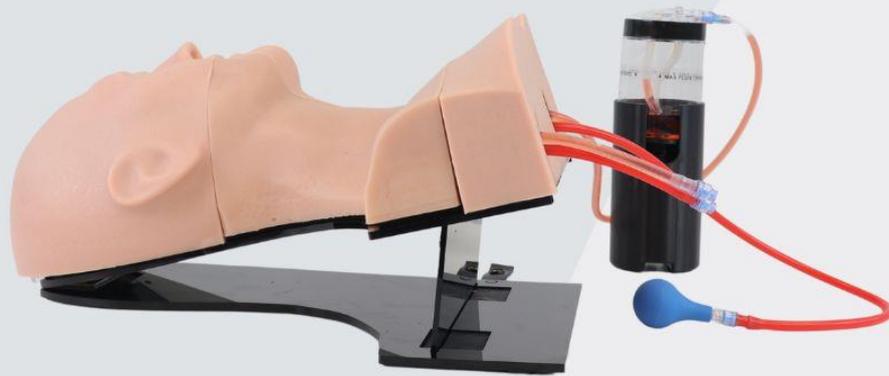


TruCVC User Manual



The TruCVC is an ultra-realistic, anatomically correct half head training manikin designed for immersive education in central venous catheterization procedures.

This innovative ultrasound-guided central line simulator features life-like tissue properties and vascular structures that provide unparalleled realism for developing critical skills in needle insertion, guidewire manipulation, and catheter placement under live ultrasound visualization.

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Product Specifications

Product Code: TCVC100

TruCVC weight: Approx. 5kg

TruCVC dimensions: 23x40x12cms

Full shipment weight: 7kg

Full shipment dimensions: 47x27x34cms

Package Contents

- x1 TruCVC model
- x1 TruCVC suture pad
- x1 TruCVC fluid container with a stand
- x1 TruCVC carrier case (adult bag)
- x1 250ml bottle of artificial blood concentrate (CVB250)
- x1 luer lock syringe -50/60ml

Recommended Equipment Sizes

- Size 20G needle for IV cannulation is recommended for optimal performance. Do not use a needle larger than 18G
- Size 8F catheter
- Using equipment sizes outside of TruCorp's recommendations can cause permanent damage to the model and the product warranty will be void (please refer to page 16 for warranty information).

Initial Set-up Information

1. Gently remove the model from the carrier case and place on a suitable flat surface.
2. In line with clinical guidelines, ultrasound gel should be applied to the ultrasound probe prior to use to ensure a high-quality ultrasound image is obtained. Any brand of ultrasound machine can be used with this model. Adjust the depth and gain controls as required until the desired image is obtained.
3. Needle penetration can be performed on the interchangeable ultrasound insert only. If damage occurs from needle penetration on other parts of the model, the product warranty will be void (please refer to page 16 for warranty information).

Fluid System Preparation

1. Prepare Artificial Blood:

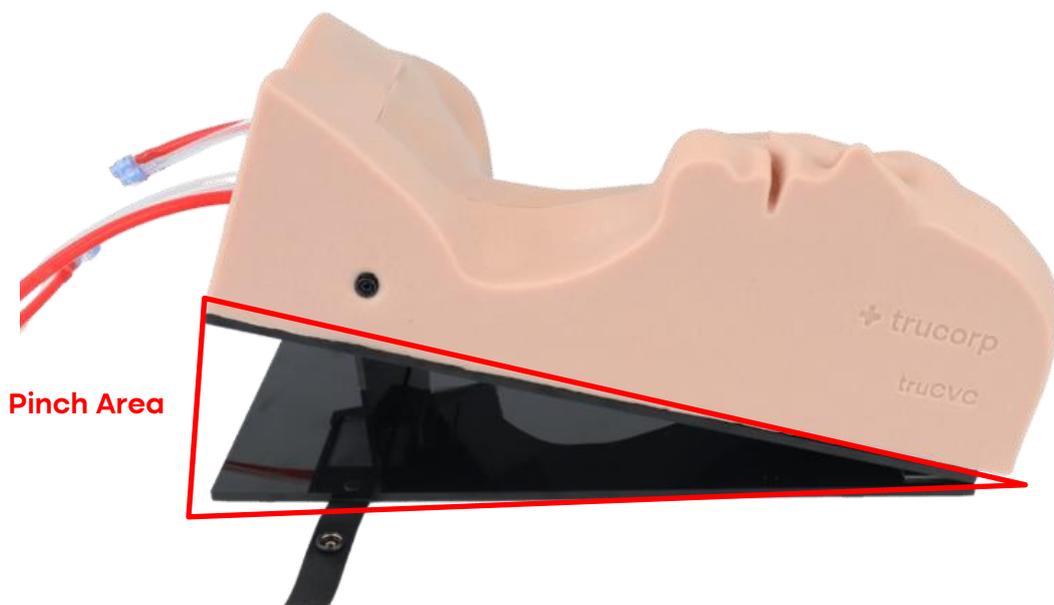
Mix the required concentration of the artificial blood supplied with the model (product code: CVB250) as indicated on the bottle's instructions (ratio of blood to water is 1:9). Distilled water can be used as a substitute for blood if desired.

2. Release Bottom Plinth:

Using the black belt on the right side of the product, open the snap button to release the bottom plinth.

3. Position the Manikin:

Place the product in the Trendelenburg position. Grab the product on the sides with two hands, lift it, and using one hand to guide the flexible part in the bottom cutout. Ensure the cutout is securely in place before releasing, to avoid pinching your fingers between the manikin and the base plinth (area highlighted below).



4. Attach Fluid Stand:

Attach the fluid stand using the snap button fixed to the black belt.

5. Fill the Vessels with Fluid:

- **Arteries (Red Tube):**

A. Attach the 'output' connector to the fluid stand.

B. Attach the fluid-filled syringe to the connection point and slowly insert the fluid until you notice fluid coming into the jar without air (approximately 30-40ml).

C. Disconnect the output tube from the fluid container and connect the manual pump to the tube.

- **Veins (Clear Tube):**
 - A. Connect the output tube to the fluid stand.
 - B. Attach the blood-filled syringe to the connection point and slowly insert 100ml, ensuring the syringe does not contain air bubbles. Air bubbles will negatively impact the ultrasound image. If you notice air bubbles under the ultrasound image, slowly push more fluids in the tube connected to the fluid jar.

- 6. **Ready for Use:**

The product is now ready to be used.

Re-filling the Fluid System

1. Users can remove fluid through the syringe after the veins have been cannulated to confirm the correct needle placement. Please note that the volume of fluid previously withdrawn will need to be refilled to maintain a high-quality ultrasound image for further training.
2. Follow steps 1-5 in the fluid system preparation section to slowly re-fill approx. 15-20ml of blood into the veins (may be higher than 15-20ml depending on the previous volume of blood withdrawn)
3. Blood can be inserted directly back into the veins after withdrawal if desired. This will not damage the veins, but please avoid injecting blood with air bubbles, as this will negatively impact the image quality. Blood should be inserted slowly. 20+ catheter procedures (full seldinger technique) per injection site (jugular vein and subclavian artery.)

Central Line Placement

1. **Apply Ultrasound Gel:**

In line with clinical guidelines, apply ultrasound gel to the ultrasound probe prior to use to ensure a high-quality ultrasound image.

2. **CVC Line Placement:**

A CVC line can be placed using either the internal jugular vein or the subclavian vein.

3. **Needle and Catheter Selection:**

Use a 20G needle to gain access to the vein, followed by an 8 Fr CVC catheter. We do not recommend cutting the puncture hole with a scalpel.

4. **Warranty Notice:**

Using equipment larger than the above recommendations will void the warranty if damage is caused to the model. Please refer to page 16 for warranty information.

5. **Confirming Needle Placement:**

Correct needle placement can be visually confirmed by attaching a syringe to the needle and withdrawing blood.

6. Confirming Central Line Placement:

Observing the tip of the wire and catheter in the long, clear tube confirms a successful central line placement.

Replacing the Ultrasound Insert

Due to the delicate material the insert is made of, it should only be removed from the base when replacement is necessary.

1. Disconnect Connections:

Disconnect the manual pump from the artery and the vein from the fluid jar and syringe if connected to any 'fluid in' connection.

2. Remove Insert:

Gently grab the insert from the top side and slowly pull and slide out the tubes from the base.

3. Remove Old Magnets:

Ensure that any old magnets are removed from the insert holder.

4. Install New Insert:

- Grab the new insert from the left side.
- Slide the longer tubes into the right channel and then the shorter tubes into the left channel.
- Gently slide the insert into place. Adjust the position of the insert as needed to ensure the best fit.

5. Check Tubes:

Ensure the tubes are not blocked, kinked, or bent in the channels.

Removing Fluid from the System

Emptying the Blood from the Fluid Container

When the fluid container reaches the 'MAX' level, it is necessary to empty the blood. There are two options to remove fluid from the jar:

1. Reusing the Fluid:

- Use the female connection on the lid.
- Attach a luer lock syringe and withdraw the fluids.

2. Discarding the Fluid:

- Unscrew the jar cap and empty the container.
- Replace the lid and screw it securely.

Removing Fluids from the System

1. Ensure the Fluid Jar is Empty:

Make sure the fluid jar is empty before proceeding.

2. Remove Fluid from the Arteries:

- Connect the 'output' tube from the artery to the jar.
- Using the inlet connector, push a full syringe of air into the product.
- Repeat this step until no more fluids are coming from the insert.

3. Remove Fluid from the Veins:

- Repeat the above steps for the veins to ensure all fluids are removed from the vessel.

4. Remove fluid from the jar.

Suture Pad

The suture pad provided with the product is solely intended for improving the skills related to securing central lines through suturing. It should not be attached to the base, as attempting to do so may result in tears in the sutured skin and damage to the base.

Follow these steps to prepare the suture pad for usage:

1. Unpack it from the bubble wrap.
2. Insert a central line catheter into the desired pre-made holes. (These pre-made holes follow the path of the vessels in the central line ultrasound insert.)
3. Suture the catheter in place.

To replace the suture pad skin:

1. Remove any sutured central line catheters.
2. Peel off the used skin.
3. Open the bag containing the new skin.
4. Place the new skin on the base.
5. The product is now ready to be used.

FAQ and Useful Tips

- Why Can't I Visualize the Vessels Clearly?

Poor quality ultrasound images are usually caused by air inside the blood. To improve the image, insert more blood into the vessels. If there is still some air in the system, follow these steps: Ensure the affected vessel is attached to the fluid jar. Grab the product from the sides and lift it even higher for a few seconds until you notice air coming out from the insert. If needed, you can put in more fluids.

- **Why Is the Insert Leaking When I Refill Blood into the Veins?**

Sometimes, when refilling blood into the system, you may see small leaks on the insert from old punctures. This is caused by refilling the blood too quickly through the syringe. To minimize leakage, follow these steps:

1. **Use a Paper Towel:** Place a paper towel on top of the insert to soak up any excess fluid.
2. **Refill Slowly:** Enter the fluid slowly to prevent excessive pressure on the insert.

- **Why will the guidewire not advance?**

It is possible the needle has surpassed too deeply into the vessel and therefore, punctured the opposite side. Using the ultrasound probe, ensure the tip of the needle has only slightly entered the vein to allow ample space for the guidewire to advance through.

Care and Maintenance

Store the product in clean, dry conditions away from heat and direct sunlight; avoid contact with metals, solvents, oils or greases and strong detergents. When the product is not in use please store in the black carrier case provided. Gently wash the ultrasound insert after use. Please use alcohol wipes, warm soapy water or similar, until all visible foreign matter and residue are removed. Mild detergents or enzymatic cleaning agents may be used on the insert in accordance with the manufacturer's instructions and at the proper dilution. The detergent must not contain skin or mucous membrane irritants.

Please do not use any of the following when cleaning the TruUltra product range:

- Germicides, disinfectants, or chemical agents such as glutaraldehyde (e.g. Cidex®)
- Ethylene oxide, phenol-based cleaners or iodine-containing cleaners

In response to the recent COVID-19 pandemic, we recommend this additional step to ensure the product is fully sanitised:

Use alcohol spray (minimum 75%) and wipe off. Repeat this for 3-4 times to ensure to kill the virus completely. This can also be used when attempting to apply a protective dressing.

Warranty

TruCorp warrants this unit to be free of defects in materials and workmanship and to give satisfactory service for a period of 1-year from the date of delivery. This ensures that our customers receive maximum coverage on each product. If the unit

should malfunction it must be returned to the factory for evaluation. Upon examination by TruCorp, if the unit is found to be defective it will be repaired or replaced at no charge.

TruCorp will pay for the freight/delivery and the actual parts needed free of charge if any part of the product fails within the 1-year period.

However, these warranties are VOID, if; the unit shows evidence of having been tampered with or shows evidence of having been damaged by excessive heat, the use of sharp instruments, misapplication, misuse or other operating conditions outside of TruCorp's control. Additionally, penetration of a needle into the artery will cause internal damage and will not be covered by warranty if this area leaks.

Please ensure you closely follow the recommended equipment sizes, otherwise your warranty will be void if damage is inflicted on the model (please refer to page 3 for recommended equipment sizes). Components that wear or are damaged by misuse are not warranted and will be charged for, if a repair has been approved. Warranty is void if third party products are seen to have damaged or caused the failure of the TruCorp models.

Please direct all warranty and repair requests/inquiries to:



TruCorp Ltd
33 Waringstown Road
Lurgan, Co. Armagh
BT66 7HH
N. Ireland
E: info@trucorp.com
Tel: +44 (0) 28 3888 2714