



RediStik®

ECMO Cannulation Trainer

A collaboration between:



and



**Texas Children's
Hospital®**

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Visit sawbones.com for more information, including set-up videos and skills overview.

I. ABOUT THE RediStik® ECMO CANNULATION TRAINER

Anatomically accurate design provides all steps for Pediatric ECMO neck cut down, cannulation, connection to ECMO circuit and de-cannulation in an 18-25 kg patient. Model accommodates 15Fr arterial, 15-17Fr venous and 20Fr VV cannulas.

THIS TRAINER FEATURES:

Neck simulator (single use):

- Right side of neck with anatomically accurate landmarks (mandible, clavicle, SCM)
- Realistic tissue layers (skin, fat, platysma, SCM and vagal) for cutting and spreading to expose the vessels. **SCM can be spread, cut or encircled and laterally retracted to expose vessels.**
- **Correct neurovascular (IJV/Carotid)/vagus nerve** positioning, color and feel allows for accurate exposure, cutting, applying traction sutures/tourniquet to control the vessels, and cannula insertion

Heart (reusable design):

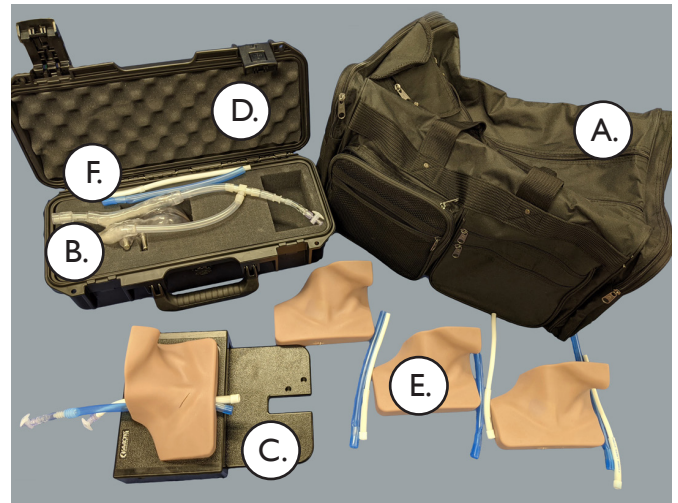
- Transparent heart provides visualization during insertion of the wire/cannula
- Provides closed loop system to connect to the ECMO circuit
- An elevated liter bag of saline creates pressure in the system to allow for realistic “bleed back”, so a pulsating pump is not necessary.

2. PARTS OVERVIEW

RediStik® ECMO Cannulation Trainer Kit:

- A. (1) Duffle bag
- B. (1) Heart/fittings (spare set of fittings for carotid/ IJV+3 extra stopcocks)
- C. (1) Securement base for heart/neck
- D. (1) RediStik® ECMO Heart case
- E. (4) Necks/vessels/vagus nerves (part #1846)
- F. (1) Spare Vessel Set (one IJV/one carotid - part #1846-5)
- G. (1) Color tabs (not depicted in picture)
- H. (1) Small liquid soap (not depicted in picture)
- I. (1) Instructions (not depicted in picture)

(Neck/vessels are for **single use**. The heart, base for neck/heart, RediStik® ECMO Heart case, and duffle bag are **reusable**.)



3. SET-UP/USE INSTRUCTIONS

Trainer set-up is the same for the RediStik® ECMO Cannulation Trainer *without* 3D Heart.

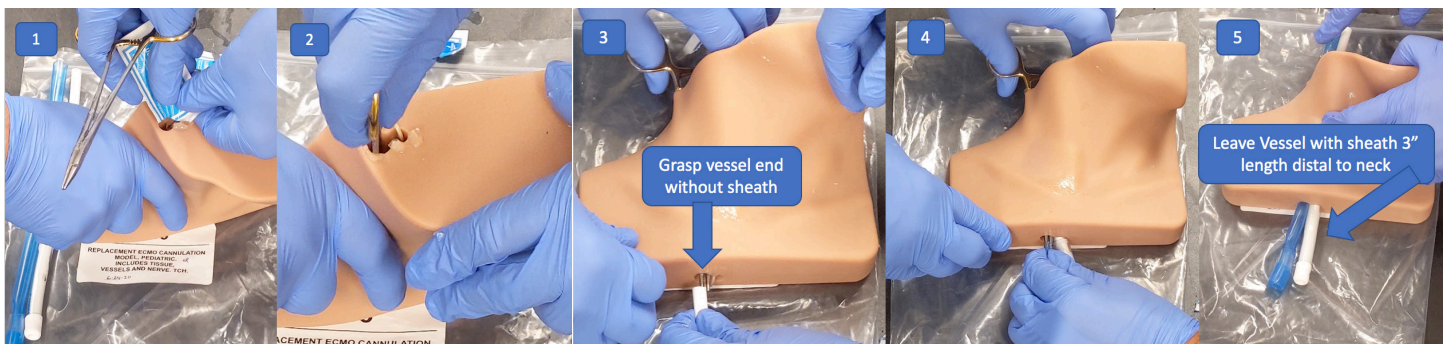
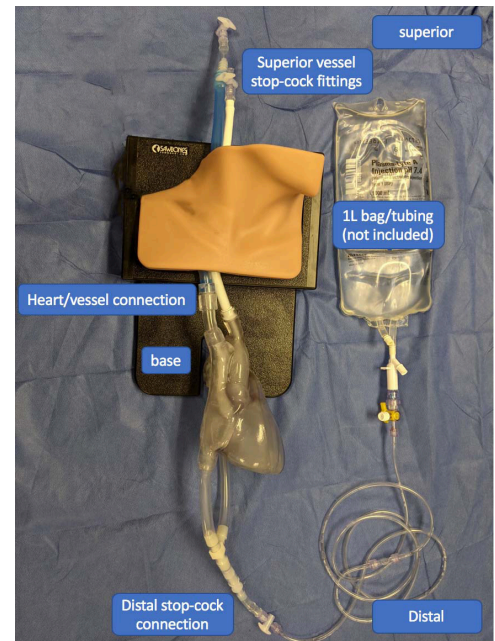
I. Supplies needed:

Included in kit — heart/base, new neck, reusable IJV/Carotid fittings, lubricating jelly, liquid soap, color tabs used to prime ECMO circuit (less likely to stain than traditional dyes).

Not included in kit — towels, absorbent pads, vessel loading instrument (tubing clamp), surgical drape/towels/4x4, 1 Liter bag/extension tubing, surgical instruments.

2. Load vessels into neck simulator:

1. Apply 1-2 packets of lubricating jelly inside neck openings with 8" or longer tool such as needle driver or standard tubing clamp.
2. Gently slide instrument from superior portion of neck going toward heart spreading the lubricating jelly inside the neck.
3. Grasp carotid vessel end (**portion of vessel without sheath over vessel**) and gently pull vessel through neck. Ensure you pull through the side of the vessel without the sheath. The portion of vessel with tubing connects to the heart and should be distal to the neck.
4. Repeat steps with IJV.
5. Leave about 3" length for each vessel distal to the neck (this allows enough slack to adjust and connect to heart).



6. Connect superior portion of IJV and carotid to the reusable vessel stop-cock fittings (**Dry off all lubricating jelly around connection site prior to connecting helps get them on easier**).
7. Ensure vagal nerve is midline between both vessels.

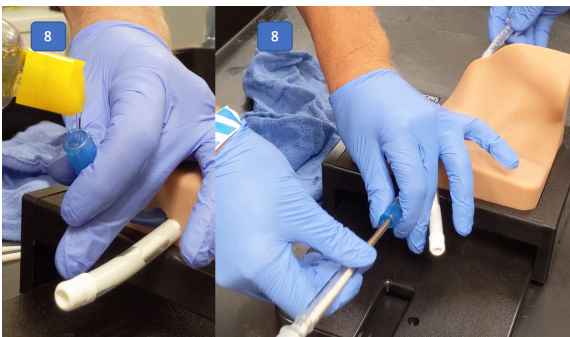


Scan QR code to access set-up and skills training videos.

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3. Attaching heart and priming:

8. Lubricate inside both vessels (DO NOT SKIP THIS STEP): slowly drip liquid soap inside vessels, gently insert a cannula to lubricate cannula and vessel, drip more soap into vessel opening and gently slide cannula inside vessel once more, dry off any soap on outside of vessel that connects to heart.
9. Connect both vessels to the heart by pushing vessel with tubing sheath into heart/vessel connection. Once both vessels are connected to the heart, fit the two-metal post on bottom of the heart to the two matching holes in the base. Next gently work out vessel slack inside neck by holding vessels securely at heart connection while pulling from superior vessel stop-cocks.
10. Ensure neck is aligned on base, vessels are in good position and vessel connection to heart is secure.
11. Connect IL bag with water to distal stop-cock connection below heart and ensure all fittings/connections are secure before priming. (Gather a few towels under trainer)
12. Open distal and IJV/Carotid stop-cocks to prime
 - I. To remove air in heart: Complete priming by rotating base with heart/neck intact with right side of heart up and air bubble easily come out of heart via IJV stop-cock.
13. Lay base flat, ensure neck is aligned properly on base, vessels are still securely connected to the heart and vessel slack is adjusted. Open both IJV/Carotid stop-cocks to remove residual air and evaluate bleed back flow.
14. Check for leaks at all connections.
15. Use color tabs* to prime the ECMO circuit (turning on the circuit provides color change in heart giving visual confirmation successful cannulation).



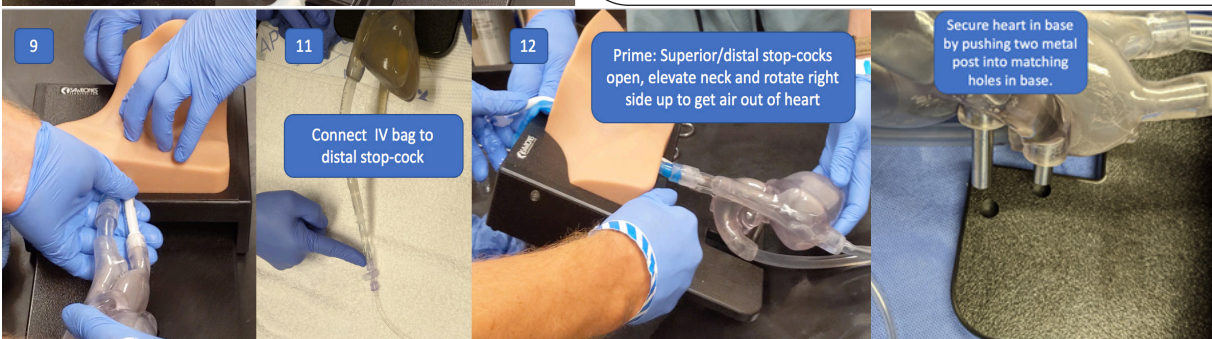
*Create simulation blood (small or large color tabs are included in the kit):

- a. Small tabs: mix 50 ml water + 12 red tabs + 7 yellow tabs + 1 blue tab
- b. Large tabs: mix 50 ml water + 3 red tabs + 1/8th blue tab

Small tabs

Large tabs

The yellow tabs can simulate plasma.



Prior to performing procedure: Ensure liquid soap placed inside vessel lumen, vagal nerve midline, vessel slack adjusted in neck, secure connection between heart and vessels, neck aligned on base and 2 heart post secured in base.

Controlling bleed back: Height of the IV bag and stop cock at distal stop-cock can adjust flow to the heart/vessels.

Reloading neck for another simulation:

IJV/Carotid fittings/stop-cock should be saved and used on new neck.

1. Draining model by placing IV bag below heart and opening up both vessel stop-cocks.
2. Once partially drained, disconnect heart from neck/vessels.
3. Remove superior vessel stop-cock fittings and dry off soap residue from fittings before connecting to new IJV/Carotid.
4. Dry off residual soap from heart coupler connections.
5. Repeat set-up steps.



4. STORAGE

1. **Save and reuse vessel stop-cock/fittings.**
2. **Wash out soap and colored water thoroughly from inside heart.**
3. **Drain and dry heart before placing in RediStik® ECMO Store protector case with heart inside duffle bag.**



Trainer tips:

- Cannula size recommendations: 15Fr arterial, 15-17Fr venous and 20Fr VV cannulas.
- Ensure liquid soap is placed inside vessel lumens prior to connecting to heart.
- Apply soap on cannulas prior to inserting in vessels reduces resistance during cannula placement.
- Ensure vagal nerve is midline between IJV/Carotid vessels after loading and adjusting vessel.
- Ensure neck simulator vessel channels are well lubricated prior to pulling IJV and Carotid through the openings to prevent damaging vessels. If vessels have been loaded inside neck for a few days recommended to use your finger to place some lubricating jelly inside the neck vessel channels prior to adjusting vessels and connecting to the heart.
- Takes approximately 300ml to prime model.
- **Controlling bleed back:** Height of the IV bag and distal stop-cock can adjust flow to the heart/vessels.
- Drain and dry heart before placing in RediStik® ECMO Heart case. Store protector case with heart inside duffle bag.
- It is recommended to watch set-up and skills training videos found on Sawbones website →
- We have found using two Weitlaner retractors size (3x4T. Blunt/deep 130 mm) works great exposing the vessels on this neck model.



Visit [sawbones.com](https://www.sawbones.com) for more information, including set-up videos and skills overview.

5. CONTACT AND REORDER

Contact: texaschildrens.org/redistik

Order/reorder: visit sawbones.com

Sawbones Customer Service USA (servicing North America, South America, Asia and Australia):

(206) 463-5551 / info@sawbones.com, 6 am – 5 pm, PT

Sawbones Customer Service EMEA (servicing Europe, Middle East and Africa):

+46 40 650 7000 / info@sawbones.se, 8 am – 5 pm, CET

- **RediStik® ECMO Cannulation Trainer Kit:** Item #1846-10
- **RediStik® ECMO Cannulation Trainer Kit without 3D Heart:** Item #1846-20
- **RediStik® ECMO Neck Replacement (single use):** Item #1846
- **RediStik® ECMO IJV/Carotid Extra Set (single use):** Item #1846-5

For Texas Children's orders, please order via PeopleSoft and use references:

- **RediStik® ECMO Cannulation Trainer Kit:** Item #134537
- **RediStik® ECMO Neck Replacement (single use):** Item #134539
- **RediStik® ECMO IJV/Carotid Extra Set (single use):** Item #134538



#1846-10 / #134537

RediStik® ECMO Cannulation Trainer Kit

Part #1846-10 / #134537

Includes:

- 1 x Duffel bag
 - 1 x Heart/fittings (spare set of fittings for carotid/IJV + 3 extra stopcocks)
 - 1 x Securement base for heart/neck
 - 1 x RediStik® ECMO Heart case
 - 4 x Necks/vessels/vagus nerves (part #1846)
 - 1 x Spare vessel set (part #1846-5)
 - 1 x Color tabs
 - 1 x Small liquid soap
 - 1 x Instructions
- (Neck/vessels are for **single use**. The heart, base for neck/heart, RediStik® ECMO Heart case, and duffel bag are **reusable**.)



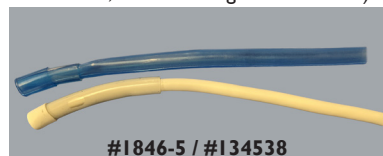
#1846-20

RediStik® ECMO Cannulation Trainer Kit without 3D Heart

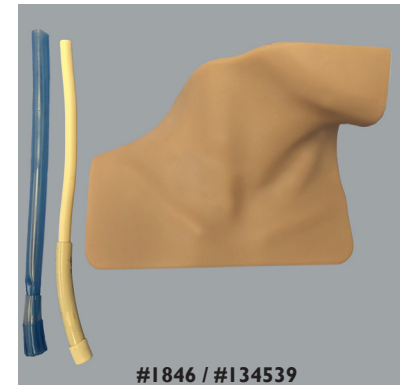
Part #1846-20

Includes:

- 1 x Duffel bag
 - 1 x Base with fittings, tubing, and tube holder
 - 2 x Necks/vessels/vagus nerves (part #1846)
 - 1 x Spare set of fittings for carotid/IJV + 3 extra stopcocks
 - 1 x Spare vessel set (part #1846-5)
 - 1 x Color tabs
 - 1 x Small liquid soap
 - 1 x Instructions
- (Neck/vessels are for **single use**. The base for neck, tube holder, and duffel bag are **reusable**.)



#1846-5 / #134538



#1846 / #134539

RediStik® ECMO Neck Replacement (single use)

Part #1846 / #134539

Includes:

- 1 x Neck
- 1 x Vagus nerve
- 1 x IJV (Internal Jugular Vein)
- 1 x Carotid artery
- 2 x Lubricating jelly pack

RediStik® ECMO IJV/Carotid Extra Set (single use)

Part #1846-5 / #134538

Includes:

- 1 x IJV (Internal Jugular Vein)
- 1 x Carotid artery
- 2 x Lubricating jelly pack

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