



OVERVIEW

This guide covers preparing the US Neo ECMO neonatal simulation model for use: lubricating and installing the jugular and carotid vessels, assembling the base and heart, mixing and priming a blood solution, priming the model itself, running a demo access-and-dilation procedure, and — importantly — the manufacturer's recommended draining, cleaning, and storage steps between uses.

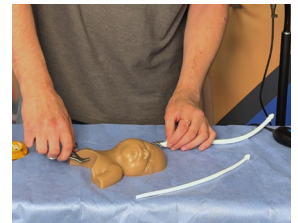
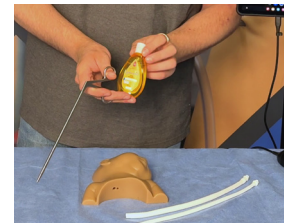
COMPONENTS REFERENCED

- Neonatal ("baby") model body with jugular vein (larger vessel) and carotid artery (smaller vessel)
- Provided forceps and baby soap (used as lubricant)
- Base assembly with a removable top and optional legs for extra height
- Pre-assembled IV tower with a three-prong hook
- 1847-6 Clear heart, supplied in its own case, attached via a thumb screw
- Multiple stopcocks with luer connections (two needed for setup)
- IV line/tubing and a provided IV bag
- Blood solution (mixed separately before priming)
- Needle, guidewire, and dilator/cannula for the demo procedure
- Provided 8 mil plastic storage bag and a breakdown storage case/bag

NOTE: Replacement parts available at www.sawbones.com

PREPARING THE VESSELS

1. Using the provided forceps, apply a little baby soap (as lubricant) to either side of the model's vessels — it doesn't matter which side you start with. Use the forceps to coat the inside of the vessel.
2. Start with the larger vessel — the jugular — which begins on the (baby's) right side. A little extra lubricant on the hose or your finger isn't always necessary, but makes it noticeably easier to pull through. Latch on and pull the vessel through the model.
3. Repeat with the smaller vessel — the carotid — lubricating along its length, then grab and pull it through the same way.
4. The model is now ready to be placed onto the base.



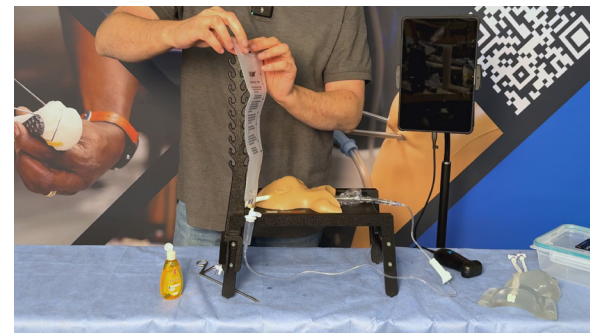
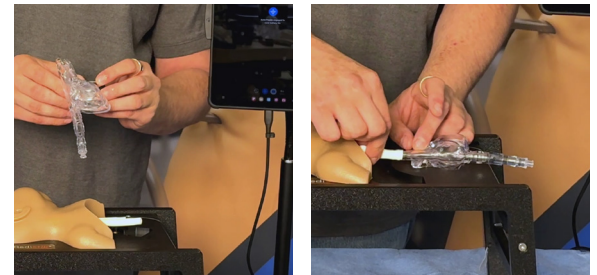
ASSEMBLING THE BASE & IV TOWER

1. The base assembly has a removable top, so it can sit directly on a table, or you can use the provided legs if you need extra height — slide the legs in.
2. The IV tower comes pre-assembled and has a three-prong style hook. Line up one hook over the ledge and place it — this locks the tower to the base. It can be oriented to whichever side you prefer.
3. Place the baby (with its vessels already installed) onto the base.



ATTACHING THE HEART & VESSELS

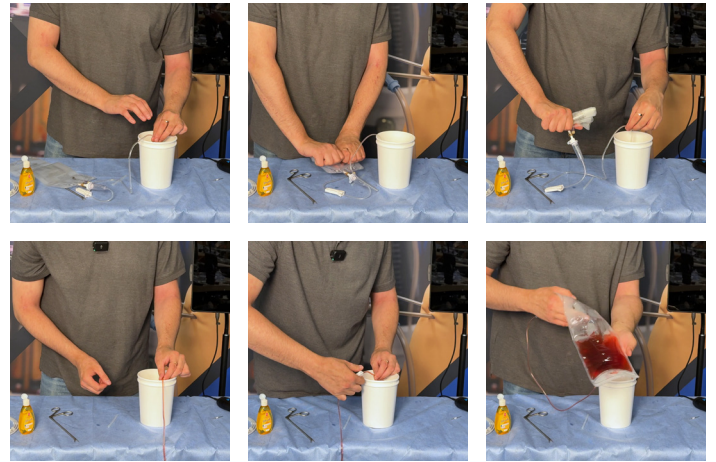
1. Take the 1847-6 Clear heart out of its case. Line up its thumb screw with the thumb screw hole in the base and thread it in. Once fully threaded, the heart shouldn't shake noticeably.
2. If your fingers are greasy from the lubricant, wipe them off first — greasy fingers make this step harder.
3. Attach the jugular to its barb on the heart first: push and use the friction of your fingers and thumb to slide the vessel over the barb.
4. If too much soap ends up on the inner lumen of the vessel, it can get slippery and pull off the barb easily. If that happens, dry the inside with a Q-tip, paper towel, or similar — the vessel needs good contact with the heart to seat properly.
5. Attach the carotid next, using the same push-and-friction technique.
6. With both vessels on, carefully pull out the slack in the vessels, working from one end toward the other. As you remove slack, shift the baby closer to the heart to take up the tension evenly.
7. Attach stopcocks to the luer fittings at the ends — you'll need two of them for setup (extra stopcocks are included in the kit for later use).
8. Thread the IV line onto the distal end of the heart via its luer connection.



MIXING & PRIMING THE BLOOD SOLUTION

Prepare your blood solution before priming the model. There are a few ways to prime the bag; the preferred method shown here is:

1. Submerge the distal end of the IV tubing in the blood solution and make sure it stays submerged.
2. Squeeze the IV bag to push out the air and create a vacuum, then release (drop) the bag — this pulls fluid up through the tubing and into the bag.
3. Once the bag is filled, cinch off the line's lock.
4. Spike the provided IV bag onto the line if you haven't already, and hang the filled bag up.



PRIMING THE MODEL

1. Thread the IV line onto the distal end of the heart via its luer connection. The elevated bag will already have a bit of pressure from gravity — open the line up.
2. Make sure both stopcocks are open, then let the heart and both vessels fill as completely as possible. Fully filled vessels help keep the system air-free and give you good ultrasound imaging later.
3. Watch the fluid fill the model, lifting or repositioning the heart/model as needed to help work any trapped bubbles out.
4. Once you're getting fluid blood return, close off both stopcocks — the model should now be fully primed and air-free.
5. Verify under ultrasound (gel or the provided soap both work fine as a coupling medium) that the model is fully primed and free of air.

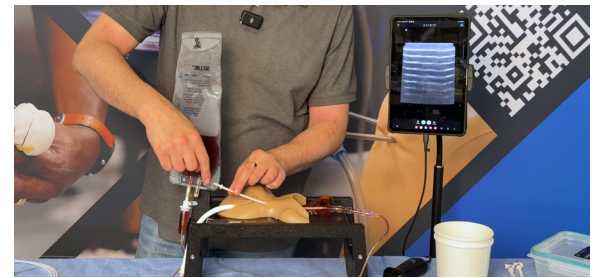
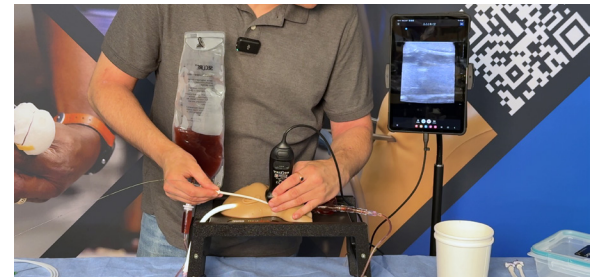


RUNNING A DEMO ACCESS & DILATION PROCEDURE

1. Scan the model to confirm priming and image the jugular under ultrasound.
2. Track your needle tip toward the vessel, adjusting position as needed, then puncture — you should feel a slight pop and get blood flashback.



3. Introduce the guidewire through the needle and thread it in. With the clear heart, you can actually watch the guidewire's position inside the heart on ultrasound, so you can place it exactly where you want.
4. Once positioned, remove the needle, leaving the guidewire in place.
5. With the guidewire in place, proceed to dilation. If you have a cannula, you can go on to a full cannulation and connect it to an ECMO unit.
6. Advance the dilator/cannula over the wire and watch it under ultrasound in long axis — you'll see the wire, then the dilator or cannula advancing down into the model. You can visualize placement both under ultrasound and by looking directly through the heart.
7. Remove the guidewire once you're satisfied with placement. For an actual cannula, this is the point where you'd locate it in the heart and adjust as needed.
8. Some flashback through the dilator or cannula while it's in place is normal. When you're done, pull it out — you should see very little leaking from the model afterward.



EXPECTED USAGE LIFE

Durability

The Neck model is good for roughly 15–20 solid cannulations. Vessels are good for up to 5 cannulations.

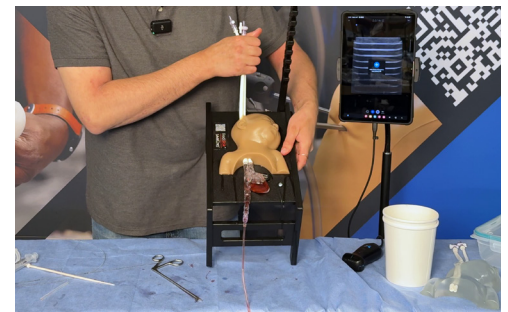
You may start to notice needle tracks over time, but in normal use there's minimal visible damage at the access site even after repeated punctures — the tissue heals well.

Repeated cannulation and dilation will eventually build up visible artifacts, but the model should hold up for multiple uses beyond that.

If a vessel starts to show wear or leaking beyond repair, replace that vessel — once replaced, leaking should stop.

DRAINING AFTER USE

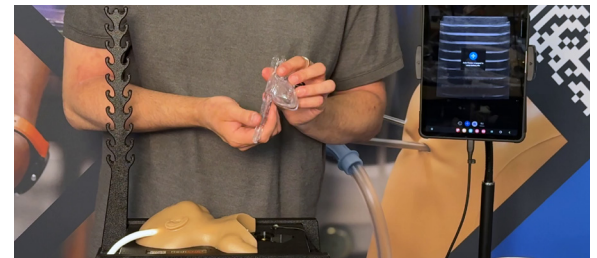
1. Make sure the IV line is fully open (not locked off).
2. Open both stopcocks and drop (lower) the bag — fluid should start draining back into the bag almost immediately.
3. You may have some residual fluid left in the heart depending on how it's positioned. Gently shake it to help work the majority of that fluid out.
4. Once most of the fluid has cleared, close off (or re-prime) the bag as needed, then remove it from the unit and set it aside.



DISASSEMBLY & STORAGE

Depending on how you use the model, you can leave some parts pre-assembled for next time — but per the manufacturer's storage guidance, it's recommended to fully disassemble the heart and vessels between uses.

1. Remove the heart by unthreading it from the thumb screw.
2. Pull both vessel tubes off the heart's barbs.
3. Wash out any residual fluid left in the heart under the sink, then let it dry completely before storing it back in its case. This matters: stored as a closed system with even a little leftover fluid, the heart can develop mold — so let it sit out until fully dry first.
4. Once the heart is dry, store it back in its case.
5. For the baby/model itself, pull out the vessel tubes the same way and run the model under water to flush it out.
6. Once ready to store, either place the model in the provided 8 mil plastic bag, or leave it out until fully dry before bagging it.
7. The base/case assembly also breaks down and packs back into its provided storage bag.
8. Dry everything off before putting it all away — then you're ready to set up again next time.



Why the dry-out step matters

The heart and model form a closed system once tubing is reattached. Storing them with residual fluid still inside — even a small amount — creates conditions for mold growth. Always let parts dry fully before boxing them up, and store the heart separately from the assembled base per the manufacturer's guidance.

QUICK REFERENCE: BEST PRACTICES

- Go easy on the soap lubricant inside the vessel lumen — too much makes vessels slip off the heart barbs; dry the inside with a Q-tip or paper towel if that happens.
- Pull vessel slack out gradually and evenly, shifting the baby closer to the heart as you go, rather than tensioning one end all at once.
- Fill the heart and both vessels as completely as possible while priming — fully filled vessels stay air-free and image better under ultrasound.
- Expect roughly 15–20 solid cannulations from the model before vessels need replacing.
- Drain the bag and model fully after every session before disassembly.
- Disassemble the heart and vessels between uses rather than leaving them fully built up, per manufacturer storage guidance.
- Let every part dry completely before storing — a closed, damp system can grow mold.

REPLACEMENT PARTS (WWW.SAWBONES.COM)



500-303-30

Ultrasound Neonatal
Internal Jugular and
Carotid Cannulation
Trainer, Clear Tone



500-303-32

Ultrasound Neonatal
Internal Jugular and
Carotid Cannulation
Trainer, Medium Tone



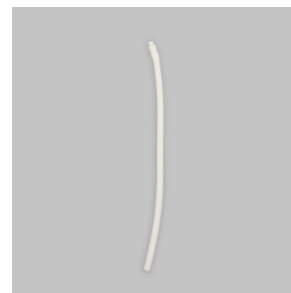
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Ultrasound Neonatal
Internal Jugular and
Carotid Cannulation
Replacement, Clear Tone



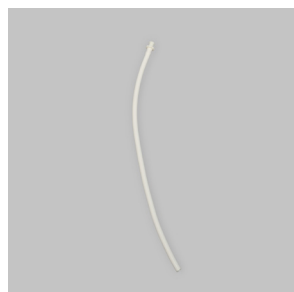
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Ultrasound Neonatal
Internal Jugular and
Carotid Cannulation
Replacement, Medium
Tone



599-50-1

Ultrasound Neonatal
Internal Jugular Vessel
Replacement



599-50-2

Ultrasound Neonatal
Carotid Vessel
Replacement