

S401
ADVANCED INTRAVENOUS
TRAINING ARM

GAUMARD® SCIENTIFIC COMPANY, INC.
14700 SW 136 Street
MIAMI, FL 33196-5691

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PLEASE READ THE FOLLOWING INSTRUCTIONS PRIOR TO
COMMENCING TRAINING EXERCISES WITH YOUR NEW SIMULATOR.

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.

or

e-mail: sima@gaumard.com

INTRODUCTION

The **Gaumard®** S401 Advanced Intravenous Training Simulator accurately represents an adult arm and hand, complete with the Cephalic, Basilic, Antecubital, Radial, and Ulnar veins. The simulator also features subcutaneous injection sites on the volar side of the forearm and the lateral side of the upper arm, as well as an intramuscular injection site in the deltoid area.

This simulator is an effective training tool for infusion, and blood collection, as well as intravenous, subcutaneous, and intramuscular injections. It is to be used only as part of an approved program for patient care.

The simulator contains anatomically-located venous grooves, which are fitted with soft latex tubes that closely simulate the consistency of the human veins. A translucent, pliable latex skin, which is removable and hand washable, is stretched over the venous structure.

The simulator is supplied in a carrying bag. The carrying bag contains the simulator mounted on a Lucite® base, a fluid dispensing bag attached to a metal stand, synthetic blood concentrate, and a spare arm skin.

Simulated blood or other appropriate fluids may be placed in the dispensing bag, which is equipped with a squeeze bulb. Applying pressure via the squeeze bulb permits the veins to stand out, simulating a clenched fist or tourniquet situation. Release of pressure simulates collapsed veins. Use of the squeeze bulb permits the palpability of the veins to be varied, as seen in routine hospital or emergency situations.

INSTRUCTIONS FOR USE

SUMMARY:

1. Place the simulator on a level surface and raise the vinyl bag into position.
2. Close the white "click valve" at the outlet and fill the system with fluid. Use water initially. Once you are familiar with the simulator, use the blood concentrate.
3. Open the outlet and allow any air bubbles to escape.
4. Close the outlet.
5. Perform the intravenous, subcutaneous, or intramuscular procedures. See the following detailed instructions.
6. Note that use of needles larger than 22 gauge will reduce the skin/vein life.
7. The skin and veins are designed to show even minute leakage when an eccentric puncture is performed. A "perfect" stick will show little or no leakage.
8. When the training session is completed, open the outlet and drain the fluid.
9. Clean with water. See detailed instructions.
10. Call Customer Service at 1-800-882-6655 in the U.S.A. or (305) 666-8548 worldwide to place orders for additional skins, veins, and other replacement parts.

IV EXERCISES

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

1. Apply the desired pressure to the veins via the squeeze bulb.
2. Select 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. Apply the tourniquet 4-6 inches above the selected site.
4. Simulate anesthetization of the skin if needed.
5. Select a 14-18 gauge cannula and a 19 gauge needle for infusing large amounts of fluid, or a 20 gauge cannula and a 21 gauge needle for general infusion, or a 22 gauge cannula and a 23 gauge needle for a child.
6. Apply finger pressure to the vein distal to the puncture site.
7. Puncture the skin and the underlying vein with needle. The bevel of the needle should be up, and the needle should be angled at a 20-30 degree angle. You will feel a pop as the needle enters the vein and you will be able to note blood return.
8. Stabilize the entry site as desired.
9. If instructed, a catheter may be advanced over or through the needle. Remove the needle and attach the infusion tubing to the catheter.
10. Apply ointment and dressing and remove the tourniquet.

INJECTIONS IN THE DORSUM OF THE HAND

Three veins are supplied in the dorsum of the hand for additional intravenous exercises.

The simulator is shipped with the antecubital area of the arm presented, and the hand shown palm up. In order to access the veins in the dorsum of the hand, please follow these steps:

1. Roll the skin up the arm until the wrist is exposed.
2. Gently remove the 2 pins that secure the hand to the arm. A small pair of needle-nose pliers is ideal for this use.
3. Once both pins are removed, gently rotate the hand **CLOCKWISE** one-half turn until the veins in the dorsum of the hand are visible, and the holes in the arm and hand are lined up.
4. Replace the pins and roll the skin over the hand, concealing the veins.
5. To turn the hand over so that the palm is again presented, reverse the process by rolling up the skin, and removing the pins.
6. Turn the hand **COUNTERCLOCKWISE** so that the palm is again presented.

*It is very important that the hand be turned only **COUNTERCLOCKWISE** so that the internal veins do not become kinked and prevent the flow of liquid.*

SUBCUTANEOUS AND INTRAMUSCULAR INJECTIONS

An injection is an invasive procedure requiring an aseptic technique. Absorption of drugs is somewhat slower in subcutaneous injections as compared with intramuscular injections. The needle size for subcutaneous injections is usually 25-27 gauge, and $\frac{1}{2}$ to $\frac{7}{8}$ inches long. For intramuscular injections, the needle size is 20-23 gauge and is usually $\frac{5}{8}$ to $1\frac{1}{2}$ inches long. A nominal procedure is as follows:

1. Select the injection site.
2. Palpate the area for tenderness, masses or edema.
3. Clean the site with an antiseptic.
4. For subcutaneous injections, spread/stretch the skin across the site, or pinch the skin. Inject the needle quickly into the skin at a 45 degree angle and release the skin.
5. For intramuscular injections, spread/stretch the skin across the site and inject the needle into the skin quickly at 90 degree angle.
6. After administering the injection, withdraw the needle quickly and swab the area with antiseptic.

ASSEMBLY OF THE SIMULATOR

1. Place the arm on a table or other flat surface.
2. Lift the hinged metal stand supporting the blood dispenser, and move the metal stand into position until it rests on the Lucite base. Check that the tubing is not kinked.
3. The veins of this simulator are designed to leak a small amount of fluid if the needle is not inserted correctly, simulating the response of the human body. Therefore, it is suggested that clean water be used in the system while students are learning correct venipuncture techniques.
4. Once a basic skill level is achieved, follow the instructions for preparing artificial blood, as shown on the jar enclosed. Pour the blood into dispenser using a small funnel.
5. Remove entrapped air in the veins by locating a small cutoff valve near the shoulder of the arm. This valve is normally closed to prevent leakage. Release this valve and you will be able to observe the flow of fluid. As soon as the bubbles stop, the lines are completely filled with fluid. "Click" the valve closed, and the simulator is ready for use.

DISASSEMBLY AND RE-ASSEMBLY

1. Remove the clenched fist by rolling up the latex skin, freeing hand/forearm. Remove the four plastic pins that secure the hand to the forearm, and gently slide the hand off. Roll the skin back into place.
2. Starting at the top of the arm, remove the skin by rolling it down and over the wrist. This will expose the veins. Use talcum powder to ease movement.

CLEANING & REPAIR OF THE S401 ADVANCED INTRAVENOUS TRAINING ARM

1. The skin of the **Gaumard** S401 Advanced Intravenous Training Arm can be cleaned with a mild detergent, or soap and water. Do not use harsh abrasives. After drying the arm, lightly dust it with talcum powder. This will keep the training arm supple and easy to use.
2. If the venous system is blocked, first check that the tubes are not kinked. If blockage persists, remove the fist and flush veins with water.
3. Indelible marks made with ballpoint pens, ink or magic markers will remain.
4. **DO NOT** use povidone-iodine or any similar solution on the simulator.
5. Do not wrap this simulator or any **Gaumard** product in newsprint.
6. Call Customer Service at 800-882-6655 for questions not answered in the instruction manual.

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

S401 ADVANCED INTRAVENOUS TRAINING ARM

VIEW OF ARM
WITH PALM DOWN

