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SYSTEM OVERVIEW

The VascularAccessChild System has been designed to provide your training program with a realistic anatomical model complete with internal landmarks that allows users to practice a wide range of external jugular, internal jugular, subclavian, and femoral access techniques. The tissue responds to ultrasound imaging for needle guidance.

VascularAccessChild uses two colors of simulated blood to differentiate the arteries and veins. The arterial pulse and all necessary anatomical landmarks are present to help avoid or detect errors. While using the simulator the user will experience natural resistance, a realistic flashback of blood and it has self-sealing vessels and skin, which allow multiple practices. Each model has replaceable tissue sets each allowing for multiple users. For each site, the tissues should last for approximately 25 full catheter insertions or 50-100 needle sticks. Additionally the venous pressure can be quickly adjusted to simulate a low venous pressure patient.

This guide provides users with an overview of the VascularAccessChild System; how to unpack, inspect and prepare the system; how to refill simulated blood; how to reload replaceable tissue; and troubleshooting information.

ANATOMICAL OVERVIEW

The body form is oriented with the head turned to the left. Landmarks on the patient include:

» Clavicle  » Sternocleidomastoid muscle
» Ribs  » Anterior superior iliac spine
» Sternal notch  » Pubic tubercle
» Trachea  » Inguinal ligament

Tissue Sets:

» VEIN: subclavian, and internal and external jugular, and femoral = blue
» ARTERY: subclavian, carotid, and femoral = red
SYSTEM COMPONENTS

Body Form

Replaceable Neck Tissue

Replaceable Femoral Tissue

A) Fill Port with funnel – Female Connector
B) Fill Line – Male Connector

Pre-mixed simulated blood
MA16 – 16 oz. Red; MV16 – 16 oz. Blue

Venous Pressure Regulator
(filled with blue simulated blood)

Pulse – Hand Pump
(filled with red simulated blood)

Carrying Case
1. Repack the body form so the neck is positioned on the same side as the case’s handle. This ensures that the simulator stands upright when the case is closed and carried.

2. Double check all parts against the parts list located under system overview. The only additional product in the case should be any replaceable tissue sets ordered.

3. If any parts are missing, please contact Simulab’s Customer Care Team at 206-297-1260 or at info@simulab.com.

4. **Check for excess air in tubes**: To begin, stand the simulator up as shown above. This will allow any trapped air to rise to the top of the tubing. If there is less than ½” of air present proceed as is. If there is more than ½” of air exposed, go to the Refill Fluid section.

5. Throughout the course, periodically tilt the model to check for trapped air that may be caused by putting fluid back into the vessels.

6. Check both the vein (blue) and artery (red) for over pressurization. Begin by attaching the filling port to one of the lines and hold up the funnel so that the connector is even with the top of the body form.

7. Fluid released into the funnel line indicates the vessel is under pressure; allow the funnel to fill and disconnect over a paper towel once it stops.

8. If fluid line does not appear in the funnel above the connectors, check if the vessel accepts additional fluid – if it does, continue until it is full. The goal is to get neutral pressure.
INSPECT AND PREPARE

9. Disconnect the funnel over paper towel.

10. Drain funnel if necessary. To drain the funnel, place the fill line into the appropriate simulated blood bottle and attach it to the funnel.

11. For arterial pulse attach the pulsatile bulb, which is pre-filled with red simulated blood, to the artery (red line).

12. To adjust venous pressure attach the syringe, which is pre-filled with simulated blood to the vein (blue line).

13. If the tissue oozes blue simulated blood out of the needle hole(s), lower the venous pressure with the syringe.

14. To remove either the syringe or bulb; detach the junction over paper towel, as there will be a small release of simulated blood.
REPLACEABLE TISSUES - REPLACING, REFILLING, MAINTENANCE

1. The bulb and syringe should be removed when replacing a tissue. To replace a tissue, insert the extending lines through the opening on the body form base.

2. Both the neck and the femoral tissues will fit snugly in the body form.

3. **USED TISSUE**: Place all used tissues in a zip lock bag for storage or disposal. This will contain any leakage.

4. To add fluid to the vessels, begin by standing the simulator up – this allows any trapped air to rise to the top of the tubing.

5. Next – with the bulb and syringe removed – attach the fill port with funnel to the vessel that needs refilling.

6. Stand the funnel upright and slowly add the simulated blood. Make sure to use the proper color of simulated blood for each vessel.

7. To fill the vessel and release all the air, gently squeeze the tubing to allow the air to rise up and the fluid to enter into the vessel.

8. Once filled, release the funnel from the simulator. Use paper towels to absorb any leakage.

9. Place the fill line (male connector) over the appropriate fluid bottle and attach the funnel before filling other vessel. Fluid will drain back into bottle.
REPLACEABLE TISSUES - REPLACING, REFILLING, MAINTENANCE

10. To refill the bulb, attach the fill line (male connector) to the bulb and slowly add more red simulated fluid. Gently squeeze the bulb to add fluid.

11. When the bulb will not take any more fluid and all air bubbles have risen, disconnect the fill line and drain back into the fluid bottle.

12. To refill the syringe, attach the fill line (male connector) to the syringe.

13. Add blue simulated fluid and withdraw fluids.

14. Hold the fill line and syringe upright and inject any excess air or fluids back into the fill line. Disconnect the fill line from the syringe and drain back into the blue simulated fluid bottle.

15. Both the bulb and the syringe can be reconnected to the vessels and the body form is ready for use.

16. When finished using a tissue, remove it and place into a zip lock bag for storage or disposal. The bag will contain any leakage that may occur.

17. The body form should be cleaned as needed with soap and warm water. This will help preserve the body form and minimize any major staining from the simulated blood.

18. Store the body form, tissue sets, and all other parts in the carrying case. Store tissues and simulated blood zip lock bags.
TROUBLESHOOTING

1. To achieve arterial pulse, lightly pump the bulb. (The bulb should be attached to the artery and is pre-filled with red simulated blood).

2. To achieve low venous pressure, withdraw 20 ml of venous blood using the syringe. To attain normal venous pressure, re-inject the simulated blood.

3. Students should always re-inject simulated blood into the vein before pulling the needle out. Make sure fluid is reinserted into the correct colored vessel.

4. If simulated blood is slowly oozing out of the simulator from the previous catheterization mark the vein and/or artery is under pressure and needs to be neutralized.

5. To maintaining neutral pressure in the lines – refer to page 3 beginning with step 6.

6. To managing excess air in the tubes – refer to page 3.

7. If artery appears compressible under ultrasound, squeeze and hold the pulse bulb during the procedure.

8. When replacing the tissue, do not pull on tubes – rather push the tissue while guiding the tubes through the body form.
## REPLACEMENT PARTS CATALOG

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>VACN–30</td>
<td>Replacement Neck Tissue</td>
</tr>
<tr>
<td>VACF–30</td>
<td>Replacement Femoral Tissue</td>
</tr>
<tr>
<td>VAC–1001</td>
<td>VascularAccessChild Base</td>
</tr>
<tr>
<td>CLP–1001</td>
<td>Venous Pressure Regulator</td>
</tr>
<tr>
<td>CLP–1003</td>
<td>Fill Port with Funnel</td>
</tr>
<tr>
<td>CLP–1004</td>
<td>Fill Line</td>
</tr>
<tr>
<td>MA –16</td>
<td>16 oz. Red Fluid</td>
</tr>
<tr>
<td>MV–16</td>
<td>16 oz. Blue Fluid</td>
</tr>
<tr>
<td>VAC–1002</td>
<td>Carrying Case</td>
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<tr>
<td>VAC–1004</td>
<td>User’s Guide</td>
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For assistance, contact Simulab at (206) 297-1260