

# INSTRUCTION MANUAL

## Advanced IV Hand

LF01139 – Light Skin

LF01146 – Dark Skin



# About the Simulator



The Nasco Healthcare Advanced IV Hand Simulator duplicates the human condition as closely as modern plastics technology allows – it is almost the real thing. Its care and treatment should be the same as with a patient; abuse or rough handling will damage the simulator – just as it would cause pain or injury to a patient.

This unit is the simulation of the entire human hand from the wrist to the fingertips. Externally, the skin texture is realistic to the touch, and the fingertips actually have fingerprints.

Although this hand will provide you long trouble-free usage, the skin and veins can be readily replaced when needed. The outer skin is easily peeled off, revealing the “core” and veins, providing, literally, a brand new hand. The life of the replaceable skin and veins will be prolonged by utilizing smaller needle sizes (such as 20- to 25-gauge). However, if instruction with larger needle sizes is required, this can be done; the skin and veins will merely need to be replaced sooner. Replacement Skin and Vein Kits are available through Nasco (see list of supplies). Actual product may vary slightly from photo. Nasco reserves the right to change product color, materials, supplies, or function as needed.

## List of Components

- 3 cc syringe with needle
- 12 cc syringe with needle
- 2 IV bags
- Needle (butterfly)
- 2 pinch clamps
- 2 small towels
- Infusion set (butterfly)

# Instructions for Use

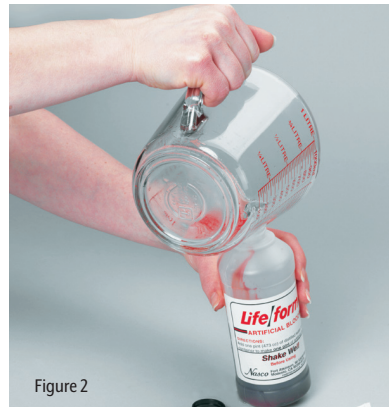
## INTERNAL STRUCTURE

Internally, the vascular structure (rubber tubing) includes injectable metacarpal, digital, and thumb veins. The venous system is constructed of special self-sealing rubber tubing, with the lumen being the approximate size of a human vein. (See Figure 1.) The vascular structure has an inlet tube and an outlet tube below the wrist, and it is via these tubes that the venous system is filled. Thus, the techniques of blood drawing and starting intravenous infusions may be practiced on the Advanced IV Hand.



## GENERAL INSTRUCTIONS FOR USE

The Advanced IV Hand comes with all of the supplies necessary to perform most procedures. (To perform intravenous infusions, the user must supply their own IV set and a bag of solution.)



### A. Preparing the Synthetic Blood

1. Add 1 pint of distilled water to the synthetic blood concentrate. (See Figure 2.)
2. Hang one of the bags (bag A) approximately 18" above the level of the hand, making sure the clamp on the IV tubing is closed. Pour the "blood" into the bag. (See Figure 3.)
3. Attach the fitting end of the IV tubing to one of the wrist tubes. Important **Note:** Before completing step 4, bag B must lie at hand level or below with the cap closed.



# Instructions for Use

4. With the other wrist tube attached to the empty IV bag (bag B), flush the vascular system with synthetic blood by opening the clamp of the filled IV bag (bag A). **(See Figure 4.)** Allow some “blood” to pass through the system until the outlet wrist tube to bag B runs free of bubbles. When the outlet tubing to bag B runs clear of bubbles, close the clamp on bag A.

5. The venous system is now full of “blood” and pressurized. Be sure to leave the clamp on the inlet tubing (bag A) opened.

6. The hand is now ready to practice drawing “blood.” “Blood” can be drawn anywhere along the pathway of the vein. **(See Figure 1.)** Distilled water should be used to prepare the sites. Synthetic blood will actually be aspirated once the vein is properly punctured.

7. Small diameter needles (20- to 25-gauge) should be used.

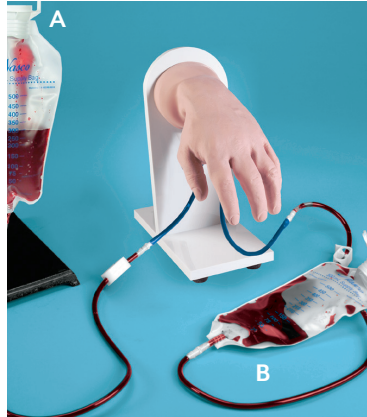


Figure 4



Figure 1

## B. Preparing the Hand for Intravenous Infusions

(At this point, you will need to supply an IV set and bag of solution. Hook them up and have them ready.)

1. To hook up the hand, refer back to steps 1-5 in section A.
2. Insert the butterfly needle into a vein. Flashback will indicate proper insertion.
3. If flashback is observed, close the clamp on IV bag A. You are now ready to set up for intravenous infusion.

# Instructions for Use

4. Hang the IV solution bottle and connect the IV set to the butterfly needle already in the vein. With the clamp on bag A closed, open the clamp on bag B. Proof of the proper procedure is evidenced by the flow of the infusion fluid from the solution bag. Control the flow from the solution bag by adjusting the roller clamp on the tubing of the IV set.

## CAUSES FOR FAILURE IN FUNCTION

- A. Forgotten closed clamp.
- B. Kinks in tubing of the fluid bags.
- C. Tubing pinched shut by constant pressure of clamps. Lumen remains pinched occasionally even if the clamp is loosened. Slide clamp to new position and with fingers manipulate tubing at pinched site to restore lumen. In heavy use, slide clamp to new position on tubing from time to time to prevent the “permanent pinch” caused by constant clamp pressure.
- D. If these measures do not unclog the venous system, try using a large (50 cc) syringe to force fluid through the tubing.

## CARE OF SIMULATOR

After each class use, close the clamps, disconnect bags, and return synthetic blood to storage container. Reconnect one IV bag to the system. Fill the bag with tap water and flush the venous system, allowing the open end to drain into a sink or basin. When the system runs clean, close the clamp and remove the IV bag. Excess water may be removed from the hand by raising the hand, lowering the wrist, and draining it into a sink or basin. Wash the outside of the hand with Ivory liquid detergent and water. Always remove the pinch clamps from the wrist tubing and drain excess water from veins before storing.

Ordinary stains can be removed by washing the hand with soap and warm water. Newsprint, similar printed paper, or ink will permanently stain the simulator if prolonged contact occurs. Stubborn stains may be removed with Nasco Cleaner (LF09919) simply by dispensing it on the area and wiping with a soft cloth or paper towel.

## CAUTIONS

- This synthetic blood is specially formulated to be compatible with the self-sealing veins and plastics used in manufacturing the arm.
- DO NOT use dull or burred needles, as these will cause leaks in the system. Burred needles will cause permanent damage. Use smaller needles (20- to 25-gauge).
- DO NOT allow “blood” to dry on the simulator – it may stain the hand.
- Use only 500 cc of infusion fluid, as a larger amount will also increase the pressure of the venous system, resulting in leaks.
- DO NOT clean the simulator with solvents or corrosive material, as they will damage it.
- The Nasco Vein Tubing Sealant Kit (LF01099) will extend the useful life of the tubing.

## SUPPLIES/REPLACEMENT PARTS

**LF00845** Venous Blood, 1 quart

**LF00846** Venous Blood, 1 gallon

**LF01099** Vein Tubing Sealant Kit

**LF01130** Fluid Supply Bag

**LF01140** Replacement Skin & Veins, Light Skin

**LF01147** Replacement Skin & Veins, Dark Skin

**LF01141** Replacement Veins Only

**LF01022** Fluid Supply Stand

**LF09919** Nasco Cleaner

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