Umbilical venous lines provide fast and secure IV access particularly when long term venous access is required

N.B. Umbilical venous lines should be erected by a doctor or experienced nurse, on the doctor’s orders.

Advantages of an umbilical venous catheter
- Hypertonic and hyperosmolar fluids can be given with less risk of phlebitis
- The line cannot become infiltrated
- Provides secure IV access for 7-10 days even if baby is hypothermic, hypoglycaemic or shocked
- Useful for an exchange transfusion

Disadvantages and complications
- Sepsis
- Perforation
- Haemorrhage and/or thrombosis
- Hepatic complications if catheter placed incorrectly

Important guidelines
- Insert within first 24 hours of life
- Aseptic procedure with full scrub and gowns must be used
- Remove catheter within 7-10 days, as ordered

Equipment
- umbilical catheterisation / exchange transfusion pack, with hibitane 0.5% in 70% alcohol
- surgical blade
- radio-opaque umbilical catheter size 5
- gloves
- 2.5 ml syringe for flushing
- strapping
- packet or bin for waste

Procedure (see diagram below)
1) Open umbilical catheterisation / exchange transfusion pack onto clean trolley
2) Measure shoulder-umbilical length and check correct catheter placement as per graph alongside
3) Position baby under a radiant warmer and maintain infant’s oxygen supply, observing infant’s reaction and general condition
4) The doctor/nurse scrubs up, using gown and mask, cleans the cord and drapes the infant
5) A ligature is placed around the base of the cord to prevent haemorrhage N.B. Do not tie on skin
6) The cord is cut 1-2 cm from the base with a sterile scalpel.
   The umbilical vein (larger gaping vessel) and umbilical arteries (two thicker walled vessels apart from the vein) are identified.
   The cord stump may be stabilised using sterile mosquito forceps.
7) The catheter may be held with sterile forceps and advanced into the vein (it should pass easily) for 4–6 cm
8) Check that catheter is not kinked and that blood draws back easily - if there is a block, pull gently on the cord, pull back the catheter partly and re-insert
9) Once blood flows back in the catheter, the assistant connects the infusion, flushes the back flow of blood and then sets the infusion pump at the correct speed (may take FBC and blood culture)

10) Secure with goal-post strapping (ensure granuflex applied first to protect skin)

11) The ligature is loosened and may be removed when there is no longer a danger of bleeding from the cord

   N.B. It must have been removed by 24 hrs

12) An x-ray should then be taken to establish the correct placement of the catheter. The venous catheter should be 1cm above the diaphragm. N.B. It must not lie in or below the liver

13) The line may need to be withdrawn if perfusion to the toes/feet is impaired

14) Make a note on crib to state position of line (and any changes) and ensure ALL the details are recorded in nursing process

15) If line is withdrawn slightly following an x-ray, record this on a sticker on the X-ray, in the nursing process and on the incubator note

A. Preparation of the umbilical cord

B. Inserting the catheter into the umbilical vein.
   This is the larger, thin walled structure towards the head. Note the 2 umbilical arteries, which are thick-walled and towards the legs of the baby.

C. Fixation of the inserted catheter which prevents kinking

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**Care of umbilical venous line**

- While the catheter is in situ the site must be cleaned regularly with hibitane and sterile swabs
- **N.B. Any signs of redness must be reported promptly**
- Check strapping daily to ensure catheter is firmly secured
- Change strapping if loose or soiled
- Ensure nappy does not cover site