

# INSTRUCTION MANUAL

## THE S100 SUSIE® AND SIMON® NEWBORN ADVANCED CARE SIMULATOR

### **SIMA® MODELS**

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PLEASE READ THE FOLLOWING INSTRUCTIONS PRIOR TO  
COMMENCING TRAINING EXERCISES ON YOUR NEW MANIKIN.

HANDLE YOUR SIMULATOR IN THE SAME MANNER AS YOU WOULD  
HANDLE YOUR PATIENT - WITH CARE AND CONSIDERATION.

SHOULD YOU HAVE ANY QUESTIONS AFTER READING THIS  
INSTRUCTIONAL MANUAL, PLEASE CALL OUR TOLL-FREE NUMBER  
(800) 882-6655.

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## SECTION I - FEATURES AND CAPABILITIES

The size of this model is designed to simulate a child 0 to 2 months of age. It may be an effective training tool for patient care. It is to be used only as part of an approved training program for pediatric patient care.

The simulator features the following:

- ▲ Separately inset eyes for ophthalmic exercises
- ▲ Nasogastric and orogastric exercise capability
- ▲ Interchangeable male organ
- ▲ Removable reservoirs for:
  - stomach
  - bladder
  - rectum
- ▲ Soft, lifelike legs for practice of intramuscular injections in upper thigh
- ▲ Catheterization
- ▲ Enema administration
- ▲ Heel stick and finger prick
- ▲ T-shirt and diapers
- ▲ Custom carrying bag

Also available are the following options:

- ▲ Training arm and hand for intravenous access featuring radial and brachial pulse sites
- ▲ Intraosseous infusion system with replaceable tibial bones
- ▲ External stoma sites with internal reservoirs
- ▲ Umbilical catheter site with internal reservoir and drain
- ▲ Temporal venous access sites

## SECTION II - PATIENT CARE

### 1. Bandaging

The fingers and toes of this simulator are separated to permit bandaging exercises. The surface of the manikin is smooth and resistant to water, oil, and liniments.

### 2. Heel Stick Exercises

Both legs are molded from a very soft, lifelike material, permitting heel stick exercises.

### 3. Eyes/Ophthalmologic Exercises

The head has separately inset eyes, permitting the following exercises:

- ▲ Administration of orbital medicines, including instillation of drops or ointment into the conjunctival sac.
- ▲ Removal of foreign bodies.
- ▲ Eye irrigation.

### 4. Tongue

The simulator is supplied with a soft tongue.

### 5. Hygienic Care

The head has molded hair for cleanliness. The manikin surface is water resistant so that bathing exercises may be practiced.

### 6. Range of Movement

The arms and legs are soft and rotate within the torso body. The head, neck, and jaw articulate.

### 7. Nasogastric and Orogastric Exercises

Nasal and oral openings are connected to the stomach reservoir, so that an appropriately-sized catheter may be used to demonstrate tube feeding and gastric suction. The stomach is provided with an opening for gastrostomy. **ALWAYS USE A LUBRICANT WHEN INTRODUCING ANY CATHETER.**

The reservoirs/tanks may be cleansed by introducing a solution of soap and water, or a mild detergent with a large syringe.

## **8. Ears, Nose, and Throat**

Ear - The left ear contains a simulated ear canal, allowing simulated temperature measurement, or syringing exercises.

Nasal/Oral - Both the nasal and the oral openings are connected to the stomach tank, as discussed earlier.

## **9. Enema Administration**

Administration of an enema may be performed on this manikin. The simulator should be placed on its side, and the enema introduced with an anal nozzle of **small diameter**. Please note that a non-return valve is built into the anal passage to prevent fluid spillage during instillation.

## **10. Urinary System**

The urethral passage and the bladder are connected by a double diaphragm valve to make catheterization exercises more lifelike. Fluid may be withdrawn from the bladder after the insertion of an appropriately-sized catheter.

**CAUTION - ALWAYS USE A WATER-SOLUBLE LUBRICANT, SUCH AS K-Y JELLY, WHEN PERFORMING CATHETERIZATION ON THE SIMULATOR.**

## **11. Male and Female Organs**

The male and female organs are molded of sift vinyl. The male organ attachment simulates the external genitalia, complete with scrotum. The vaginal passage is closed at the introitus. Both male and female catheterization can be practiced.

## **12. Other Injection Sites**

The left and right arms and legs may be used for injection exercises.

## **SECTION III - OPTIONAL FEATURES**

### **1. S100.1 Pediatric Injection Training Arm**

The **Susie**® AND **Simon**® Pediatric Training Arm simulates the arm of a newborn child. It is an effective training tool for intravenous and certain arterial exercises. It is only to be used as part of an approved program for patient care.

The Pediatric Training Arm includes a blood dispensing syringe, synthetic blood concentrate, and a spare arm skin. The training arm contains anatomically located venous and arterial grooves which are fitted with soft latex tubes closely simulating the consistency of the veins. A translucent, pliable latex skin, which is removable and washable, is stretched over the training arm.

The Pediatric Training Arm provides:

1. A medial venous antecubital vein for IV exercises
2. Radial and brachial pulse points
3. Two veins in the dorsum of the hand for additional intravenous training techniques.

Applying pressure via the syringe permits the veins to stand out, simulating a clenched fist or a tourniquet situation. Release of the pressure simulates collapsed veins. Use of the syringe permits the palpability of the veins to be varied as seen in routine hospital or emergency situations.

### **INSTRUCTIONS FOR USE OF THE PEDIATRIC TRAINING ARM**

1. Place the simulator on a level surface.
2. Open the inlet "click valve" between the bag and arm. Close the outlet. Fill the system, using water initially. Once you are familiar with the system, mix the blood concentrate.
3. Open the outlet and allow air bubbles to escape.
4. Close both the outlet and the inlet.
5. Perform the appropriate exercises. See the detailed instructions described below.

6. When the training session is completed, open the outlet and drain the fluid.
7. Remove the syringe and drain the fluid.

## **INTRAVENOUS EXERCISES**

Setting up an IV line is an invasive procedure requiring an aseptic technique. The normal procedure for setting up an IV line using the simulator is as follows:

1. Apply desired pressure to the veins.
2. Squeeze the appropriate vein site and clean the skin with alcohol. Avoid use of povidone-iodine, as this will cause the latex skin to become discolored and brittle.
3. Omit tourniquet use if possible. If required, apply the tourniquet a few inches above the selected site.
4. Simulate anesthetization of the skin if needed.
5. Select a 22 gauge cannula and 23 gauge needle. Larger needles will damage the veins.
6. Apply finger pressure to the vein distal to the puncture site.
7. Puncture the skin and the underlying vein with the needle. The bevel of the needle should be up and the needle should be angled at a 20 - 30 degree angle. You can feel a "pop" as the needle enters the veins and you can note the blood return.
8. Stabilize the entry site as desired.
9. Apply ointment and dressing, and remove tourniquet, if used.

## **DISASSEMBLY AND RE-ASSEMBLY**

1. Remove the latex skin starting with either the hand or shoulder. Use talcum powder on the latex skin to ease movement. Remove the skin, exposing the veins and arteries.
2. Remove the veins and arteries from the grooves in the simulator. Replace the veins and arteries as required (see sketch on following page).



3. Assemble in reverse order, being certain to powder the inside of the skin before rolling it on.

## **CLEANING AND REPAIR**

1. The skin of the simulator can be cleaned with a mild detergent, or with soap and water. After drying the arm, lightly dust it with talcum powder. This will keep the training arm supple and easy to use. Note: dust the inside and outside of the latex skin lightly with talcum powder for ease in assembly.
2. If the venous system is blocked, first check that the tubes are not kinked. If blockage persists, remove the fist and flush the veins with water.
3. Indelible marks made with ballpoint pens, ink, or markers will remain.

## **2. S100.2 Intraosseous Infusion System**

### **Instructions for Use**

#### **CAUTION:**

The tibia bones supplied with your simulator are made from hard plastic that can be pierced by Intraosseous needle. Once holes have been made in the tibia it CAN leak. We have minimized leakage by controlling fluid pressure in the bone using inlet and drain valves. Proceed as follows:

1. Fill tank with water, open the inlet and drain valves and allow water to flow thru the system into a catch basin.
2. Once water is seen draining, close the inlet valve.
3. After about 10-20 sticks you may need to add water to the tibia bone. To do so, open the inlet valve a few seconds and reclose the valve.
5. Continue your IO exercises.
6. To change the tibia bones, first open the outlet and drain the fluid, remove the skin cover and remove the bone. Either use one end of the used bone or insert and re-attach the skin. Return to step 2.
7. When the training session is completed, open the outlet and drain the fluid.
8. Remove the syringe and drain the fluid.

9. Replace the bones and dry them for next session.
10. Instructor may seal the holes in the bone(s) that are made by the IO needle with "superglue."

## **INTRAOSSEROUS ACCESS**

Intraosseous infusion is the infusion of fluids, blood, and/or drugs directly into the bone marrow of the tibia or other large bone. It is a quick, simple solution to venous access in children when the alternate peripheral veins are barely visible or palpable.

Contraindications to intraosseous access include bone disorders, infected burns, cellulitis, or recent fractures.

*THE TIBIA ACCESS IS THE CHOICE IN THE EVENT THE VICTIM ALSO REQUIRES CPR INTERVENTION. THE HUMERAL ACCESS IS ONE CHOICE IN THE EVENT SEVERE ABDOMINAL TRAUMA OR BILATERAL FRACTURES ARE EVIDENT.*

Setting up an intraosseous access line is an invasive procedure requiring an aseptic technique. The site most recommended for the tibia is the anterior medial aspect of the tibia. Although any portion of the tibia can be used, the preferred site for properly locating the point of insertion of the needle is two (2) to three (3) centimeters below, and one (1) centimeter medial to the tibial tuberosity (the tibial tuberosity is the bump below the kneecap). Note that each tibial bone provided is modified, having a tibial tuberosity at the top and bottom of the tibial bone. This allows the bone to be rotated after repeated needle sticks. You may wish to apply conventional "superglue" or PVC sealant to the holes created by the needle sticks to prevent fluid leakage from the needle sticks.

The site recommended for the distal femur is 2 - 3 centimeters above the external condyles.

Locate the tibial site and clean the area with alcohol. Avoid the use of povidone-iodine, as this will discolor the simulator. Simulate anesthetization of the area if needed. The needle recommended for this procedure is a 16 gauge disposable bone marrow aspiration needle.

Caution must be used when inserting the needle. Once the insertion point is located, insert the needle and cannula by applying downwards pressure while rotating the needle back and forth until the bony cortex has been penetrated. A "pop," or sudden decrease in resistance signal entrance into the cavity. Now remove the central needle, leaving the cannula in place. If the needle/cannula has been properly inserted, fluid may be withdrawn using a standard syringe. In the event "blood" return is not observed, the student may not have penetrated the bone marrow cavity. The intraosseous access is only marginally stable and is easily dislodged from the pediatric

patient. Therefore the student should practice stabilizing the needle using, for example, a hemostat clamped to the needle hub and taped to the leg of the patient.

Once stabilized, the intraosseous access may be used to infuse fluids, drugs, and blood products. Be sure to flush the cannula with saline after each use.

It is recommended in the literature that the intraosseous infusion be conducted for the briefest amount of time, usually an hour or two, until a more secure intravenous line has been established.

### **3. S100.3 External Stoma Sites with Internal Reservoirs**

The creation of an ostomy port, a temporary or permanent opening, is an important part of abdominal surgery or certain treatments for chronic disease. These stoma connect with tanks representing the colon and the ileum of the small intestine. Disposable or permanent ostomy bags may be applied to all openings. Exercises in skin preparation and stoma hygiene, as well as treatment of skin conditions around the sites, may be practiced.

The reservoirs may be cleaned by introducing a solution of soap and water or detergent, administered through a large syringe. The reservoirs should be irrigated through the red flange opening, allowing the cleaning liquid to flow out through the ostomy port. To clean the cystostomy port, introduce the tip of a syringe through the opening and allow the cleaning liquid to flow out through the urethra.

**Remember to always use a lubricant when inserting a Levine tube or any other invasive device.**

### **4. S100.4 Umbilical Catheterization**

At birth and for only a few hours thereafter, the umbilicus can be used for intravenous access, and for measuring arterial blood gases/pressure. This simulator features umbilical venous access.

You may access this using an appropriately-sized umbilical catheter. Lubricate the distal tip and insert the tip **JUST BELOW** the level of the skin. Infusion exercises may then be practiced. A reservoir within the simulator collects the fluid, which can be drained via a port on the torso.

## **5. S100.5 Temporal Venous Access**

The head of the simulator contains four temporal veins; two on each side plus left and right jugular veins. The veins are fitted with internal grooves in the scalp and are replaceable. Also included is the intravenous supply bag also used for the intravenous arm. Blood concentrate for the intravenous arm is also used here. The infusion needles are supplied by the Instructor. The face skin is made from a material that tends to heal itself after needle sticks. In the event replacement is ever required, the face skin is easily replaced. Call Customer Service for spare parts.

## SECTION IV - GENERAL NOTES

### 1. Catheters - Troubleshooting

There may not be an immediate outflow of water on introduction of the catheter, especially if catheterization is performed with the manikin in the supine position. Should an airlock/ blockage occur, simply inject air through the catheter. This should cause the reservoir to function normally.

**Gaumard** simulators are designed to simulate the sensitivity of the human urinary system. For this reason, the bladder tank will disengage internally from the flange in the event that a catheter is inserted with excessive force. In this case, remove the catheter, reattach the bladder tank, and reinsert the catheter more gently, applying lubricant as necessary.

### 2. Emptying the Reservoir System

- A) To remove the remaining fluid from the bladder reservoir after catheterization exercises are complete, sit the model up over a bedpan with the catheter in place.
- B) Purging the entire system of fluid may be accomplished by "squeezing" out the fluid.

### 3. Filling of the Bladder

The bladder should be filled through the suprapubic opening. This may be done in one of two ways. Instillation of water through introduction of an appropriate funnel at the suprapubic site; or, by using a catheter with a large syringe.

### 4. Internal Cleaning

All internal reservoirs may be removed for cleaning. GENTLY disengage each tank by firmly grasping the tank at the base of the red flange that connects the tank to the torso, and easing the red flanges away from the body until the tank is completely disengaged.

### 5. Lubrication

When introducing any invasive device, always use a lubricant, such as one of the following:

- ▲ a drop of soap with water
- ▲ K-Y Jelly
- ▲ non-stick cooking spray

Procedure to use the filling/pressurizing tank kit.

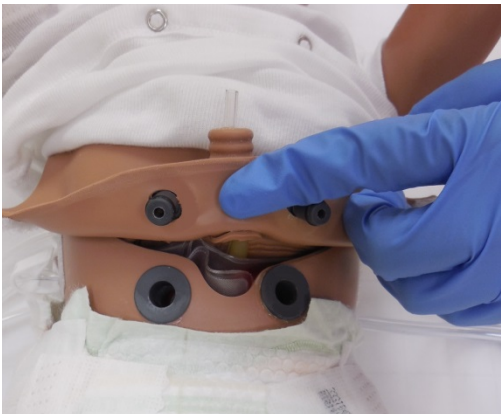
- 1) Locate the filling/pressurizing kit.



- 2) Remove simulator's clothes.



- 3) Detach simulator's skin cover to access filling ports.



- 4) Insert filling port adapter (gray piece) into the port to be filled until it stops.



- 5) Attach included syringe (filled with fluid) to the fitting at the end of tubing and start filling the internal tank.



- 6) Repeat the operation until the desired pressure/filling level is achieved.

- 7) Leave the adapter inside the filling port to keep the tank's internal pressure and proceed to perform the catheterization exercise.

## **6. Cleaning**

The skin of the manikin may be cleaned with a mild detergent, or with soap and water. Do not clean with harsh abrasives.

Indelible marks made with ballpoint pens, ink, or markers will remain.

Do not wrap the manikin or any **Gaumard** product in newsprint.

Do not use povidone-iodine on this manikin or any **Gaumard** simulator.

**If you have any questions pertaining to the this or any Gaumard product,  
please call the Customer Service Department at (800) 882-6655  
for additional assistance.**

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