

# MamaNatalie

## Birthing Simulator

Directions for Use



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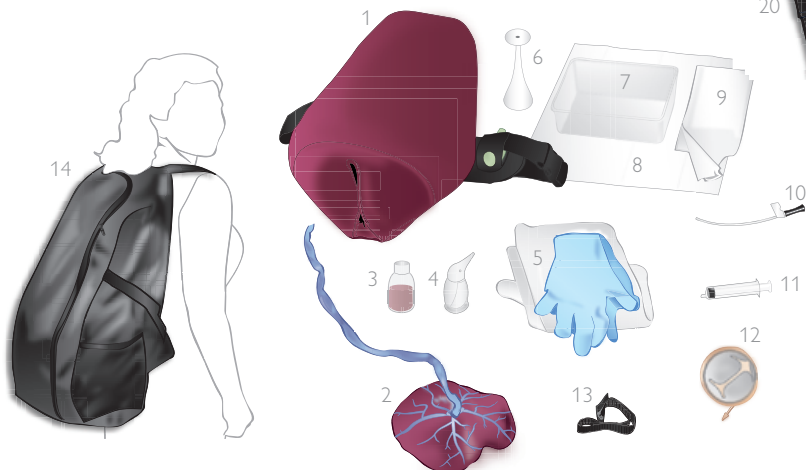
## MamaNatalie Kit Components

MamaNatalie is available in two models and with NeoNatalie Newborn Simulator in either dark or light complexion:

### MamaNatalie Basic model

For users who already have a NeoNatalie Newborn Simulator. Two versions are available with accessories compatible with a dark or light complexion NeoNatalie:

- MamaNatalie Birthing Simulator (includes Uterus, Air Bag Reservoir and Urine Bladder) [1]
- Placenta w/ Umbilical Cord [2]
- Blood Concentrate [3]
- NeoNatalie Suction [4]
- 2 pairs of Gloves (1 normal and 1 long) [5]
- Fetal Stethoscope [6]
- Fluid Collection Tray [7]
- Floor protector [8]
- Fluid Drain [9]
- Urine Catheter [10]
- 20 ml Syringe [11]
- NeoNatalie Skull w/ fontanelles [12]
- Cervix Ribbon [13]
- Backpack [14]
- Directions for Use



### MamaNatalie Complete model

Comprises items included in the MamaNatalie Basic model plus NeoNatalie Basic kit:

- NeoNatalie Newborn Simulator (dark or light complexion) [15]
- Squeeze Bulbs for simulation of birth cries, spontaneous breathing and palpable umbilical pulse [16]
- External Umbilical Cord and 2 Umbilical Ties [17]
- 2 Sheets to simulate towels [18]
- Head Cap [19]
- Storage/Carrying Pouch [20]
- Directions for Use



## Introduction and Features

*MamaNatalie* is a birthing simulator that makes it easy to create very compelling simulations of normal to more complex birthing scenarios. It is strapped onto the Operator, who is taking the role of the mother at the same time as manually controlling the following features:

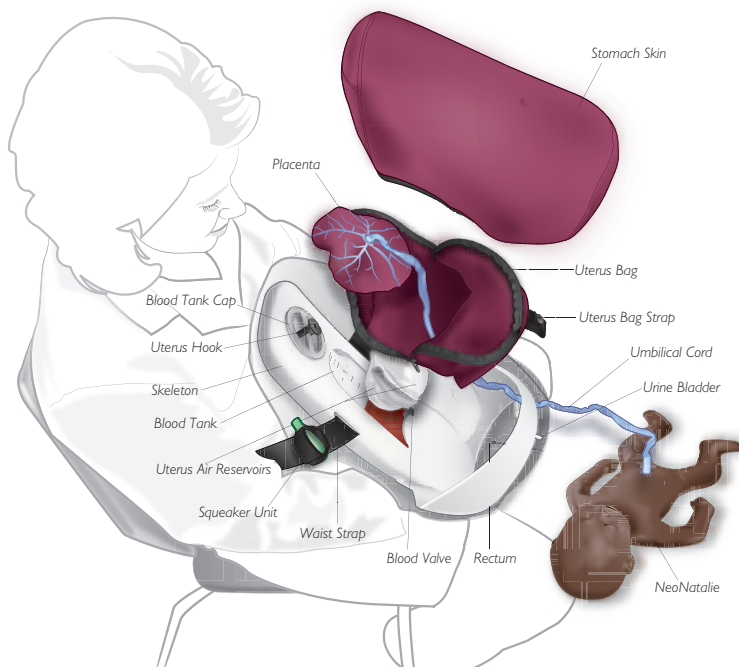
- Fetal heart sounds
- Delivery of placenta, also incomplete
- Baby positions in birth tract
- Uterine firmness
- Intensity of bleeding and volume of blood loss

*MamaNatalie* also allows simulation of:

- Urine Bladder catheterization
- Administration of medications.

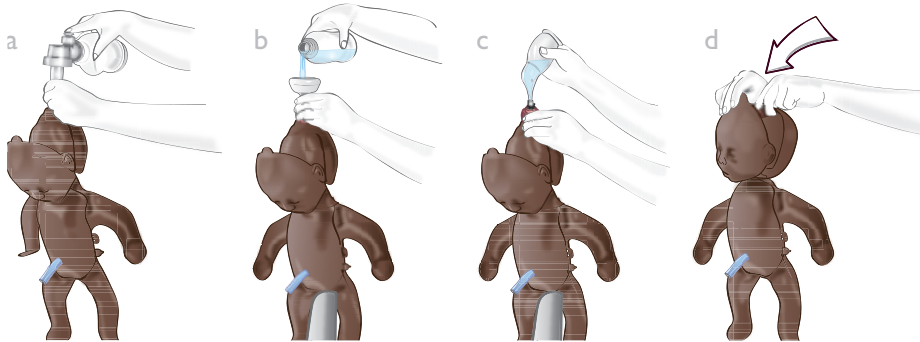
*MamaNatalie* gives birth to *NeoNatalie*, a highly realistic newborn simulator that facilitates effective learning of essential newborn care, including basic resuscitation measures. *NeoNatalie* has realistic size and appearance, and also natural weight, feel and touch when filled with lukewarm water. The baby's status can be simulated as desired for effective role playing in all relevant scenarios, from care after normal birth to treatment of emergency situations. The following features can be simulated:

- Crying
- Spontaneous breathing
- Palpable umbilical pulse



## To Prepare for Simulation

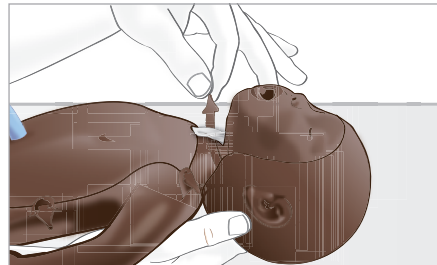
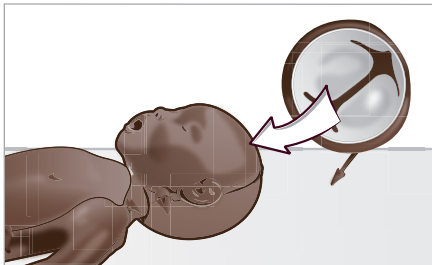
### To Prepare NeoNatalie



#### 1 Fill NeoNatalie with Water

- Pull out the filling extension from under the face skin. Open the valve. Apply your lips - or a bag-mask ventilation device for improved hygiene - to the valve and inflate until the body is partially inflated. (This will separate the foils and allow easy filling with water afterwards.)
- Unscrew the filling cap. Place *NeoNatalie* across a chair or similar to provide support while filling with approx. 2 litres of water from a tap or suitable container. It may be practical to use a circular mask as a funnel. Return filling cap.
- Open the valve. Fill *NeoNatalie Suction* - or another suitable irrigation device with water - and use this to insert additional water into *NeoNatalie's* body until the body feels firm.
- Close the valve. Fold the filling extension forward and push it under the face skin until it clicks into the holder.

#### 2 Fit the Hard Skull with Fontanellas onto NeoNatalie's Head



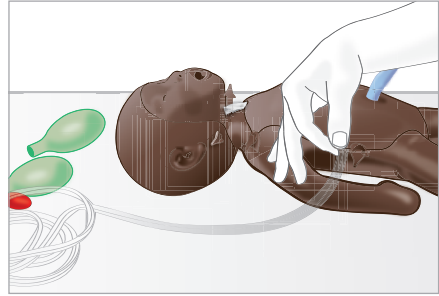
- Fold the sides of the hard skull upwards. Place the skull with the triangular frontal fontanel on the forehead.
- Unfold the sides of the hard skull downwards to cover *NeoNatalie's* ears. Feed the strap **under** the airways and secure the through the small hole on the other side.

Note: Do not tighten the strap over the airways as this will block free air flow and prevent successful ventilations.

### 3 Detach the Simulation Tubes

The Simulation Tubes are attached to the right side of NeoNatalie's chest. Pull gently on the Tubes to release them.

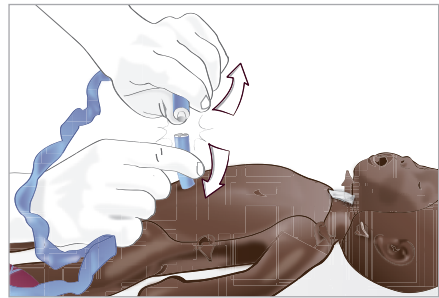
*Tip: After delivering NeoNatalie, reattach the Simulation Tubes to simulate spontaneous breathing and palpable umbilical pulse.*



### 4 Attach the Umbilical Cord



Connect the Umbilical Cord from the Placenta to NeoNatalie by clicking the two connectors together.



*Tip: To detach the cord, break the connection point with your thumbs as shown in the illustration above.*

## To Prepare MamaNatalie

### 1 Inflate the Uterus Air Reservoirs

The Uterus contains two reservoirs. Air can be manipulated from one reservoir to another to simulate various uterus conditions.

- Open the Air Valve.
- Use the NeoNatalie Suction to inflate the Uterus Reservoirs with air. Adjust the amount of air until you pass the test for correct inflation level (as described on the next page).
- Close the Air Valve.



Test for correct inflation level:

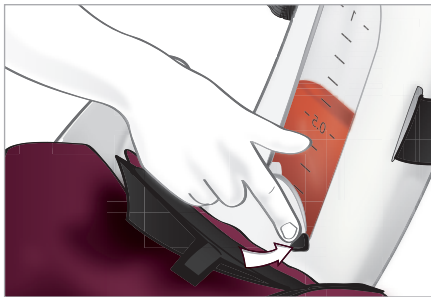


- a) Compress Uterus Air Reservoir A with your hand. Reservoir B should feel firm to simulate a contracted uterus.

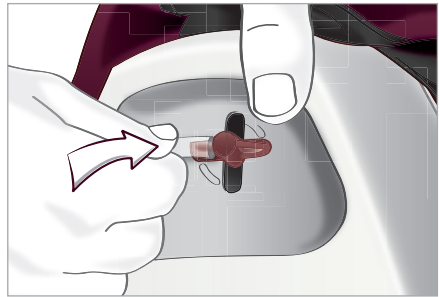


- b) When the grip on reservoir A is relaxed, air is distributed between both Uterus Air Reservoirs A and B. Reservoir B should now feel like a soft uterus.

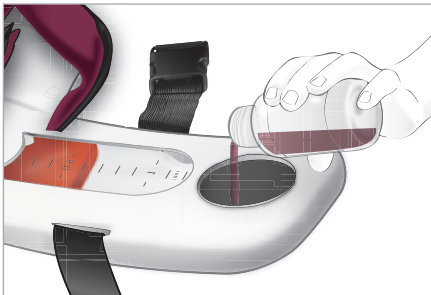
2 Fill the Blood Tank



- a) Check that the Blood Valve of the Blood Tank is closed.

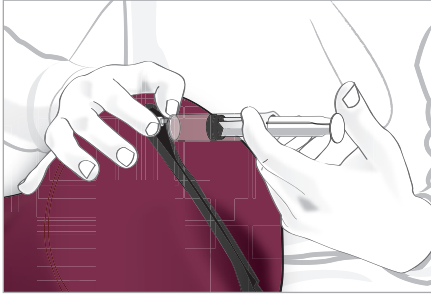


- b) Ensure that the blood tube is connected to the blood nipple on the back side of the Skeleton.



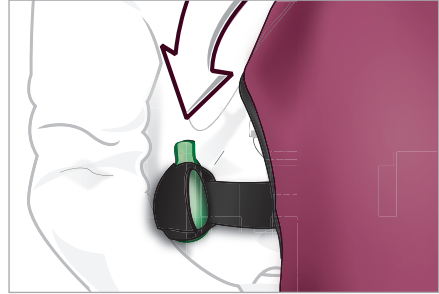
- c) Mix artificial blood according to manufacturer's instructions. Unscrew the Blood Tank Cap and fill with the desired amount of artificial blood (up to 1.5 liters). Return the Blood Tank Cap.

### 3 Fill the Urine Bladder



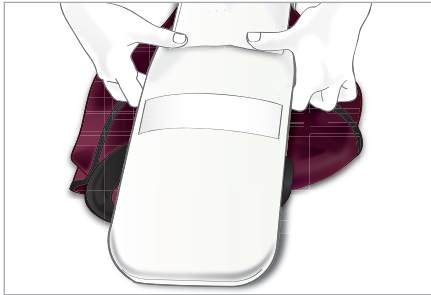
Fill the syringe with 25 ml of water. Inject the water into the urethra until resistance is felt.  
*Note: Never inject air into the bladder.*

### 4 Position the Squeaker Unit

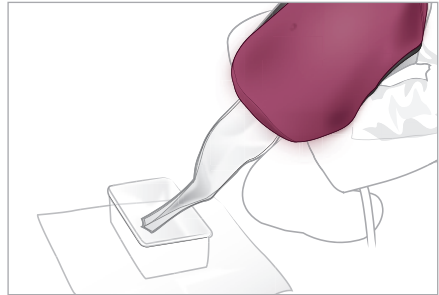


Place the green Squeaker Unit from NeoNatalie kit into the holder of the MamaNatalie waist belt.

### 5 Optional: Protection against fluid spillage



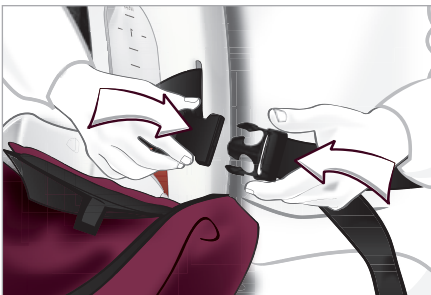
a) To avoid spillage: Attach the Fluid Drain to the backside of the Skeleton.



b) Place the Floor protector under the Collection Tray. Ensure that the end of the Fluid Drain is inside the Collection Tray.

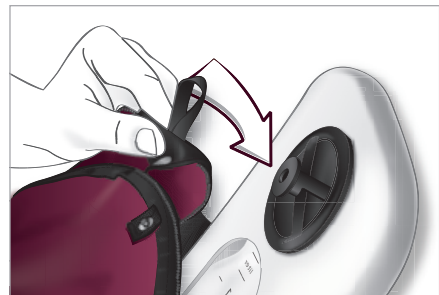
*Tip: Collect the blood in the Collection Tray for reuse by pouring it directly back into the Blood Tank.*

### 6 Attach MamaNatalie onto your body



Strap MamaNatalie around your waist. Adjust the belt so that the Simulator is secure and snug against your body.

### 7 Hang the Uterus over the hook



This will keep the Uterus in place when delivering NeoNatalie and the Placenta.

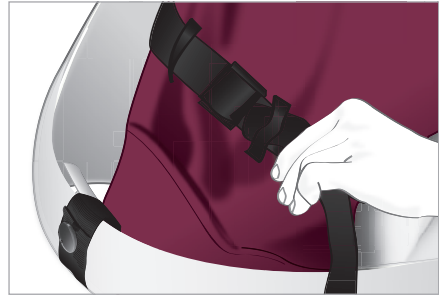


## 8 Optional: For Cervix Landmark

The Cervix Ribbon allows simulating a landmark for the cervix. This can be useful, for example when training on bimanual compressions.



- a) Pass the Cervix Ribbon (found in the accessories box) through the loops on the outer side of the uterus.

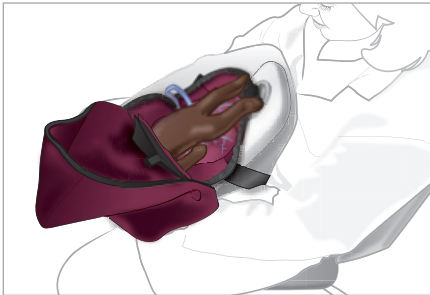


- b) Adjust the Ribbon to indicate cervix landmark and close the buckle.

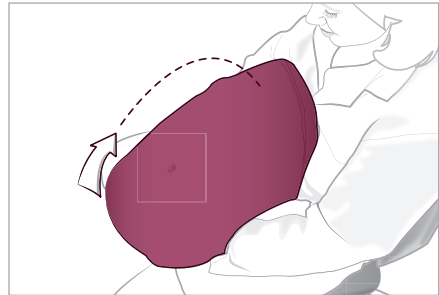
*Tip: Remove the Cervix Ribbon when cervix landmark is not needed during simulation training.*

## To operate MamaNatalie

### 1 Preparing for simulating birth



- a) Fold the Stomach Skin down. Open the Uterus.
- b) Insert NeoNatalie in the desired position and attach the Placenta to the velcro located inside the uterus.

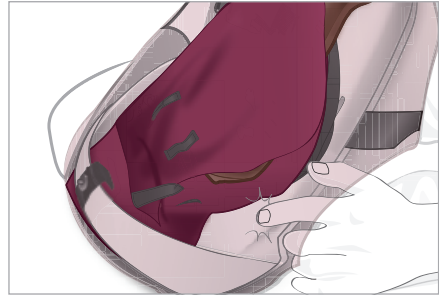


- c) Pull the Stomach Skin back, to cover the Skeleton.

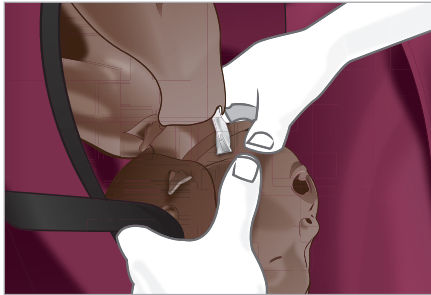
*Tip: To hide NeoNatalie's head from the birth opening: Place your hands between the Stomach Skin and the lower part of the Uterus Bag. Hold your hands around NeoNatalie's head and clamp the birth opening together.*

## 2 Simulation of fetal heart sounds:

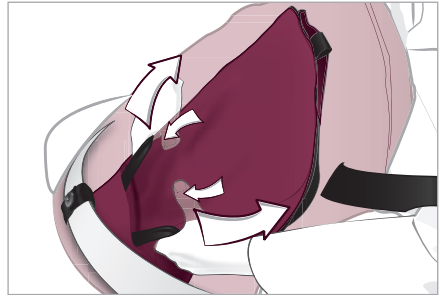
Use a finger to tap on the back part of the Skeleton to simulate the desired heart rhythm.



## 3 Delivering NeoNatalie



- Place your thumbs into the Uterus.
- Push down on NeoNatalie's body.



- Assist the delivery by gently pulling the straps with the push of NeoNatalie (this will open the birth opening and make it easier to deliver).

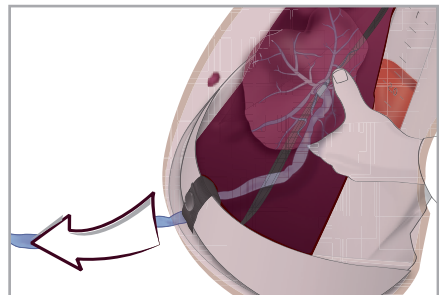
*Tips for increased realism:*

- For normal delivery, push directly on NeoNatalie's chin. Deliver the rest of NeoNatalie by pushing onto the body.
- For easier delivery lubricate NeoNatalie's head with a few drops of water or baby oil before putting NeoNatalie into the Uterus.
- During delivery, manipulate NeoNatalie as in a natural birth, for example by rotating the baby after the head is delivered. This is done simply by holding onto NeoNatalie's body inside the uterus, while rotating the body as desired.

## 4 Delivering the Placenta

After NeoNatalie is delivered, detach the Placenta from the velcro inside the uterus with your hands.

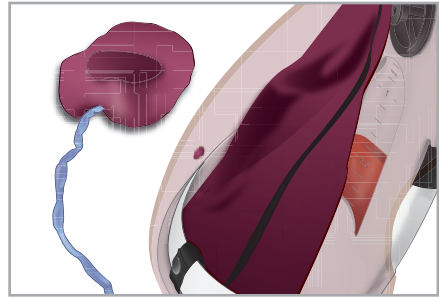
*Tip:* To ease delivery, align the Placenta vertically.



**Placenta conditions:**

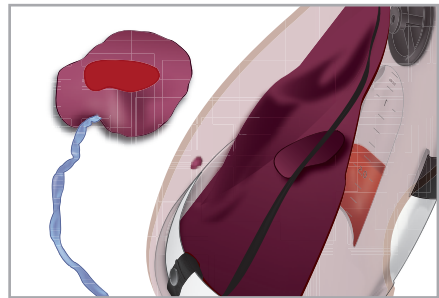
*Delivery of complete Placenta:*

Detach the complete Placenta from the velcro inside the uterus.



*Delivery of incomplete Placenta:*

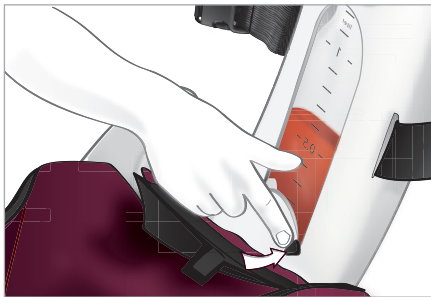
Detach the Placenta from the velcro inside the uterus, but leave the small part attached inside the uterus.



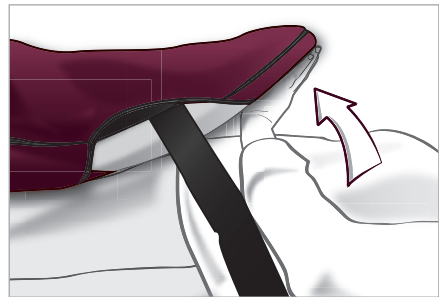
*Retained Placenta:*

Do not detach the Placenta. If the learner is pulling the cord, hold onto the Placenta with your hands to ensure it stays in place.

**5 Controlling blood flow**



When starting with the Blood Valve in a closed position: Push the Blood Valve inwards and slide it sideways to regulate blood flow.

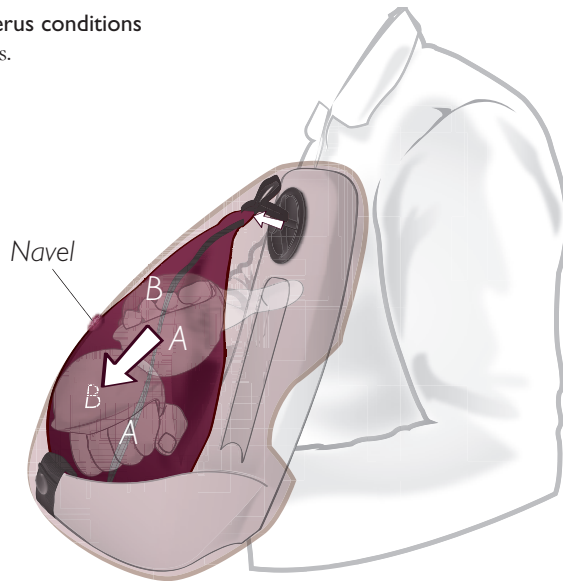


*Note: If the operator lies flat, tilt MamaNatalie forward to keep the blood running.*

*Note: The handle has three positions: Closed, Half-way and Full. The maximum blood flow rate is 300 ml/minute.*

## 6 Controlling Uterus conditions

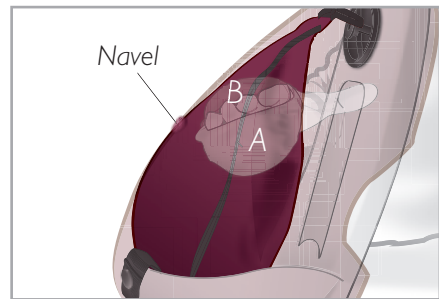
Unhook the uterus.



### To simulate Soft Uterus condition

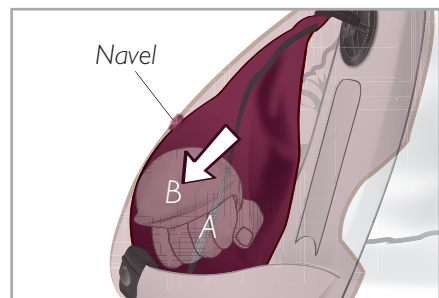
Hold the uterus air reservoir with a relaxed hand above the navel.

Note that your hand must be open (illustration on the right). When the Learner is palpating or massaging the uterus, the Learner will feel a soft uterus.



### To simulate uterus contraction

While moving the position of your hand forwards and below the navel, gradually squeeze reservoir A to simulate a uterus contracting and getting harder. Squeezing reservoir A fully, while pressing your hand forwards below the navel will simulate a fully contracted uterus (illustration on the right).



Tip:

- Before simulation of any uterus condition: Ensure that the uterus is unhooked.
- Hide your hand behind the Uterus Air Reservoir B by angling your hand as showed in the illustrations. The learner should not feel your hand.

- When simulating a soft uterus: Learners may start to palpate for the soft uterus from the pubic bone and upwards. With the uterus off the hook; you can move the soft uterus to a lower position and move it upwards, following the palpation from the learners into the appropriate position.

## 7 Urine Catheterization

Let the learner insert the urine catheter through the urethra until the bladder is empty.

## 8 Cervix Landmark

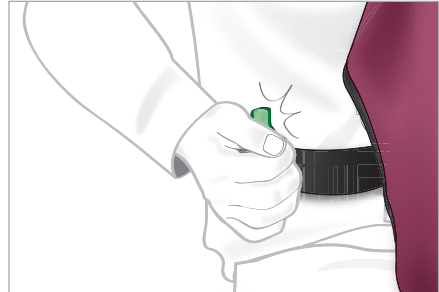
To create the cervix landmark, tighten the Cervix Ribbon to the desired level (see page 9).

## 9 Simulation of Baby Cries

Gently press the Squeaker Unit, located in the waist belt, to emit the sound of a crying baby.

## 10 Administration of medications

MamaNatalie has a Rectum where medications can be inserted. To simulate intramuscular administration of medications, use the 20 ml Syringe (do not use a needle).



## Tips for performing simulations

- Pay attention to the learners!
- Respond appropriately to the treatment given.
- Play and act as a birthing mother.

For demonstration videos and updated information visit: [www.laerdalglobalhealth.com](http://www.laerdalglobalhealth.com)

## Maintenance, storage and transport

### Cleaning and storage

#### Textile parts

For a light cleaning:

- 1 Use a soft cloth soaked in soapy water to clean all textile parts of MamaNatalie.
- 2 Rinse in clean water.
- 3 Hang to dry.

*Note: Do not hang MamaNatalie to dry in direct sunlight.*

For a more thorough cleaning:

- 1 Soak the *MamaNatalie* Stomach Skin in water for an hour (soaking the neoprene in water will dissolve salt and chemical build-up in the material).
- 2 Hang to dry, avoiding direct sunlight.

## Hard parts

Use a soft cloth soaked in soapy water to wipe off dirt.

## Blood and urine

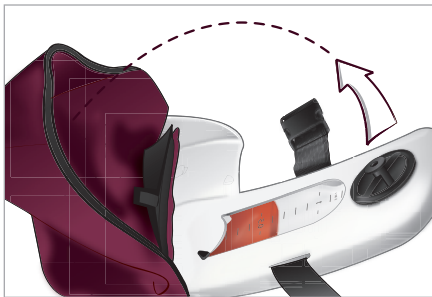
- Do not store *MamaNatalie* with blood in the Blood Tank over longer periods.
- Flush the Blood Tank with clean water or, alternatively a 0.2 % NaClO (sodium hypochlorite) solution.
- If improvised blood is used (hibiscus tea etc.), empty and flush the Blood Tank after every day of use.

## Warnings

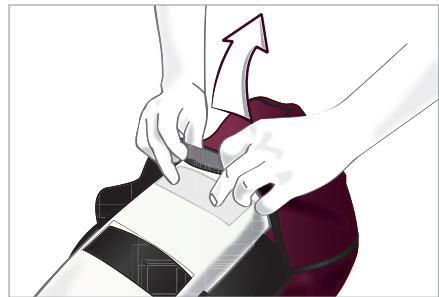
- Do not use strong washing detergents for cleaning, since it may damage the product.
- Do not leave *MamaNatalie* in direct sun light.
- Do not leave *MamaNatalie* wet inside a bag. Clean it and dry it after use.

## Disassembly and reassembly

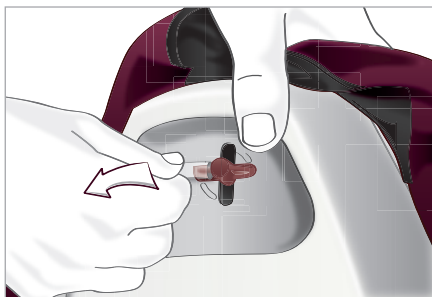
It may be practical to disassemble *MamaNatalie* before cleaning or other maintenance. In order to disassemble, follow the below steps. To reassemble, follow the steps in the reverse order.



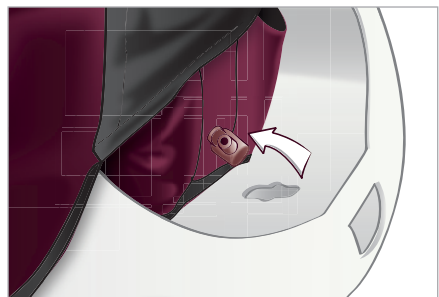
a) Remove the Stomach Skin from the top of the Skeleton



b) Detach the Stomach Skin from the back of the Skeleton.

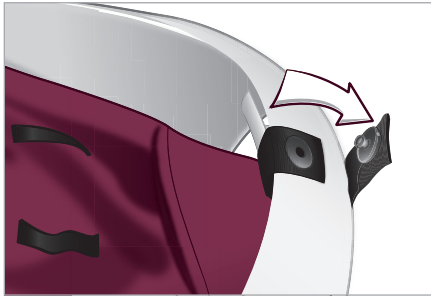


c) Pull gently on the Blood Tube to release it from the Blood Nipple.

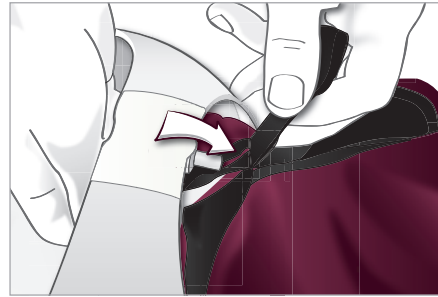


d) Twist the Blood Nipple 90 degrees to release from Skeleton.

*Tip: When reassembling, position the blood nipple into the opening of the Skeleton with the inlet tube pointing downwards. Twist 90 degrees to fixate.*



- e) Release the Uterus Strap by opening the press-stud band. The skin is now loose and can be removed from the Skeleton.



*Note: When reassembling, make sure the urethra is positioned well into the small opening of the Uterus Strap before closing the Uterus Strap around the skeleton. When correctly positioned, the urethra should be visible for the Learner from the outside.*

## Transport

*MamaNatalie* can be transported ready for simulation.

When transporting a water filled *NeoNatalie*, use the storage pouch included in the *NeoNatalie* kit. Alternatively transport *NeoNatalie* inside the Uterus of *MamaNatalie*.

## Troubleshooting

### Artificial blood flows when it should not

- Check that the Blood Valve is in the closed position.
- Check all components for leakage.
- If the Blood Tube seems to be blocked:
  - a) Fill the Penguin with water and try to flush the water through the tube from the blood outlet inside the uterus.
  - b) Inspect the tube from the Blood Tank. If the tube is deformed, massage the relevant point with your fingers until the tube has opened.

### Hard to push *NeoNatalie*'s head out of the vaginal opening

- Check that the Uterus hangs on the hook of the Blood Tank Cap.
- Check the position of the head.
- Check that the Stomach Skin is fixed with the Uterus Strap to the pubic bone.
- Try lubricating *NeoNatalie*'s head with a few drops of baby oil.

### Urine does not work as expected

- Inspect the Urine Bladder for air. If air is present remove air by squeezing the bladder with a urine catheter inserted into the urethra. Fill the Urine Bladder with water as instructed.
- While the Learner is catheterizing, the Operator can assist the fluid flow by gently pressing directly onto the Urine Bladder located behind the pubic bone.

Manufactured by Laerdal Medical in China.  
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