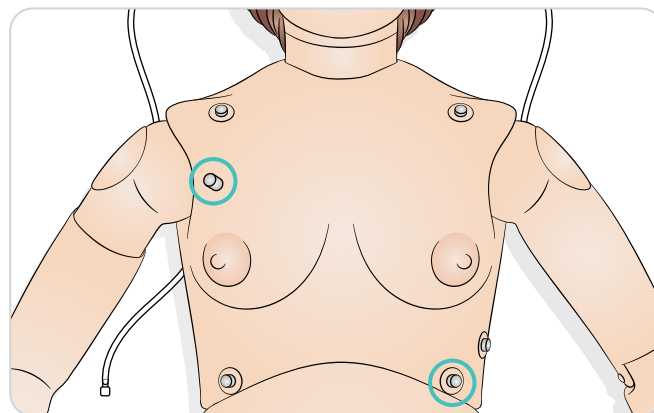
For rhythm monitoring; the simulator is installed with 4 ECG Stud connectors.



Defibrillator

The simulator torso is fitted with two stud connectors for use with a conventional defibrillator (defibrillator not included). The simulator can also be prepared for defibrillation using paddles (see *Setup*).

Defibrillation Studs



Note: Place paddles firmly against defibrillator adapter plates to read rhythm on a monitor.

For manual defibrillation, place defibrillator paddles firmly against adapter plates.

Caution: The simulator must not be in contact with electrically conductive surfaces or objects during defibrillation.

Warnings:


- Read and follow all safety and operation instructions provided with your defibrillator and associated equipment.
- The trainer can be shocked with actual voltage and current during defibrillation. Observe all precautions and safety measures during defibrillation and pacing phases of training. Failure to follow safety measures could result in injury or death to operators, students, and/or onlookers.
- Only perform defibrillation on the defibrillator connectors.
- Do not press too hard over the defibrillator adapters as this may cause arcing and pitting.
- Do not defibrillate simulator without the torso skin in place.
- Do not provide more than 2 x 360 J defibrillator discharges per minute. After 30 minutes, cease all shocking for at least 15 minutes before starting a new sequence.
- Using a defibrillator in temperatures over 35° C (95° F) may cause simulator to overheat.
- Do not perform defibrillation when simulator is resting on a wet surface.
- Follow defibrillation protocol by avoiding contact between the external paddles and any of the electrode sites while defibrillating.

FEATURES

- Do not defibrillate the simulator when it is turned OFF or if it is not functioning normally.
- The simulator torso must always be kept dry. Sudden changes in temperature may result in condensation collecting on electronic components, which could pose a shock hazard. Allow the simulator to acclimate before defibrillating.
- To prevent torso skin electrode pitting, do not apply conductive gel or conductive defibrillation pads intended for patient use.
- Avoid use in all flammable environments. For example, high levels of pure oxygen must be avoided during defibrillation. Ensure good ventilation if concentrated oxygen is used near the simulator.

Blood Pressure Cuff

SimMom is delivered with a customized blood pressure cuff. It attaches to the blood pressure arm (right arm), which, when connected to the manikin, can be used to auscultate and palpate blood pressure.

 *Note: The speaker for the Simulator's blood pressure is located in the right antecubital fossa.*

Adjust pulses to BP using the chart below

Systolic BP	Carotid Pulse	Radial/Brachial Pulse
≥ 88	Normal	Normal
< 88	Normal	Weak
< 80	Normal	Absent
< 70	Weak	Absent
< 60	Absent	Absent

Vascular Access

- Pre-ported IV access (bilateral)
- Subcutaneous and intramuscular injection sites


Other Features

- Normal and abnormal bowel sounds and fetal heart sounds (not at the same time)
- Interchangeable pupils (normal, dilated and constricted)
- Patient Voice
 - Pre-recorded sounds
 - Custom sounds
 - Instructor simulates patient's voice

Birthing Positions

By manipulating the simulator's limbs and rotating its shoulder and hip joints, it can simulate the following birthing positions:

- | | |
|------------------|--------------------|
| 1 Supine | 2 Left lateral |
| 3 Semi-recumbent | 4 Legs in stirrups |
| 5 All fours | 6 McRoberts |

 *Note: A true semi-recumbent position is not possible with ADM module or with pelvis locks installed. Use a lower degree angle instead.*

Birthing Baby

Main Components:

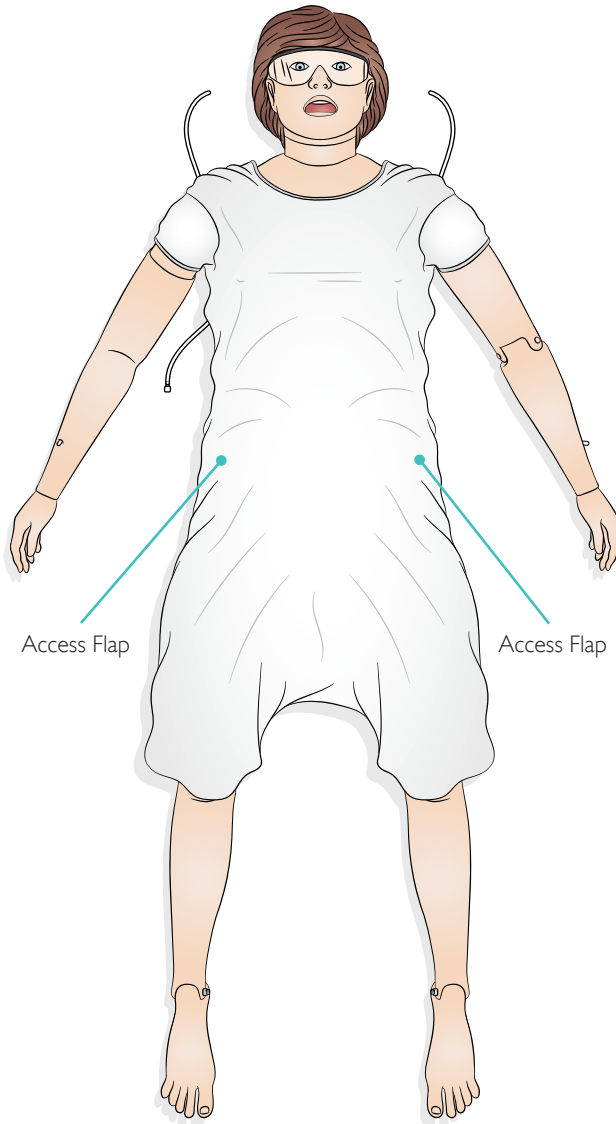
- Realistically modeled head with all head landmarks present (fontanelles and sutures)
- Head designed and tested so it can be used for forceps deliveries (rotational and normal) and vacuum delivery (kiwi and ventouse)
- Head can be easily manipulated by instructor and flexes naturally as it is pushed through the birth canal
- Mouth for suction and Smellie-Veit (if required)
- The birthing baby's body is designed to allow it to be easily pushed through the birth canal
- Bony prominences of the hips to support Lovsett's maneuvers
- Realistically positioned landmarks - scapulae and clavicles
- Arms and legs allow full articulation for all maneuvers required during deliveries - particularly breech and shoulder dystocia
- Umbilicus and placenta (normal and retained)
- Fetal heart rate: normal, bradycardia and tachycardia (via software)

Electronic Fetal Monitoring - EFM/Cardiotocography - CTG

- EFM graphic display: fetal heart rate waveform and uterine activity waveform
- EFM is displayed on the patient monitor with mother's vital signs or on a separate monitor screen
- Fetal monitoring is recorded and it is possible to scroll back to view on the patient monitor
- The software allows the instructor to use the preset states as well as utilize the customized parameters

Gown

The SimMom gown has two flaps that provide access to the abdomen during birthing simulations.



Laerdal Simulator Software

To run a simulation, LLEAP (Laerdal Learning Application) must be started from Laerdal Simulation Home on the Instructor PC.

Laerdal Simulation Home

Laerdal Simulation Home is an application from where LLEAP and other Laerdal programs related to patient simulation can be found and started. Also the help files can be opened from here. Laerdal Simulation Home is located in the Laerdal Medical folder under the Windows start menu (Windows 10).

Software used in a simulation session can be divided in the following main applications:

- LLEAP (Laerdal Learning Application)
- Voice Conference Application
- Patient Monitor
- SimView Server or Session Viewer

In addition, SimDesigner and other applications are used for designing or preparing a simulation.

LLEAP

LLEAP is the instructor's application from where the simulation session is run, controlled, and monitored. LLEAP can be operated in Automatic or Manual mode. Automatic mode is used for pre-programmed scenarios while Manual mode allows the instructor full manual control over the simulation session. Running simulations in Manual Mode generally requires some medical expertise to create clinically sound simulations.

Voice Conference Application

VCA software allows the instructor to communicate through the simulator during the session. VCA can also be used to communicate with other instructors on a network, and create separate channels where only members can communicate.

Patient Monitor

The Patient Monitor application emulates a typical hospital patient monitor. It is the learner's console and can be setup and controlled by the instructor as well as by the learner through on-screen touch menus.

Session Viewer, SimView Mobile and SimView Server

Session Viewer, SimView Mobile and SimView Server are applications that record video and patient monitor screen captures during simulation, in addition to providing an interface to debrief your session. After a session is ended, log files generated in LLEAP are transferred and merged with the video files in Session Viewer or SimView Server for the debrief.

Session Viewer typically runs locally on the same computer as used for LLEAP. SimView Server runs on a dedicated server in the local network. During the first start-up of LLEAP you are prompted to select a debriefing system available on your computer or on a local network. This can be changed later.

Other applications

There are also other programs that are used in conjunction with the simulation sessions, for example License Manager for handling program licenses and Simulator Firmware & Network Fixer for updating the firmware of the simulators or troubleshooting network problems.

SimDesigner

SimDesigner is an application for configuring your own preprogrammed scenarios. It can also be used to analyze and print out a graphical representation of a scenario.

SimDesigner must be installed to allow conversion of legacy instructor application files to LLEAP compatible file formats.

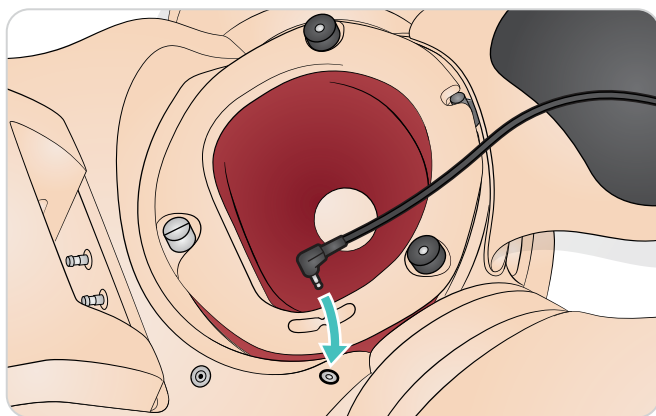
For a full overview of all applications and their help files, start LLEAP Home.

Web Downloads

Visit www.laerdal.com/downloads to download the latest User Guide and SimMom Software.

Connecting Belly Skin Audio Cable

- 1 Unhook the belly skin from the three attachment sites on either side of the pelvis.
- 2 Fold the skin over towards the feet.
- 3 Remove the C-Section Belly skin shipped inside the pelvis and store with your other SimMom accessories.
- 4 Connect the black audio cable on the under side of the belly skin to the audio port located on the right side of the pelvis.



- 5 Reattach belly skin.

Defibrillator Adapter Plates

Preparing for defibrillation using paddles:

- 1 Unscrew and remove defibrillation studs.
- 2 Screw defibrillator adaptor plates into post sockets located on apex and sternum of simulator.

Connecting Blood Pressure Cuff

- 1 Place blood pressure cuff on blood pressure arm.
- 2 Attach clear tubing on cuff to the matching clear pneumatic tubing exiting the torso underneath the blood pressure arm.

Preparing for IV Simulations

Both simulator arms provide radial IV access through female luer fittings, and support training for IV drug administration.

Connect IV outlet tubes exiting backside of the arm to IV fluid collection bags. For realism, place collection bags discretely out of sight from scenario participants.



Connect the male luer connector of the IV bag (not included) to the female luer connector on the simulator's forearm.



When performing IV simulation, use only distilled or de-ionized water to prevent clogging of the system.

Cleaning IV Arms

Clean the IV arms after each session or day of use by flushing them with 60% isopropanol.

Intramuscular Injection (IM) Site Use and Care



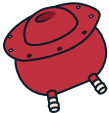

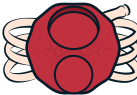



There are four sites for intramuscular injections. They are located on the left and right deltoid and thigh. The IM pads are foam filled and can be injected with fluids. Using a 22 gauge needle increases the longevity of the "skins".

Immediately after use, the IM pads must be removed from the simulator and allowed to air dry. The IM pads can be squeezed like a sponge to remove fluids. The IM deltoid pads have a foam interior that must be removed for drying. The foam is removed through a slit in the back of the pad. Talcum powder may be used to ease the reinsertion of the foam into the skin.

Introduction to Manual Deliveries

Modular Components

SimMom is equipped with the following modular components for manual delivery:

- 1 
Cervix Module
- 2 
Amniotic Bag
- 3     
Post-Partum Hemorrhage Uterus Support Foam Retained Placenta Boggy Uterus Placenta Fragment
- 4 
Inverted Uterus

Preparing Baby for Delivery

SimMom is delivered with a birthing baby that can be placed in multiple positions in order to simulate normal, difficult, instrumental and placenta deliveries.

Connecting Umbilical Cord

If cord cutting is required, attach one of the cuttable umbilical cords to the connector, and push second connector into free end of tube.



Then push the other end of second connector into the umbilical cord on baby's abdomen.

If cord cutting not required, simply push the umbilical cord connector directly into the umbilical cord on baby's abdomen.

Lubrication

The baby, umbilical cord, placenta, birth canal, cervix, inside of vulva, and amniotic bag should be thoroughly lubricated prior to use. A poorly lubricated cord may pull away from the baby during delivery.

Caution: Use only SimMom & PROMPT Birthing Lubricant (Laerdal Catalogue Number 377-18850, Limbs & Things Catalogue No. 10193). Do not use PROMPT Birthing Lubricant (Laerdal Catalogue No. 376-02950, Limbs & Things No. 50181) or SimMom Birthing Lubricant (Laerdal Catalogue No. 377-14450, Limbs & Things No. 10191). Do not use any other lubricant. Non-approved lubricants can damage the system.



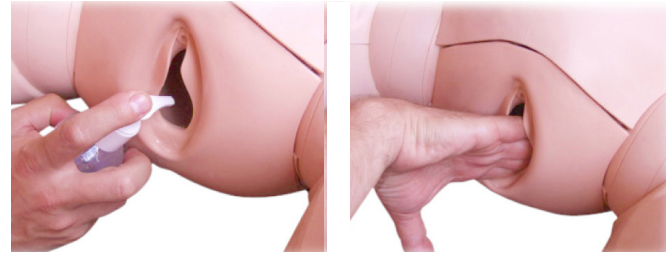
Caution: A poorly lubricated baby or placenta may damage the birth canal or the cervix as it is pushed through.

Caution: SimMom and PROMPT Birthing Lubricant is not for personal use.

Important: It is vitally important that after each training session all lubrication is cleaned from all simulator and baby surfaces with a warm damp cloth.

Apply at least 2-3 squirts of lubrication to the following areas using hands to distribute evenly:

- 1 Inside the vagina and around the edge of the perineum.



- 2 The surface of the cervix.



- 3 To the baby's head, shoulders, body and limbs. Ensure the baby is well covered.



Delivery Techniques

When simulating deliveries, an instructor must manually deliver the baby. The instructor stands to one side of the mother's abdomen and pushes the baby through the birthing canal.

Note: Gloves should be worn during the procedure. Jewelry items such as rings should be removed to protect the soft tissue parts of the model.

Note: The belly skin should be attached by one peg on each side of the pelvis during the procedure.



There are two basic techniques for delivering the baby:

One-Handed Delivery

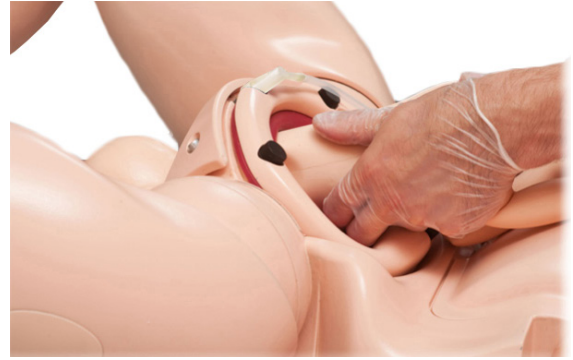
Place the baby in the fetal position, aligning its limbs for insertion through the birth canal.

Grasp the baby by the back of the trunk. Engage the baby's head in the required position in the pelvic inlet. Push firmly.



The head should automatically flex on the neck and descend the birth canal, dilating the cervix.

As the head passes through the birth canal, it should rotate naturally. Rotation can be enhanced by rotating the baby's trunk.



If the limbs were properly aligned beforehand, they should follow their own path and emerge realistically through the birth canal. This technique allows the instructor/trainer to perform other functions, such as midwife, birthing partner, etc.

Two-Handed Delivery

With one hand, grasp the baby by the back of the trunk. This hand performs most of the pushing.

Place the palm of the second hand along the chest of the baby. Use the tips of two fingers to manipulate the baby's chin or mouth and to rotate the baby's head when required. The second hand can also hold the umbilical cord and arms in position.



As the head descends further, the instructor/trainer can adjust the second hand grip to push up under the chin and better extend the baby's head.

This technique allows the instructor/trainer to better control the head.

Note: The trainer should practice and become familiar with the delivery process prior to any training situation.

Deliveries

SimMom is capable of simulating normal, breech, instrumental, and shoulder dystocia deliveries.

Normal Delivery


For normal delivery simulation, see “one-handed” or “two-handed delivery” in the *Delivery Techniques* section.

Breech Delivery

A breech delivery can be performed using one or two-handed delivery technique. The second hand manipulates the baby's limbs and umbilical cord.

To perform a breech delivery:

- 1 Apply extra lubrication in the lowest part of the birth canal so the baby's bottom can slip up over the J-shape of this part of the canal.
- 2 Change grip on the baby's trunk so the delivery can be controlled by holding the head.
- 3 Flex the baby's neck so the head passes more easily through the birth canal.
- 4 The baby can now be delivered using Moriceau-Smellie-Viet maneuver.

 *Note: It is easier to perform a breech delivery if the cervix is not installed.*

Forceps Delivery


To perform a delivery with forceps instrumentation:

- 1 Reduce lubrication on the baby's head and in the birth canal to prevent the forceps from slipping off the scalp.
- 2 Flex the head so the forceps can be positioned correctly.
- 3 Coordinate the trainees so they pull on the forceps only when the instructor/trainer is simulating the mother's expulsive effort. Otherwise, the forceps may slip off the head.
- 4 During the rotational part of forceps delivery, coordinate the actions of the instructor and trainee so the rotation of the baby's body follows the rotation of the forceps. Otherwise, the forceps may slip off the scalp.

Suction Delivery


To perform a suction delivery using Kiwi/Ventouse instrumentation:

- 1 Reduce lubrication on the baby's head to prevent the suction cups from slipping off the scalp.
- 2 A facilitator may be needed to coordinate the trainees as they pull and the instructors as they push.

 *Note: Step 2 is less critical for suction delivery than for forceps delivery.*

All Fours Delivery


All four delivery can be performed using one or two-handed delivery technique, though the latter is recommended.

 *Note: All fours delivery requires more force and involves a different technique than other delivery types. It should be practiced several times before being used in a scenario.*

To perform a delivery on all fours:

- 1 Push diagonally upwards, into the pelvic floor following the J-shape of the birth canal.
- 2 Guide baby horizontally through birth canal opening.

If using two-handed technique, apply continuous upward pressure with the second hand in order to keep the head flexed and to prevent baby's body from sagging.


 *Note: For more stability, the instructor should consider resting his or her elbows on the bed or on a pillow positioned on the bed.*


Shoulder Dystocia Delivery

A shoulder dystocia delivery is usually performed using two-handed technique. Control of the baby's arms is important because the posterior arm must be placed in the proper position.

To perform a shoulder dystocia delivery:

- 1 Wedge anterior shoulder against the pubis while descending the baby down the birth canal.
- 2 Coordinate the rotational maneuvers of the instructor and the student so their movements match each other.

 *Note: Depending on the level of supra-pubic pressure applied by the trainee, the instructor may experience discomfort. The instructor may find it more comfortable to hold the baby in a more anterior position so that the hand is between the baby and the anterior abdomen wall.*

 *Note: It is easier to perform a shoulder dystocia delivery if the cervix is not installed.*


Cervix

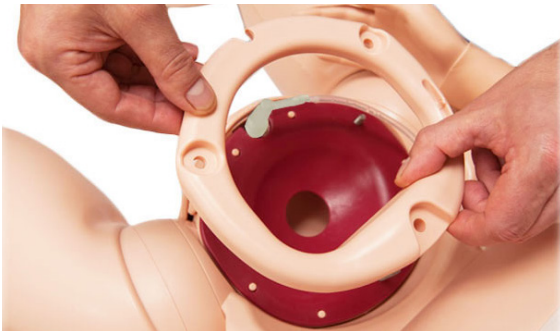
Cervix Installation

- 1 Fold back or remove abdominal skin (see *Maintenance - Replacing the Abdominal Skin*).

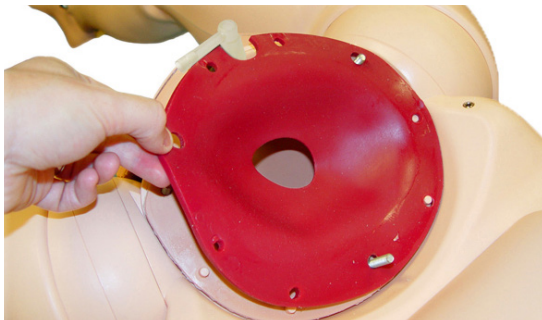
 *Caution: Folding the skin downward without support underneath it may cause the skin to tear.*

- 2 Unscrew the three black thumbscrews around pelvic ring clamp. Remove pelvic ring clamp from clamping face.

 *Note: When removing pelvic ring clamp, lift so that it remains parallel with the pelvis until it is clear of the screws.*

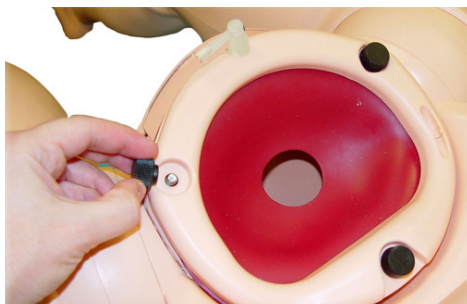


- 3 Remove current cervix module if necessary and set aside.
- 4 Place new cervix module in position at pelvic inlet with flange lying on top of birth canal flange.
- 5 Carefully align holes on cervix module with locating pins on clamping face. Ensure that urinary connector is aligned with similar notch on cervix module.



- 6 Replace pelvic ring clamp. Ensure it is properly aligned with locating pins and urinary connector.
- 7 Position and tighten black thumbscrews until firm.


 *Note: Do not over tighten thumbscrews.*



Amniotic Bag

Amniotic Bag Installation

The amniotic bag is required during delivery simulations in which blood and/or amniotic fluid will be used.

 *Note: Prior to beginning simulation, apply liberal amounts of lubrication to the birth canal, cervix, baby, bag, and placenta (if required). This greatly eases delivery of the baby.*


To connect the amniotic bag:

- 1 Fold back or remove abdominal skin (see *Maintenance section - Replacing the Abdominal Skin*).

- 2 Remove pelvic ring clamp, leaving cervix in position.

 *Caution: Removing the cervix can cause leaks.*

- 3 Place plastic wrap/cling film over cervix (if required, not included) to simulate amniotic membranes.

 *Caution: For best results, plastic wrap/cling film thickness should be 20-30 microns. Thickness above 30 microns may damage the simulator.*

- 4 Thread main part of bag through pelvic ring clamp.




- 5 Position bag flange on top of cervix flange on pelvic clamping face.
- 6 Ensure holes align with pins, and urinary connector notches are aligned.
- 7 Position pelvic ring clamp over flange.
- 8 Recheck position of pins and notches, and that blood feed tube is not caught under ring.

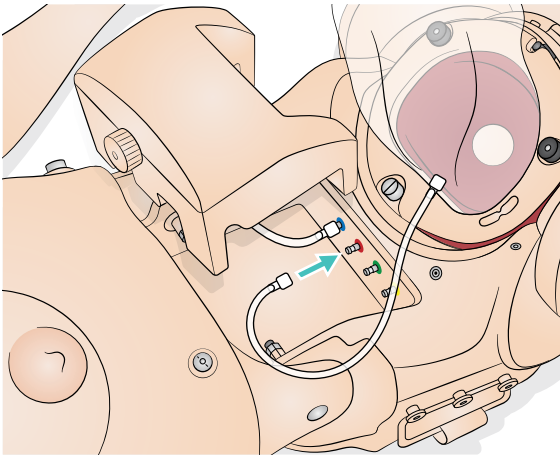
MANUAL DELIVERIES

- 9 Fit and tighten the three black thumbscrews.



- 10 Connect blood feed tube (red Luer) to blood pump outlet (red bulkhead connector).

 *Note: The same pump and connectors can be used to deliver simulated amniotic fluid rather than blood, if this is required.*



- 11 Apply lubrication to inside of bag by hand.



- 12 Apply lubrication to the baby's head shoulders, body, and limbs as described under *Preparing Baby for Delivery*.

- 13 Introduce baby through top of the bag ensuring the head is fully engaged into the cervix. Pour 100ml of lubrication into the bag and add 200ml of water for a total 300ml. Introduce placenta (if required).

 **Warning:** Do not fill the bag over 500ml.



- 14 Fit sealing clip to top end of bag. Roll up end of bag and tuck it inside abdomen.



- 15 Replace abdominal skin.

- 16 When delivering the baby the instructor will grasp the baby with both hands and push and squeeze the baby through the bag.




Postpartum Hemorrhage

Uterus and Postpartum Hemorrhage (PPH) Installation

The Uterus and PPH module includes a retained placenta module and boggy/uterus module. Always run PPH with the cover mounted on side panel and SimMom resting on the absorbent pads

Uterus Installation

- 1 Fold back or remove abdominal skin (see *Maintenance - Replacing the Abdominal Skin*). Remove pelvic ring clamp and cervix.

 *Caution: Folding the skin downward without support underneath it may cause the skin to tear.*

- 2 Install the indwelling catheterization bag as described on page 31 steps 5-8.
- 3 Push pelvic ring clamp over cervix and flange of PPH uterus.



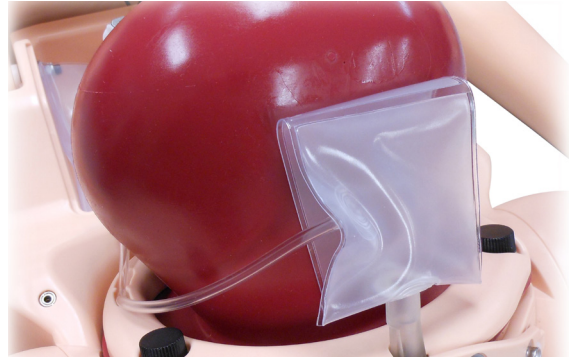
- 4 Locate flange on pelvic clamping face. Align holes on flange with pins on clamping face. Align notch for urinary connectors with similar notch on pubis.



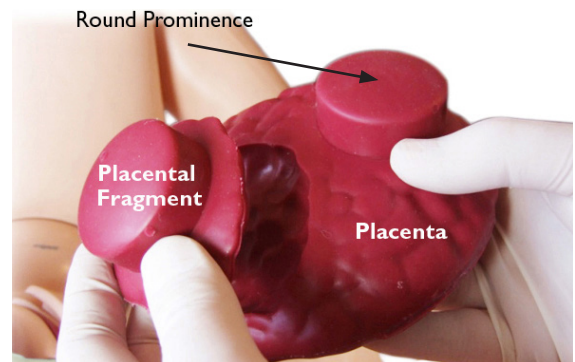
- 5 Push pelvic ring clamp into position over locating pins.
- 6 Ensure flange holes and pins are still correctly aligned.
- 7 Position and tighten black thumbscrews until firm.
- 8 Connect red Luer connector on blood feed tube to red blood outlet on the pelvic bulkhead.

 *Note: Connection only requires a $\frac{3}{4}$ turn to lock. Do not over tighten.*

- 9 Fit indwelling catheterization bladder and fold back behind bag. Replace abdominal skin.



Retained Placenta Installation.



 *Note: Gloves are recommended for this procedure.*

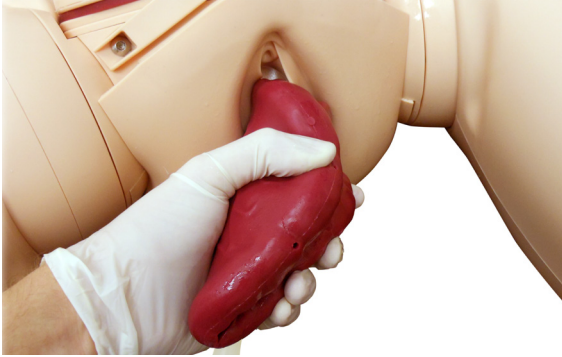
- 1 Remove the abdominal skin and ensure the PPH uterus is installed. Lubricate the birth canal and inside of PPH uterus.
- 2 Lubricate placental fragment, and insert it into the uterus, ensuring the pointed part of the fragment points towards the simulator's head.



- 3 Align the fragment's round prominence with suction hole on posterior wall of uterus (on the simulator's right).

MANUAL DELIVERIES

- 4 Lubricate the placenta, and introduce it into the uterus. It helps to fold it in half in order to fit through the cervix.



- 5 Orient the placenta so that the round prominence sits snugly into the corresponding cavity in the uterus (on the simulator's left). Ensure the fragment remains aligned with the placenta.
- 6 Fit the connector on vacuum pump hose to the quick fit connector on one side of the back of the uterus.



- 7 Pump until dial reads -0.8-0.9 bar/-25 mmHg (approximately 8-10 strokes of pump).



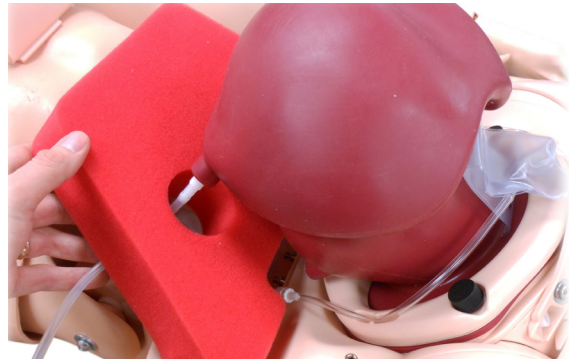
- 8 Disconnect.
- 9 Repeat for second connector to secure placenta into back of uterus.
- 10 Replace abdominal skin.

Boggy Uterus Bag Installation


- 1 Place the boggy uterus bag in position on PPH uterus. The concave surface of bag aligns with the convex surface of uterus.



- 2 Place support foam under the uterus and feed the air supply tube (green luer connector) through the right cutout of the foam. The support foam prevents the uterus from flopping back when palpating through the abdomen.



- 3 Remove the reservoir cover and attach the air supply tube from the boggy uterus (green Luer connector) to green air outlet on the pelvic bulkhead (3/4 turn).


 **Caution:** Do not activate boggy uterus until abdominal skin is fastened in position. The bag will over inflate if it is activated with the skin off.

- 4 Replace the reservoir cover and ensure the tubing is routed through the slot of the reservoir cover. Replace abdominal skin.

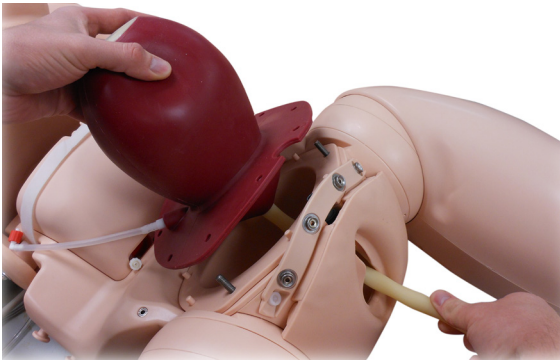
Inverted Uterus

Uterine Inversion Installation

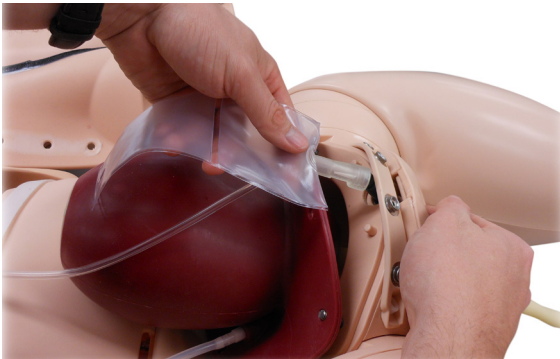
- 1 Fold back or remove abdominal skin (see *Maintenance - Replacing the Abdominal Skin*).

 **Caution:** Folding the skin downward without support underneath it may cause the skin to tear.

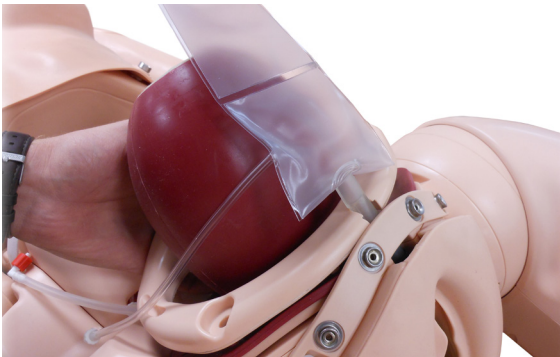
- 2 Remove pelvic ring clamp and cervix (see *Maintenance - Replacing the Abdominal Skin*).
- 3 Lubricate the inside of the uterus.
- 4 Position the uterus on the pelvic clamping face. The umbilical cord should pass through the birth canal.



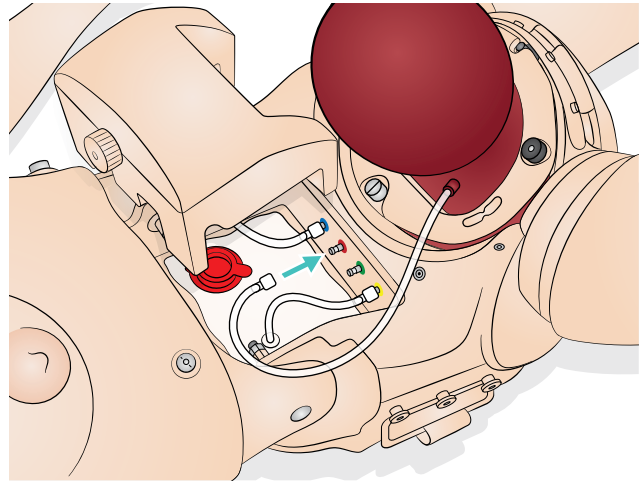
- 5 Ensure holes on uterus flange locate with pins on clamping face, and that notch for urinary connector locates with corresponding notch on pubis.
- 6 Fit indwelling catheterization bladder.




- 7 Push pubic ring clamp over uterus and align with locating pins on clamping face.



- 8 Ensure that all holes and notches are aligned, and that the blood feed tube passes through the pelvic ring cleanly and without kinks.
- 9 Fit and tighten the three thumbscrews.
- 10 Connect the blood feed tube (red Luer connector) to the blood pump outlet (red) on the pelvic bulkhead.



- 11 Position support foam behind uterus.
 - 12 Replace skin.
 - 13 A few minutes prior to the scenario, pull back abdominal skin and lubricate the outside of the uterus.
 - 14 Replace skin and lubricate the birth canal and inside of the uterus.
-  **Note:** Ensure that both the inside and outside of uterus are lubricated. The degree of lubrication will dictate the ease with which the uterus can be pulled out and pushed back in.
- 15 To ensure a steady trickle of blood when starting up scenario, prime vagina with 200-250ml of blood.

Catheter Installation

SimMom includes two types of urinary connectors. The first type is for scenarios involving intermittent catheterization. This is referred to as the intermittent catheter tube. The second is a bag-type connector for scenarios involving an indwelling balloon catheter. This is referred to as the indwelling catheterization bladder. Except for the extra attachment flap on the bag, both connectors are removed and attached in the same way.

To Remove Catheter:

- 1 Disconnect the white Luer connector from the urine reservoir outlet. Ensure reservoir is empty or the tube is clamped.
- 2 Pull the tube free of locating groove on pelvic ring clamp.
- 3 Remove the pelvic ring clamp.
- 4 Pull the urinary connector from spigot on grey urinary valve, using a sideways "rocking" action. Avoid pulling directly because the urinary valve can come away from the urethral tube.

 *Note: If the urinary valve detaches from the urethral tube, simply push it back on.*

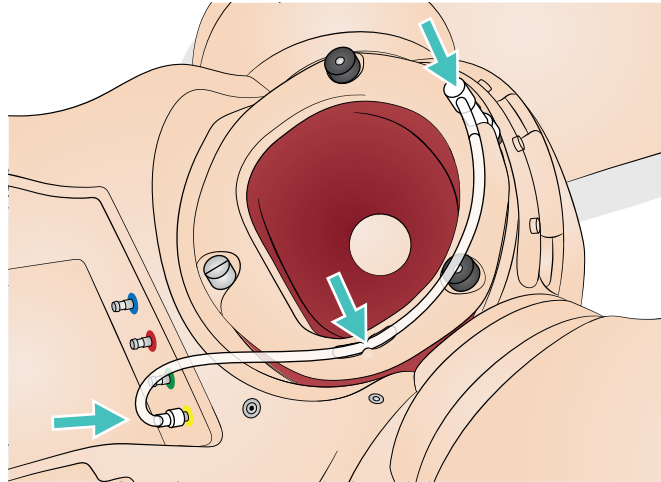
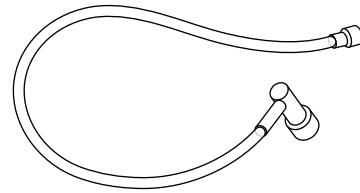
To Place Catheter:

- 1 Grip the grey urinary valve through the birth canal skin, and push a replacement urinary connector onto valve spigot. Ensure that the connector tube is pointing to the simulator's right side.
- 2 Push the connector tube into the groove toward the pelvic ring.
- 3 Connect the white Luer to the urine reservoir outlet tube.
- 4 For cord prolapse scenarios, use the indwelling catheterization bladder. Push hole on the flap of the bladder over the retaining lug on the inside of the abdominal skin.
- 5 For PPH scenarios, fold flap back and tuck behind indwelling catheterization bladder.
- 6 Replace pelvic ring clamp.

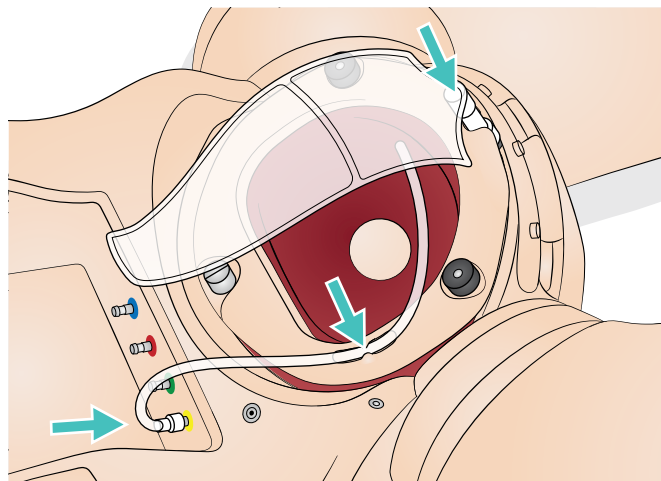
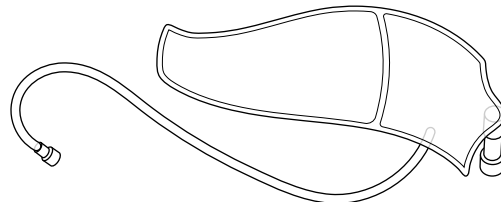
To remove and replace the urinary valve:

- 1 Remove pelvic ring clamp.
- 2 Remove urinary connector.
- 3 Pull grey urinary valve from urethral tube on birth canal.
- 4 Push outlet spigot (wider) of replacement valve into urethral tube. Grip tube through birth canal skin to provide support.
- 5 Push urinary connector onto inlet spigot (narrower).
- 6 Replace pelvic ring clamp.

Intermittent Catheter Tube:



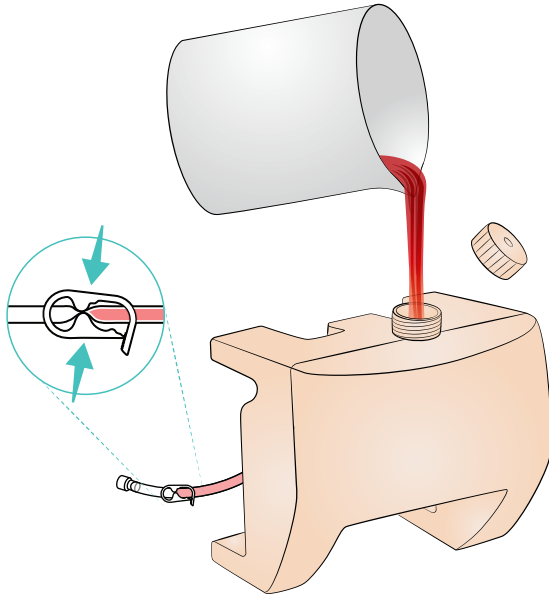
Indwelling Catheterization Bladder:



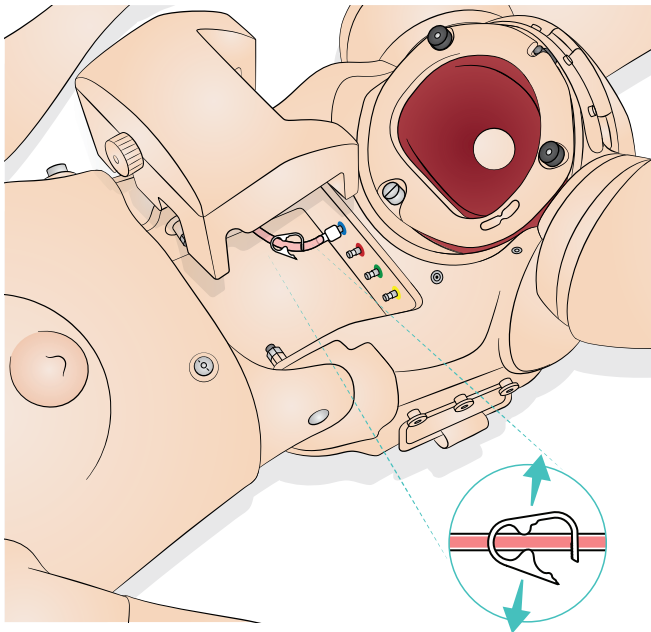
Filling Blood and Urine Reservoirs

Always fill fluid reservoirs outside of SimMom. The urine reservoir contains a maximum of 400ml. The blood reservoir contains a maximum of 1300ml.

- 1 Remove reservoir lid.
- 2 Ensure the slide clamp is in the closed position.
- 3 Pour in fluids using a plastic jug or funnel (not included).
- 4 Replace reservoir lid.



- 5 Reconnect reservoir connector.
- 6 Ensure slide clamps are in open position.



Cleaning Blood and Urine Reservoirs

Note: Blood and urine reservoirs should be drained and cleaned after each simulation.

Blood and urine reservoirs are both located in the reservoir bay.

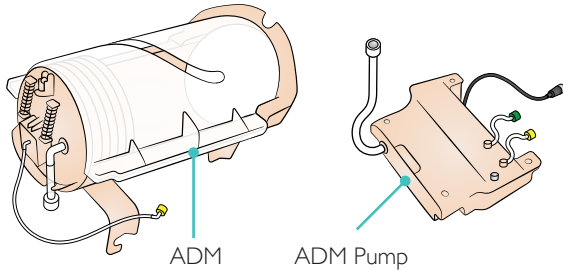
To clean reservoirs:

- 1 Remove reservoir lid.
- 2 Clamp blood and urine reservoir outlets with sliding clamp.
- 3 To disconnect the blood outlet, undo blue Luer connector from blue bulkhead connector: To disconnect the urine outlet connector, undo both white and yellow Luer connector:
- 4 Remove blood and urine reservoirs.
- 5 Drain and rinse out with water.
- 6 Flush pump with tap water.
- 7 Leave to air dry.
- 8 Replace reservoirs.

Introduction to Automatic Deliveries

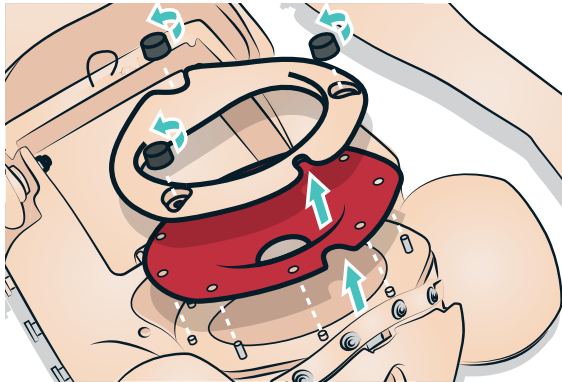
Automatic Delivery Module (ADM)

This section describes how to use SimMom with the optional Automatic Delivery Module (ADM). Make sure the cap is fitted onto ADM power connector on SimMom pelvis when not in use.

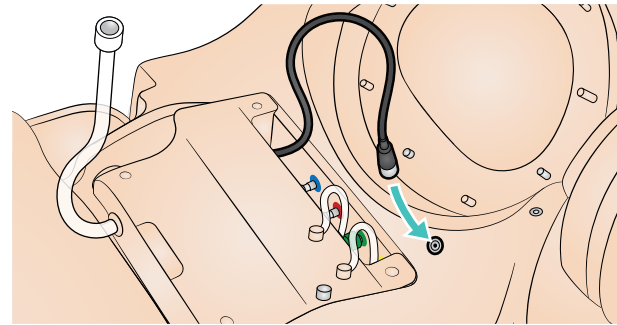


With ADM, SimMom delivers the baby automatically and can simulate the following delivery scenarios:

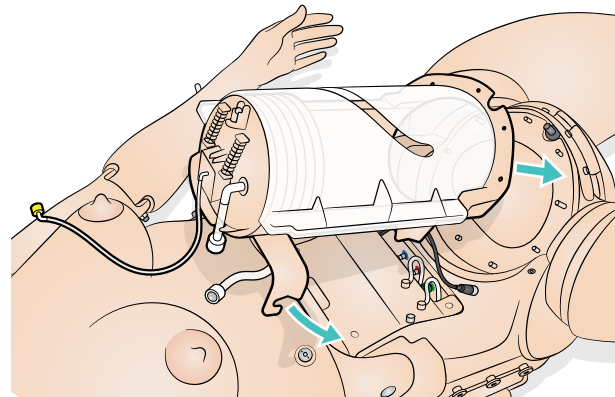
- Normal OA
- Normal OP
- Breech
- Shoulder Dystocia



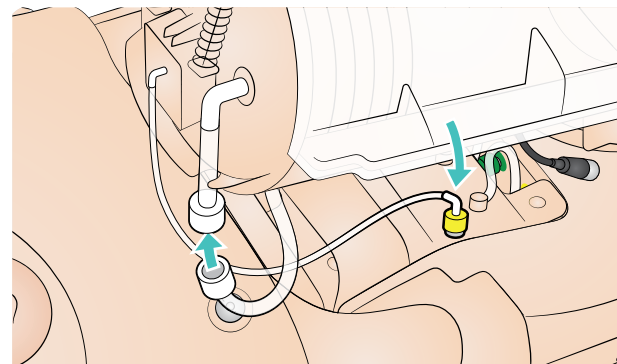
In order to use the ADM, the cervix and pubic clamp must be removed.



2 Slide in the ADM Pump and connect the power cable

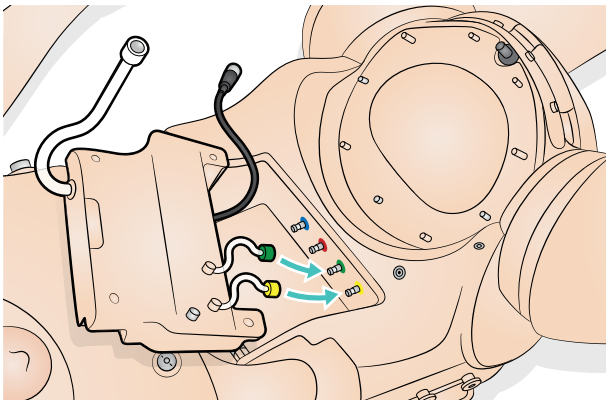


3 Slide in the ADM

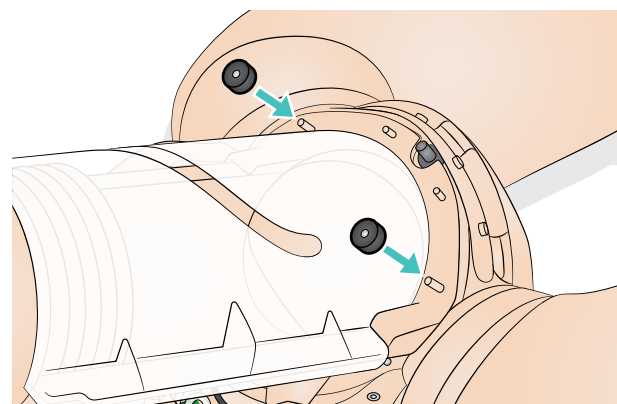


4 Connect the two remaining cables. Make sure there are no kinks in the tubing between the ADM and ADM pump.

Setting up ADM



1 Connect ADM air tubes to the connectors in the simulator.



5 Tighten the knobs

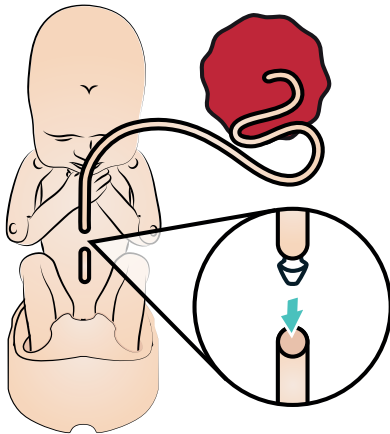
Preparing Baby for Delivery

Connecting Umbilical Cord

If cord cutting is required, attach one of the cuttable umbilical cords to the connector, and push second connector into free end of tube.



Then push the other end of second connector into the umbilical cord on baby's abdomen.



If cord cutting not required, simply push the umbilical cord connector directly into the umbilical cord on baby's abdomen.

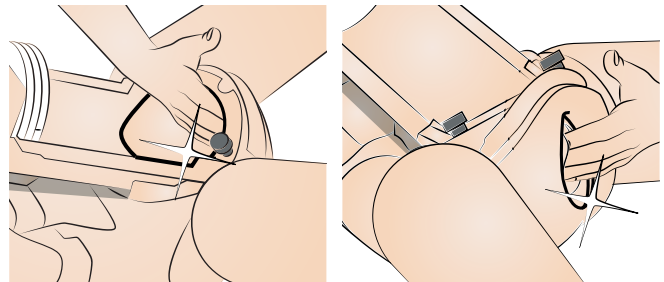
Lubrication

Apply at least 2-3 squirts of lubrication to the following areas prior to use.

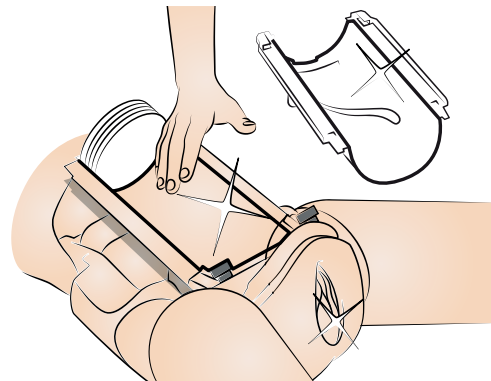
Note: Use hands to distribute evenly. The lubricant can be reactivated with a spray of water.



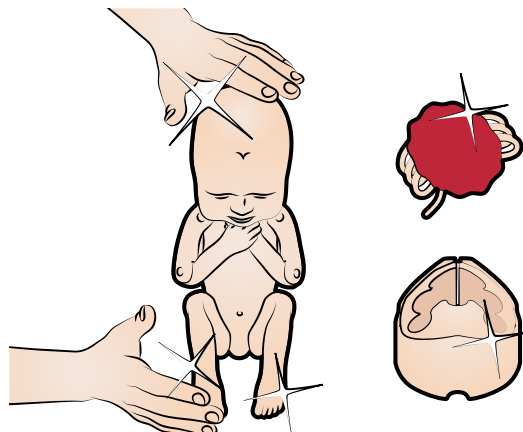
- 1 Birth canal and inside of vulva and Chamber base.
- 2 Inside the vagina and around the edge of the perineum.



- 3 Inside surfaces of ADM module.



- 4 The baby's head, shoulders, body and limbs. Ensure the baby is well covered.
- 5 Umbilical cord and Placenta.
- 6 Cradle.



AUTOMATIC DELIVERIES

⚠ Caution: Use only SimMom & PROMPT Birthing Lubricant (Laerdal Catalogue Number 377-18850, Limbs & Things Catalogue No. 10193). Do not use PROMPT Birthing Lubricant (Laerdal Catalogue No. 376-02950, Limbs & Things No. 50181) or SimMom Birthing Lubricant (Laerdal Catalogue No. 377-14450, Limbs & Things No. 10191). Do not use any other lubricant. Non-approved lubricants can damage the system.



⚠ Caution: A poorly lubricated cord may pull away from the baby during delivery. Poorly lubricated parts may cause damage to the simulator as the baby is pushed through.

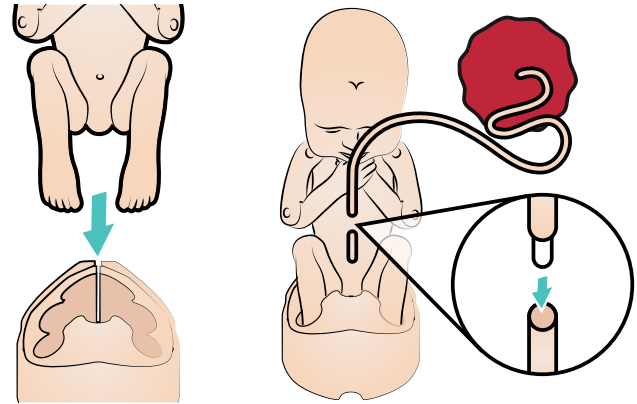
⚠ Caution: SimMom and PROMPT Birthing Lubricant is not for personal use.

Delivery Positions

Normal Occiput Anterior (OA)

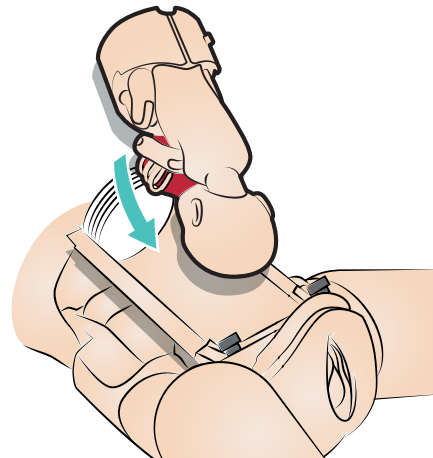
🗨 Note: Make sure all parts are thoroughly lubricated.

- 1 Place the baby in the cradle.

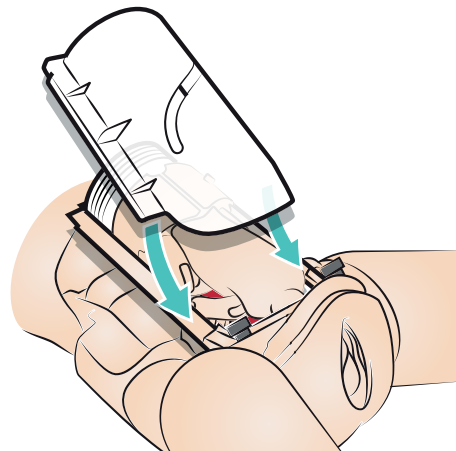


- 2 Connect umbilical cord to the baby.

- 3 Fold umbilical cord and placenta in front of the baby. Ensure that umbilical cord is covered by the placenta to prevent catching during delivery. Place cradle and baby in OA position. Make sure the bottom knob on the cradle is placed in the track. Slide the cradle as far as possible against the bellow.



- 4 Slide on the lid.

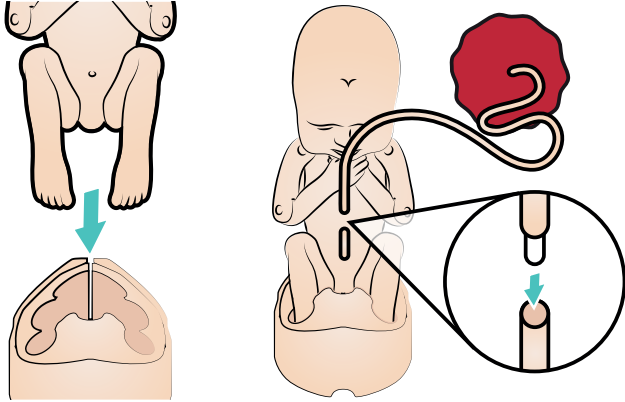


AUTOMATIC DELIVERIES

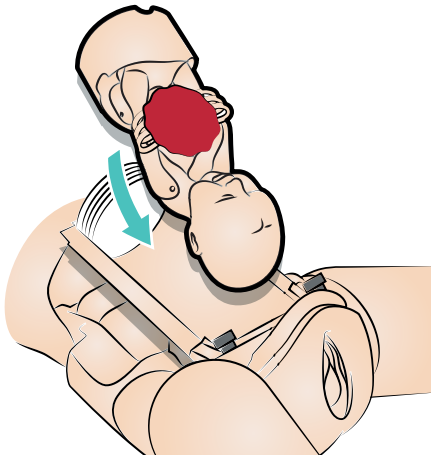
Normal Occiput Posterior (OP)

 *Note: Make sure all parts are thoroughly lubricated.*

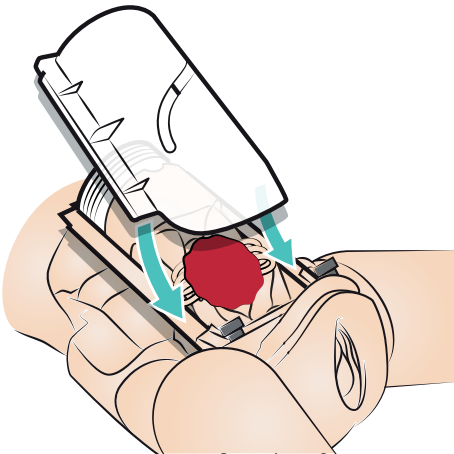
- 1 Place the baby in the cradle.



- 2 Connect umbilical cord to the baby.
- 3 Fold umbilical cord and placenta in front of the baby. Ensure that umbilical cord is covered by the placenta to prevent catching during delivery. Place cradle and baby in OP position. Make sure the bottom knob on the cradle is placed in the track. Slide the cradle as far as possible against the bellow.



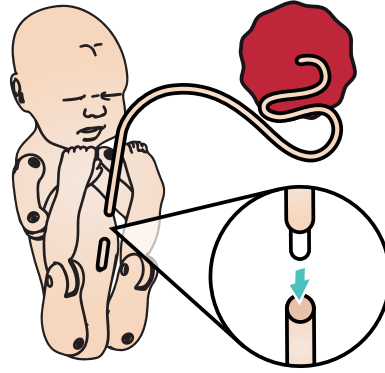
- 4 Slide on the lid.



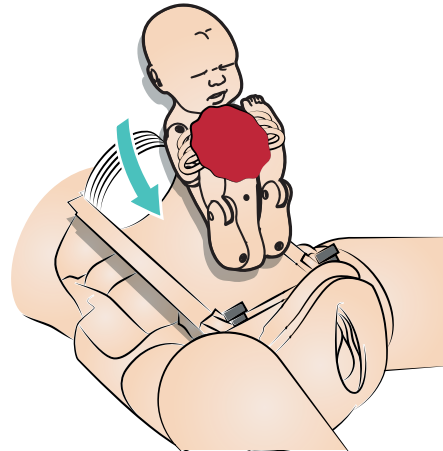
Breech

 *Note: Make sure all parts are thoroughly lubricated.*

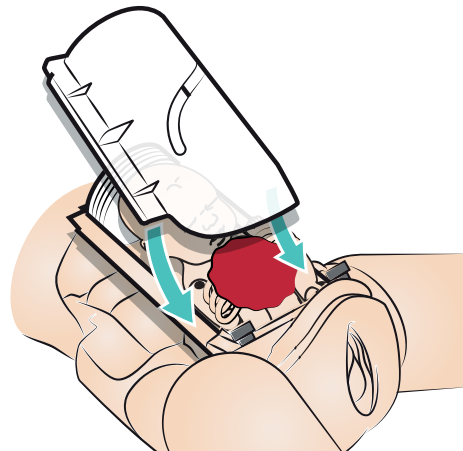
- 1 Connect umbilical cord to the baby and fold the baby into breech position.



- 2 Place the baby's buttocks in the birth canal.



- 3 Place the placenta under the baby's chin. Ensure that umbilical cord is covered by the placenta to prevent catching during delivery.
- 4 Slide on the lid.

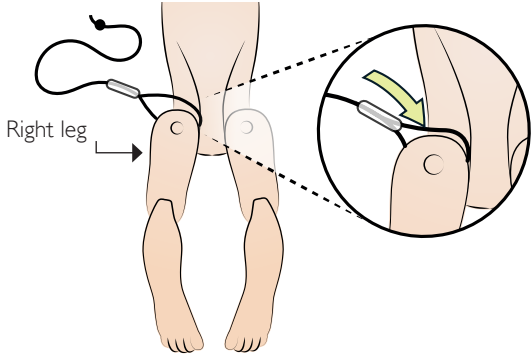


AUTOMATIC DELIVERIES

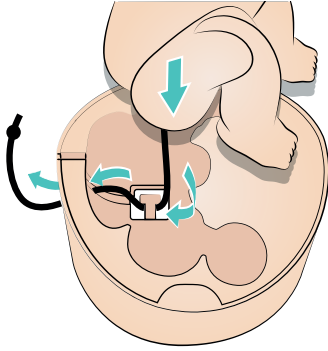
Shoulder Dystocia (SD)

 *Note: Make sure all parts are thoroughly lubricated.*

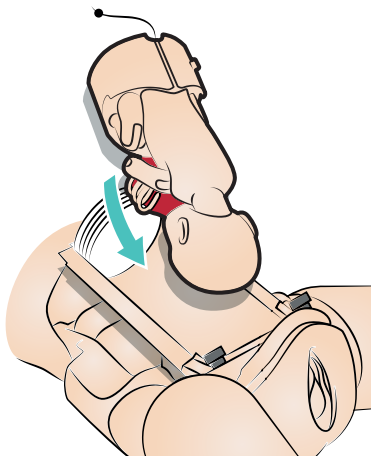
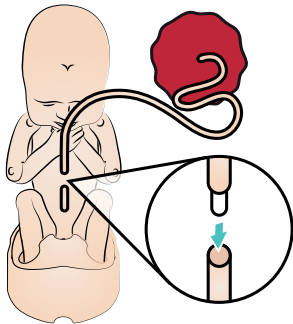
- 1 Attach the SD string to the baby's right leg and close the loop.



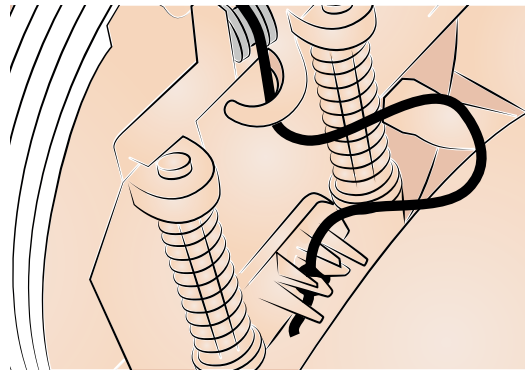
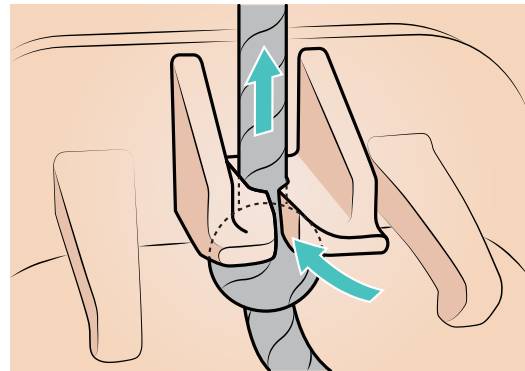
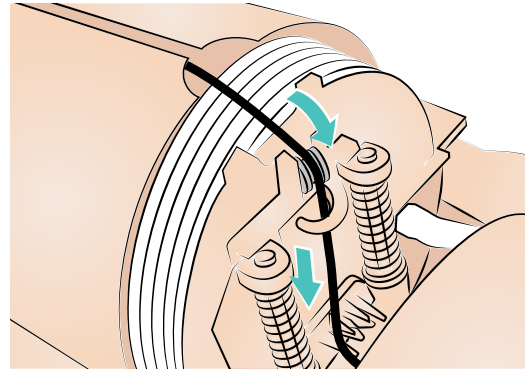
- 2 Thread the SD string.



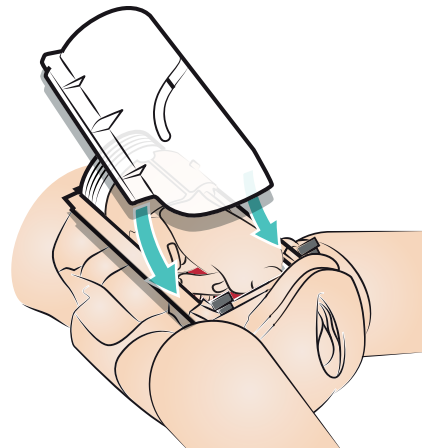
- 3 Connect and fold umbilical cord and placenta in front of the baby. Ensure that umbilical cord is covered by the placenta to prevent catching during delivery. Place cradle and baby in OA position.



- 4 Thread the SD string as shown. Make sure that the thread is pushed all the way into the release mechanism, and the knot is pulled right up under it.

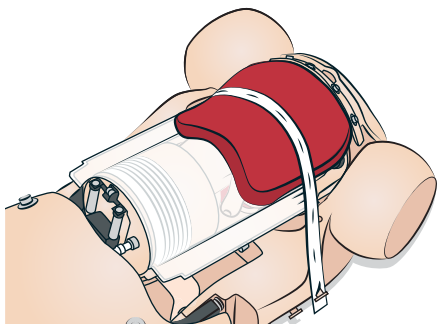
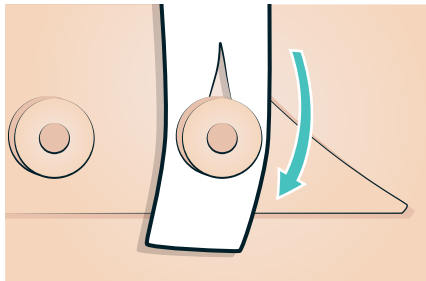
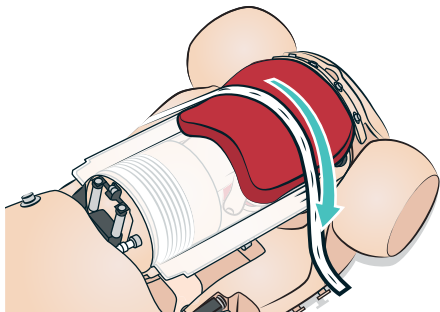
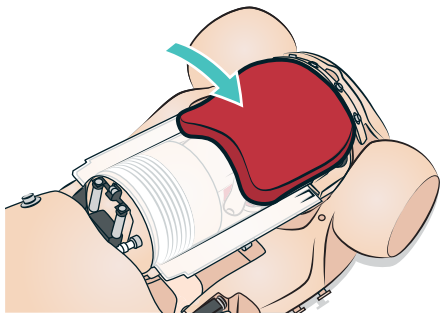
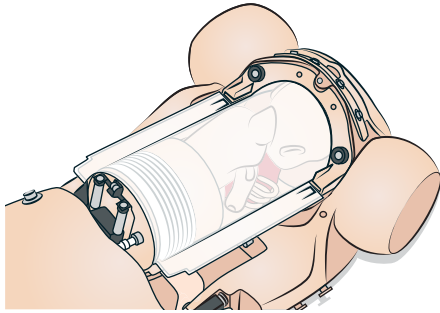


- 5 Slide on the lid.




Placing Suprapubic Foam

Place the Suprapubic Foam as shown below.



Cleaning Automatic Delivery Module

After each training session, remove all the applied lubrication using a warm damp cloth.

 **Warning:** Remove ADM pump before cleaning and do not immerse in water. External surfaces of ADM pump if required can be wiped down with a warm damp cloth.

Introduction

The following procedures will help lengthen the operational life of the SimMom simulator:

- Replacing the Pupil
- Replacing the Eyelashes
- Wig Care and Upkeep
- Replacing the Neck Collar/Cricothyroid
- Replacing the Arm
- Replacing the Pneumothorax Bladder
- Replacing the Thoracentesis Module
- Replacing the Abdominal Skin
- Replacing the Perineum/Birth Canal Skin
- Replacing the Cervix
- Replacing the Pelvic Floor
- Replacing the Urine Reservoir
- Replacing the Blood Reservoir
- Replacing Baby Limbs

Replacing the Pupils

SimMom is delivered with normal pupils installed in the eyes. A separate kit included with SimMom contains plastic pupil inserts (constricted and dilated).

- 1 Using the suction cup tool provided in the kit or with the edge of your fingernail, carefully remove the pupil from the eye.
- 2 Replace the pupil with the desired insert, using the suction cup tool or by gently pressing in place.



Replacing the Eyelashes

- 1 Remove pupils. (See: *Replacing the Pupil*)



Note: If you fail to remove the pupils, you may accidentally drip glue on them. This causes them to become cloudy.

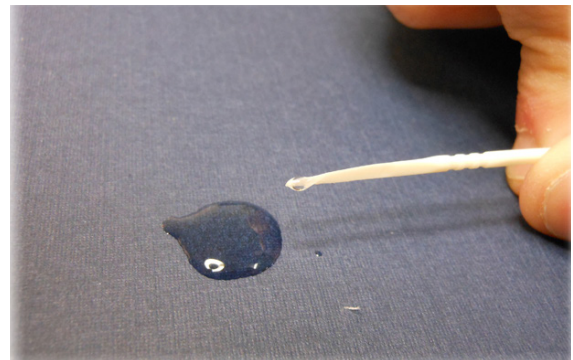
- 2 Using a toothpick, gently place the eyelash across the edge of the simulator's eyelid, starting at the corner nearest the nose.



Note: Only place the toothpick between the lashes, along the white rim of the eyelash. Do not depress the lashes.



- 3 Drip a small amount of super glue onto a sheet of paper. Dip the tip of the toothpick into the glue.



- 4 Using the toothpick, apply super glue sparingly along the top of the eyelash where it meets the eyelid.

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Wig Care and Upkeep

When brushing the wig, use combs and brushes that are specially designed for wigs. If using a regular comb or brush, ensure that it has a rubber tip at the end of each bristle or tooth. To ease brushing and removal of tangles, use a wig spray as lubricant.



Note: Always use a large size wig



Note: Avoid using combs and brushes without rubber tips. These can damage and split the wig fibers. Avoid using hair care products such as hair spray. These may damage the fibers.

To wash the wig:



Note: Avoid excessive washing. It shortens the lifespan of the wig.

- 1 Remove tangles by gently brushing or separating the strands with your fingers.
- 2 Fill a sink with cool water. Avoid using hot water as it may damage the wig.
- 3 Pour two cups of synthetic wig shampoo into the sink. Submerge wig into water.



Note: Use only synthetic wig shampoo.

Once the wig is completely soaked, move it around in the water for a minute. Let it soak for an additional minute. Remove wig from water.



Note: For best results, let the wig soak for five minutes before washing.

Rinse wig with cold water. Once all suds have been rinsed away, let the wig dry on a bath towel overnight.

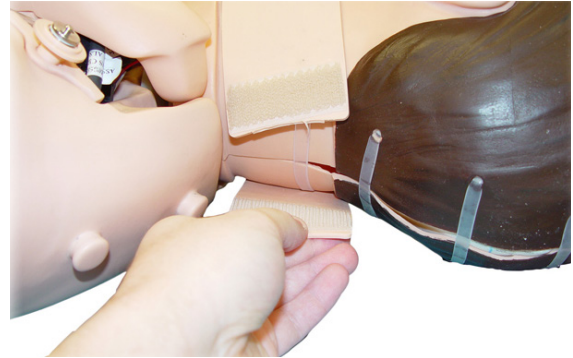


Note: Do not ring out or twist the wig. This may damage the fibers. Do not comb or brush the wig while it is still wet. This may break the fibers.

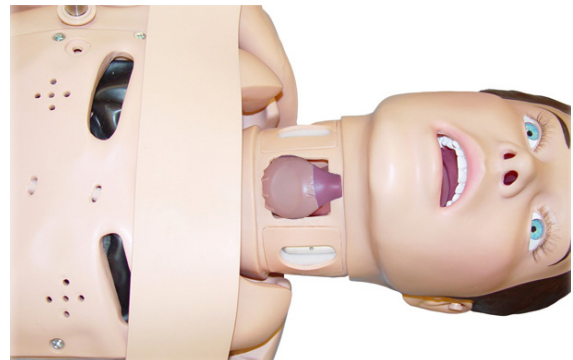
Replacing the Neck Collar/ Cricothyroid

To attach cricothyroid membrane:

- 1 Remove Neck Skin Collar by undoing Velcro® strips on the back of neck.



- 2 Cut a two inch strip of Cricothyroid Membrane Tape.
- 3 Adhere tape to edges of cricoid opening. Ensure that tape covers and seals the opening.

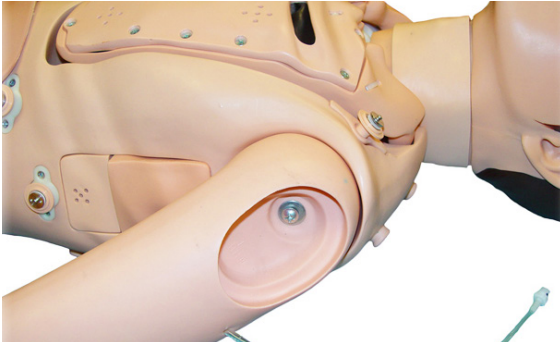


- 4 Place a Neck Skin Collar into molded track around neck area of simulator.

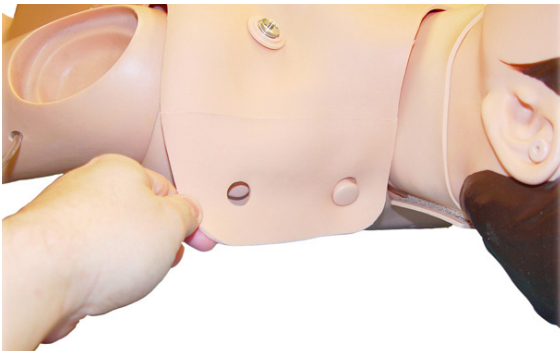
Replacing the Arm

To remove Left Arm:

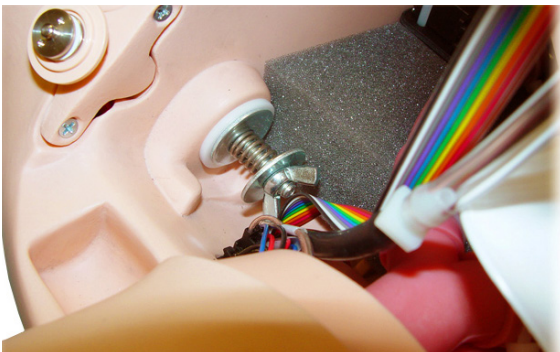
- 1 Remove deltoid injection pad from upper arm.



- 2 Detach chest skin from tabs at shoulders and back.



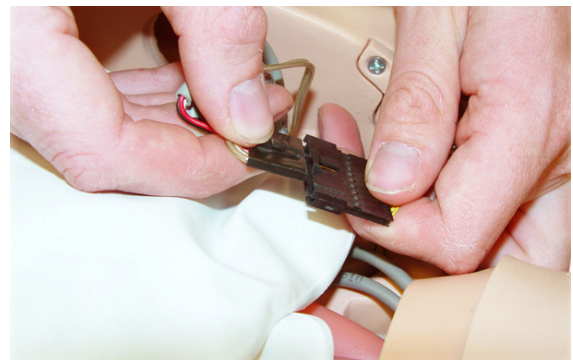
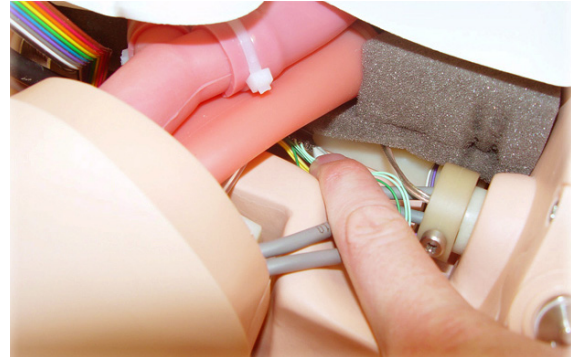
- 3 Remove skin to reveal internal upper chest area.
- 4 Lift hard chest plate to reveal inside sockets for arm connections.



- 5 Unscrew wing nut and remove spring and washers.
- 6 Remove arm and threaded bolt.
- 7 Insert threaded bolt through new arm and torso. The bolt should now be visible in chest cavity.
- 8 From inside of chest area, thread a washer, a spring, and another washer on bolt.
- 9 Screw the wing nut on the bolt and tighten until desired articulation is achieved.
- 10 Replace hard chest plate.
- 11 Reattach chest skin back onto shoulder area, ensuring ECG posts align.
- 12 Replace deltoid injection pad on upper arm.

To remove Right BP Arm:

- 1 Remove deltoid injection pad from upper arm.
- 2 Detach chest skin from tabs at shoulders and back.
- 3 Remove skin to reveal internal upper chest area.
- 4 Lift chest plate to reveal inside sockets for arm connections.
- 5 Follow the cables exiting the shoulder to the black connector and disconnect.

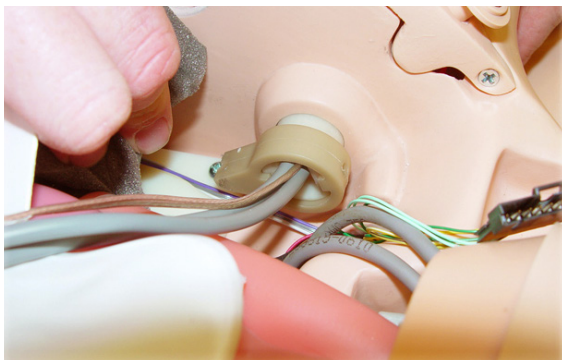


- 6 Use a Phillips head screw driver to unscrew and remove the retaining screw.

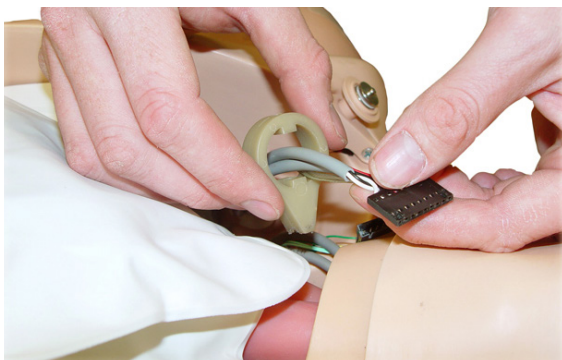


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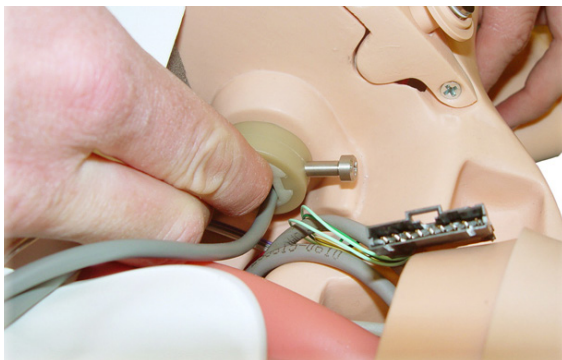
- 7 Slide the stopper off of the pivot arm.



- 8 Remove arm.
- 9 Insert new arm.
- 10 Thread cables through the stopper:



- 11 Secure the stopper to pivot arm with the retaining screw using a Phillips head screwdriver.

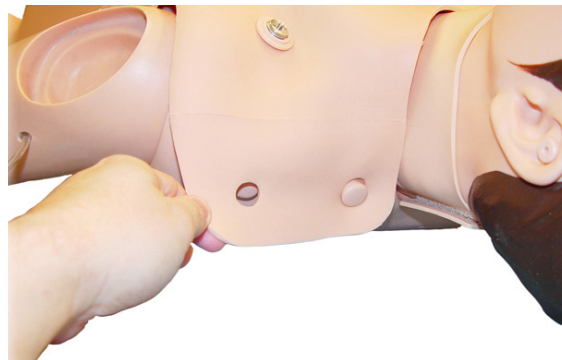


- 12 Reconnect black connector.
- 13 Replace chest plate.
- 14 Reattach chest skin onto shoulder area, ensuring ECG posts align.

Replacing the Pneumothorax Bladder

To remove the Pneumothorax Bladder from bilateral mid-clavicular sites:

- 1 Detach the chest skin from torso by lifting the tabs at the shoulder and back. Remove chest skin.



- 2 Remove chest plate from torso.

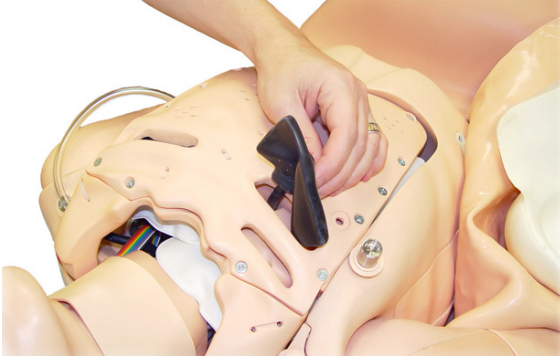


- 3 Disconnect bladder hose from Y connector; located on the underside of chest plate.



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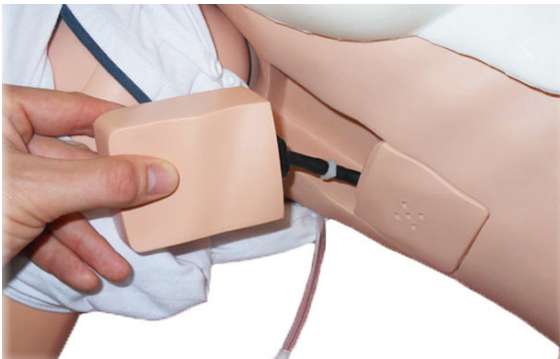
- 4 Pinch and remove bladder through opening between second and third intercostal spaces. These are located on the top side of the chest plate.



- 5 Trim the tubing on the new bladder to match original tubing length.
- 6 Insert new pneumothorax bladder into the top side of chest plate, through the second and third intercostal space openings. The bladder tubing exits through the back side of the chest plate. Ensure the narrow edge of the bladder is closest to the sternum.
- 7 Reconnect hose to Y hose connector.
- 8 Return chest plate to proper position on torso.
- 9 Replace chest skin over torso. Secure skin at shoulders and back.
- 10 Conceal puncture marks on the exterior of chest skin with wax in the Bladder Replacement Kit.

To remove the Pneumothorax Bladder from midaxillary site (right):

- 1 Remove chest skin from tabs at shoulder and back.
- 2 Remove pneumo bladder insert from right side of torso.



- 3 Disconnect bladder hose from inline hose connector. Ensure hose does not fall through hole and into torso.



- 4 Remove bladder from pneumo pad and discard.
- 5 Trim new bladder tubing to match original tubing length. Connect new bladder hose to inline hose connector.
- 6 Fold and insert new pneumo bladder in pneumo box.
- 7 Replace chest skin over torso. Secure skin at shoulder and back tabs.
- 8 Conceal puncture marks on the exterior of chest skin with wax in the Bladder Replacement Kit.

Replacing the Thoracentesis Module


- 1 Remove chest skin from tabs at shoulders and back.
- 2 Remove the thoracentesis module from the midaxillary site of the simulator (left).
- 3 Insert a new thoracentesis module.
- 4 Replace the chest skin over the torso. Secure the skin at the shoulders and both sides.



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Replacing the Abdominal Skin

SimMom is delivered with two Abdominal Skins: normal and C-section deliveries.

 Note: Skin may have a slight oily feel which is normal and a part of the manufacturing process.

 Caution: Folding the skin downward without support underneath it may cause the skin to tear.

 Caution: Do not cut skin.

- 1 Detach skin from pegs on the side of the pelvis.




- 2 Underneath the skin, disconnect the audio jack from the pelvis.



- 3 Carefully unbutton the skin starting at one of the lower corners on the pubis.

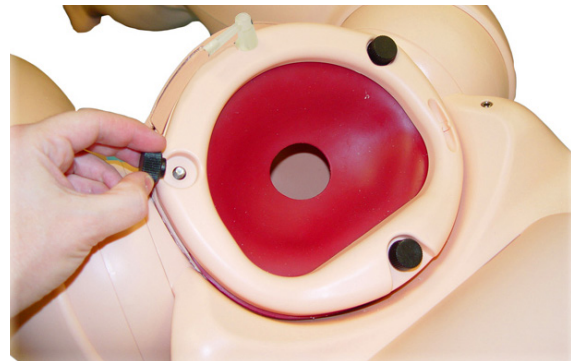


- 4 Remove the skin.
- 5 Fit the replacement skin onto the pelvis and plug in the audio jack.
- 6 Secure the replacement skin on both sides and the pubis.

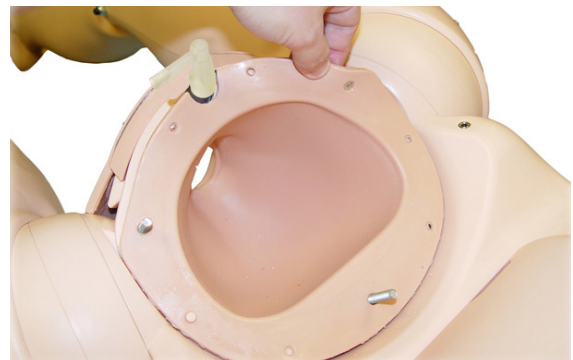
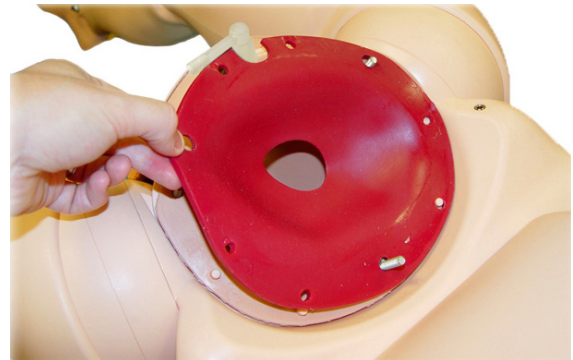
 Note: If the simulator is being used as a task trainer to demonstrate the position and movements of the baby, you should remove the skin completely rather than folding it forward. This offers a better view of the perineum.

Replacing the Perineum/Birth Canal Skin

- 1 Remove abdominal skin (see Maintenance - Replacing the Abdominal Skin).
- 2 Remove pelvic clamp by unscrewing the three black thumbscrews.



- 3 Remove cervix by disengaging the holes on the flange from locating pins on pelvic clamping face.



- 4 Remove urinary connector (translucent or black) and urinary valve (grey) and push the birth canal down into the pelvis.

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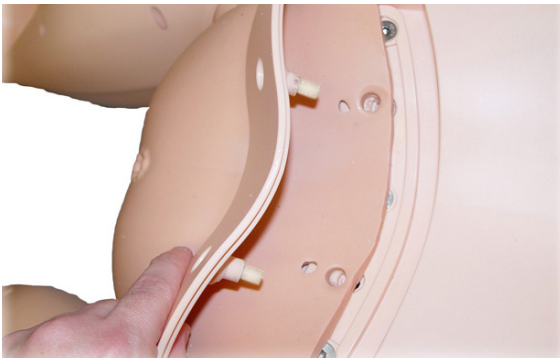
- 5 Remove retaining screws on lower pubic clamping plate, behind upper part of perineal skin, using 4mm Allen key.



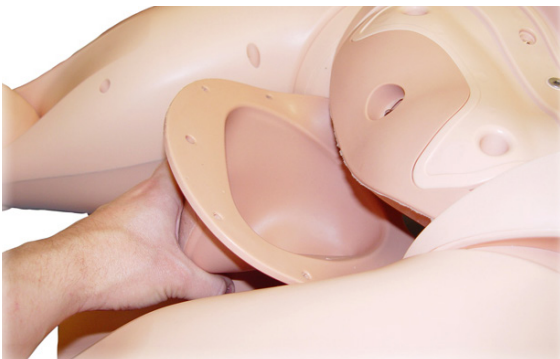
- 6 Remove lower pubic clamping plate from birth canal skin.
7 Turn simulator over to allow access to posterior screws.
8 Remove retaining screws on posterior birth canal fixing plate.



- 9 Remove fixing plate.



- 10 Gently remove birth canal from pelvis.



- 11 Keeping the simulator in the same position, push main body of replacement birth canal up into the pelvis.




- 12 Push the anus into the corresponding hole in the pelvic floor.



- 13 Lay the posterior perineal part of the birth canal into the recess in the back of the pelvis.
14 Fit the posterior birth canal fixing plate, and secure with the two retaining screws.
15 Turn the simulator upright.
16 Locate the lower pubic clamp under the flap on the birth canal skin.
17 Push the pubic clamp into position on the pubis.
18 Insert and tighten the two retaining screws.
19 Pull birth canal up out of pelvis.
20 Locate holes in birth canal flange on corresponding pins on pelvic clamping face.
21 Replace urinary valve, urinary connector and pelvic ring clamp.

Replacing the Cervix

- 1 Remove the three black thumbscrews on the pelvic ring clamp.
- 2 Remove the pelvic ring clamp.

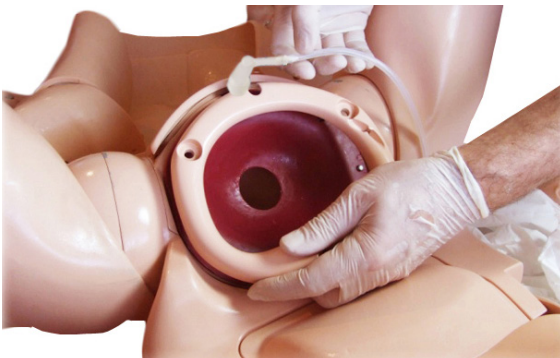
 *Note: When removing pelvic ring clamp, lift so that it remains parallel with the pelvis until it is clear of the screws.*



- 3 Remove the cervix.



- 4 Set replacement cervix in position at pelvic inlet, with flange lying on top of birth canal flange.
- 5 Ensure that notch for urinary connectors aligns with similar notches on pubic bone and birth canal flange.



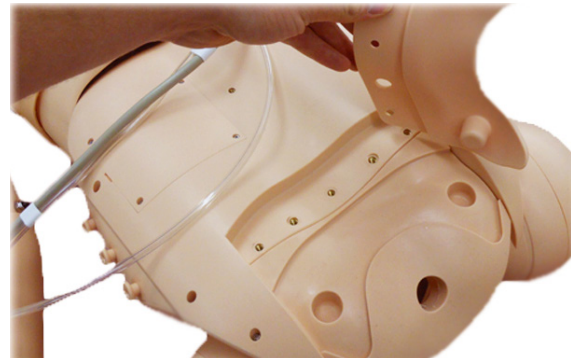
- 6 Ensure that holes in birth canal and cervix flanges are positioned correctly on the locating pins on the pelvic clamping face.
- 7 Replace pelvic ring clamp and secure in place by tightening thumbscrews.

Replacing the Pelvic Floor

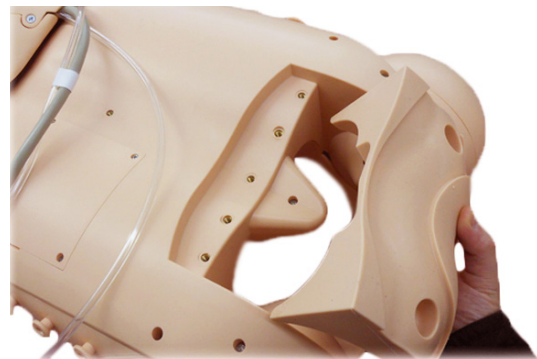
- 1 Remove perineum/birth canal, pelvic ring and cervix. (See Maintenance - Perineum/Birth Canal Skin Replacement)
- 2 Using a Phillips head screwdriver, remove the three screws located underneath posterior birth canal fixing plate.



- 3 Lift and remove pelvic floor fixing plate.



- 4 Pull existing pelvic floor free from simulator.



- 5 Place new pelvic floor in position.
- 6 Replace pelvic floor fixing plate, perineum birth canal, cervix and pelvic ring.

 *Caution: Do not overtighten screws. This may damage the simulator.*

MAINTENANCE

Replacing the Urine Reservoir

The urine reservoir is located in the reservoir bay below the blood reservoir. The color-coded connectors for fluid and compressed air are located on the pelvic bulkhead at the bottom of the bay.

Blue denotes blood and amniotic fluid carried from blood reservoir to pump.

Red denotes fluid from pump to the module being used (PPH, uterine inversion, or amniotic bag).

Green denotes compressed air to and from boggy uterus bag.

Yellow denotes compressed air to pressurize urine reservoir.

To replace the urine reservoir:

- 1 Clamp urine reservoir outlet with sliding clamp.
- 2 Detach urine outlet from urine connector tube by unlocking white Luer connector.
- 3 Undo yellow Luer connector to urine pressurization outlet.
- 4 Remove urine reservoir.
- 5 Lay new reservoir in position in reservoir bay, with red filler cap on the simulator's left, facing upwards.
- 6 Connect yellow Luer on urine reservoir inlet tube to yellow urine pressurization outlet on bulkhead. (3/4 turn, do not overtighten).
- 7 Connect white Luer on urine reservoir outlet tube to white Luer on urine connector tube.
- 8 Ensure slide clamp is open.

Replacing the Blood Reservoir

The blood reservoir is located in the reservoir bay.

- 1 Clamp blood outlet with clamp.
- 2 Undo blue Luer connector from the blue bulkhead fitting.
- 3 Remove blood reservoir and fill outside of the manikin
- 4 Replace reservoir in position in reservoir bay.
- 5 Connect blue Luer connector to blue (blood pump inlet) bulkhead fitting.
- 6 Ensure slide clamp is open.

Replacing Baby Limbs

To replace baby limbs, use a screwdriver to unscrew the limb where it connects to the torso.



Rev A



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