

PROCEDURE FOR: Blood Drawing from Stopcocks of Umbilical Catheters

- POLICY:**
1. Umbilical catheters will be maintained using aseptic technique and in a manner which prevents air from entering the system. Tubing, stopcock connections and transducers are to be visible at all times.
 2. The infusion system must be examined for air bubbles after any line entry/manipulation. Visible air bubbles must be removed.
 3. When an infant has both a UAC and UVC, blood work is generally drawn from the UAC.
 - a. Blood sampling from the UVC requires MD/AP order.
 - b. Blood specimens for newborn metabolic screen filter paper tests should not be drawn from any indwelling line that has an amino acid solution infused through it.
 - c. Universal precautions must be observed.
 4. Blood deficits are to be kept:
 - a. For infants with birth weights <1000 grams until they no longer require daily labs.
 - b. For infants with central lines (UAC, PAL, UVC or Broviac) when the need for blood sampling is a primary indication for the catheter.
 - c. For any critically-ill infants irrespective of weight and type of venous or arterial access.
 5. All saline and sterile water solutions used as flush or medication diluents are to be preservative-free to avoid potential toxicity of benzyl alcohol.
 6. Saline and sterile water vials are for single use only and should be discarded after one use.

EQUIPMENT: Sterile 4x4

2 3ml syringes without needles

1 3ml syringe with needle

2 Chlorhexidine gluconate (CHG) pads

Sterile gloves

Normal saline flush

Specimen containers for ordered lab studies

Labels

Laboratory Requisition

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PROCEDURE:

<u>ACTION</u>	<u>POINTS OF EMPHASIS</u>
1. Wash hands.	
2. Gather supplies.	
3. At the bedside, verify identity of infant and lab studies to be drawn.	
4. Apply sterile gloves.	
5. Open a package of sterile 4x4 gauze keeping the 4x4's within the package, place under the umbilical catheter stopcock to create a sterile field.	
6. Using the 3ml syringe with needle, draw up 3ml of normal saline flush and place on the 4x4.	
7. Remove caps from 3ml syringes and place syringes (within covers) onto the 4x4.	7. An alternative placement for the syringes is to place them, within their covers, in an upright position at the head or foot of the mattress.
8. Open 2 Chlorhexadine gluconate (CHG) pads and place on the 4x4.	
9. Remove the flush syringe from the stopcock and discard.	9. Do not place on the 4x4 with the clean supplies.
10. With one CHG pad, using friction, clean the outside of the stopcock for 15 seconds. Do not rub across the top open surface of the stopcock.	10. Use caution to prevent "drips" of CHG on to the open stopcock. Squeeze excess liquid out of the pad before use on the tubing
11. Discard the CHG pad.	11. Discard so that it is not in proximity to the clean supplies.
12. Place the empty 3ml syringe into the stopcock, keeping the syringe cover on the 4x4 or at the end of the mattress.	
13. Turn the stopcock off to the IV fluids and draw back 2 to 3ml of blood to clear the line. Place the syringe into the syringe cover to maintain sterility.	13. Observe for circulatory compromise during and after blood drawing from the umbilical artery catheter. a. Slow withdrawal and infusion of blood is recommended, especially in preterm infants who are at risk for IVH. Increasing the time of withdrawal/infusion to 40 seconds prevented a decrease in cerebral oxygenation (Schultz, G. et al. (2003). <u>Pediatrics</u> 111(1):73-76).

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14. Quickly attach the second 3ml syringe to the stopcock and with the stopcock off to the IV, withdraw the amount of blood needed for ordered lab studies.
14. You may mechanically "kink" the catheter by bending it to prevent backflow of blood.
 - a. With BD stopcocks, the 45° placement will close the system and prevent admixture of IV fluids.
 - b. Stopcocks that are part of the BP transducer should be replaced with BD stopcocks.
 - c. Other stopcocks without defined position for a 45° angle may not reliably stop all blood flow because all staff may not position the stopcock the same way.
15. Place the syringe containing blood for lab studies into its syringe cover.
16. Place the syringe containing the line clearance blood and IV fluid into the stopcock, while maintaining sterility.
17. With the stopcock off to IV fluids, draw back to pull any air into the syringe. Hold the syringe upright so that the air bubble will float to the top of the syringe. Slowly re-infuse the blood from the initial draw then remove the syringe.
18. With the second CHG pad, using friction, clean the outside of the stopcock for 15 seconds. Do not rub across the open surface of the stopcock.
18. Squeeze excess liquid from the pad before use.
19. Place the normal saline flush syringe into the stopcock. Pull back to remove any air and after the air bubble floats to the top of the syringe, flush the catheter with 0.5 to 1ml saline flush.
20. Turn the stopcock to permit infusion of IV fluids. Check all connections to ensure that they are tight.
21. Place blood into appropriate specimen containers.
22. At the bedside, label specimen containers and place in plastic specimen bags with completed requisitions and send to the lab.

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23. Discard syringes and needles into appropriate containers.
24. Document the volume of blood removed and the amount of flush administered on the flow sheet.

APPROVAL: Nursing Standards Committee

EFFECTIVE DATE: 2/89 (as part of Protocol for Umbilical Catheters)

REVISION DATES: 5/03, 5/04, 12/06, 7/07, 12/08, 9/09