The Clatterbridge Cancer Centre NHS Foundation Trust

PATIENT CARE PLAN FOR CARE OF TOTALLY IMPLANTED VENOUS ACCESS DEVICE (TIVAD)

These guidelines are part of the Clatterbridge Care and Maintenance of CVADs in hospital and at home for adults

The Clinical Interventions Team at the Clatterbridge Cancer Centre 0151 556-5737.

Mon –Fri 8-6 or alternatively the CCC Hotline on 0800 169 5555 which is available 24 hours a day 7 days a week.

These general guidelines have been provided to assist all health care professionals or other users when handling Clatterbridge Portacath lines in any setting.

When relatives have been trained and supervised please confirm they are ready to continue

ongoing care: Date:…… Trained by:……

Troubleshooting guide:

Type of device	Risks	Actions	Variations / Comments	SIGN
Totally implanted venous access device (port-a-cath)	Infection	• Site clean and non tender. • Check at each visit if in community setting • Observe patient for signs of line infection (pyrexia/raised WCC) • If clinically unstable and patient has had rigors, take blood cultures from line immediately after independent venous cultures • All attempts to conserve the line should be taken prior to removing a TIVAD. • Administer antibiotics through the port where possible. • Ensure administration lines in place following local policy. • Replace any administration lines up to a max of 96hrs if constituted in ward environment. • Label infusion lines with date for renewal. • Change add-on devices at same time as administration sets or as soon as integrity is compromised. • Only if avoidable, assess medical condition prior to removal of line, needs to be performed in hospital setting where ports are placed. INR should be below 1.5, and platelets >80 • Send line tip for culture and sensitivity following removal only when line infection confirmed, swab pocket area and send for analysis		
	Air embolus	• Use Needle-free systems • Ensure air dispelled from medication/ flushes/infusates prior to administration. • Assess need for infusion pump		
	Thrombus	• For suspected or confirmed thrombus commence treatment dose LMWH as soon as possible		

		• Arrange a Doppler to confirm or exclude thrombus • TIVAD's should be used as required to conserve line and to provide reliable access particularly for those patients with restricted access • When a line is no longer required or has failed when a thrombus is diagnosed, treatment dose LMWH should be administered for between 3-5 days before removing the line to limit the risks of embolisation		
	Occlusion of lumen.	• Maintain patency via 0.9% Sodium chloride for injection flushes as per guidelines, Pre & post drug/ infusion administration. • Ensure compatibility of drugs/infusates to avoid precipitation. • Ensure monthly flushes when not in use. Use needle-free system according to CINS guidelines using positive pressure flush when flushing and de accessing		
	Bleeding from site / line itself.	• Observe for signs of bleeding from site. • Apply pressure above dressing • Ensure add on devices/taps securely fastened. • Ensure clotting studies in acceptable range prior to removal of line • Assess for infection if pocket site is bleeding or oozing.		
	Line displacement/flipping	• Check notes to ensure CIT staff have documented line is in correct place and safe to use • If line disconnected for any reason then discard • Anchor lines to avoid accidental displacement of Huber needle using secure dressings. • If in doubt do not use line and ensure patient is aware of problems which may		

		occur.		
	Line in situ when no longer required.	Ensure prompt removal when line no longer required, for ongoing management if port is to remain in situ the line should be maintained monthly.		

Visual Infusion Phlebitis (VIP) Scoring Tool for Intravenous Access Device (VIIAD)

Exit site appears healthy	⇨ **0**	**No sign of phlebitis** Observe TIVAD pocket site
One of the following is evident: Slight pain near exit site Slight redness near exit site	⇨ **1**	**Possible first signs of phlebitis** Continue to observe site
Two of the following are evident: Pain at exit site Swelling Erythema	⇨ **2**	**IMPORTANT** **Seek advice VIP score 3-5** Mon-Fri between 8am and 6pm ring the Clinical Interventions Team on 0151 556-5737 24 hrs CCC Hotline on 0800 169 5555
All of the following are evident: Pain along the IV catheter Erythema Swelling	⇨ **3**	
All of the following are evident and extensive: Pain along the path of the IV catheter Erythema Swelling Palpable venous cord	⇨ **4**	
All of the following are evident and extensive: Pain along the path of the IV catheter Erythema Swelling Palpable venous cord Pyrexia	⇨ **5**	

Note:

- **Follow this dressings guide for patients who develop contact dermatitis from Level 1-5 and record actions within the documents. The distal portion of the line may be secured with simple Tegaderm dressing if using the Clear Film I.V. to allow for easy removal when conserving the base dressing.**
- **Other suitable alternatives include Allyvn, Sorbaview, Mepore and Duoderm**
- **Substitute Chlorhexidine for Povidone if sensitive and replace Biopatch with AG patch**

Level 1

- **IV Clear Pro** - For Ports that have been accessed with Huber once healed
- ***If skin becomes red and itchy add in oral antihistamines, move to Level 2:***

Level 2

- **Tegaderm I.V. Advanced + antihistamines –**
- ***If itch/redness continue add in Sorbaderm barrier film, move to Level 3:***

Level 3

- **IV 3000 + antihistamines + Sorbaderm barrier film**
- If no improvement add in Sorbaderm cream, **Biopatch/Zonis to prevent line infection**, move to **Level 4:**

Level 4

- **Opsite visible +antihistamines + Sorbaderm film & cream + Biopatch/Zonis**
- ***If still no improvement move to Level 5***

Level 5

- **Mepitel film +antihistamines + Sorbaderm cream/film + Biopatch/Zonis** until settled then red film alone. If unavailable may need to try alternatives from list above

The Principles of Asepsis

Asepsis is defined as the absence of pathogenic (harmful) organisms.
The principles of asepsis/aseptic technique are:

- Reducing activity in the immediate vicinity of the area in which the procedure is to be performed
- Using an aseptic non touch technique (ANTT) to protect key parts and key sites
- Keeping the exposure of a susceptible site to a minimum
- Checking all sterile packs to be used for evidence of damage or moisture penetration
- Ensuring all fluids and materials to be used are in date
- Not re-using single use items
- Ensuring contaminated/non-sterile items are not placed in the aseptic field
- Ensuring appropriate hand decontamination prior to the procedure and at other necessary time throughout the procedure
- Protecting uniform/clothing with a disposable apron
- Using sterile gloves when required
- Knowing the difference and when to use standard ANTT or surgical ANTT
- Risk assess each procedure prior to commencement for either standard or surgical ANTT.

Steps to performing an aseptic dressing change – Surgical ANTT

- Indicated for complex procedures with many key parts and key sites
- Staff should be “bare below the elbow”
- Maintain an aseptic field throughout the procedure
- Decontaminate hands by washing with liquid soap and warm water or by applying alcohol hand rub, using the recommended technique.
- Don disposable apron and wearing gloves
- Decontaminate the trolley (or working surface to be used if trolley not available, e.g., in the patients home) with detergent and warm water or detergent wipes and dry.
- Assemble sterile procedure packs, e.g., dressing packs and equipment, check all items are in date and packaging is intact.
- Explain and discuss the procedure with the patient.
- Ensure patient is positioned both comfortably and so the area to be exposed is accessible without undue exposure.
- Open sterile procedure pack outer packaging, sliding the contents onto the top shelf of the trolley (or working surface).
- Add any extra items without compromising the prepared aseptic field, clean items if needed to be placed close by but not compromising the aseptic field.
- Lift the plastic waste disposal bag from the aseptic field carefully by its open end and holding one edge of the opening end, place the other hand into bag, hence covering the hand with an aseptic 'glove'. Using the aseptic 'glove', arrange items on the aseptic field.
- Attach the bag to the trolley, below the top shelf or on a nearby surface if in a patients home. Decontaminate hands with alcohol hand rub,

- Don non sterile gloves, remove old dressing and dispose of in disposal plastic bag. Decontaminate hands with alcohol hand rub
- Put on sterile gloves ensuring hands do not contaminate outer surface of the glove.
- Perform the procedure as directed, using the correct dressings to suit the patients individual needs
- Ensure equipment is discarded if it becomes contaminated.
- Dispose of all used items, including soiled dressings, into the plastic waste disposal bag and seal.
- Discard disposal waste bag into clinical waste bag.
- Remove gloves and apron and dispose of in clinical waste
- Decontaminate hands with alcohol hand rub; document all actions taken within the patients hand held records or electronically as required.

Standard ANTT

- Staff should be “bare below the elbow”
- Maintain a clean field throughout the procedure - protect key parts and key sites
- Decontaminate hands by washing with liquid soap and warm water or by applying alcohol hand rub, using the recommended technique throughout the procedure.
- Don disposable apron and wear non sterile gloves, single use items should not be reused
- Mirrored precautions using non sterile gloves , a prepared clean field used to handle equipment by protecting key parts and key sites by holding non critical areas
- Simple procedures with few key sites and key parts

Polyperf Huber needle is removed using positive pressure. Tip verification should be confirmed and documented in the medical notes prior to being used for chemotherapy if device placed by another facility
Managed by Band 3 and above. Non registered nurses only use pre filled saline syringes. If sensitive to Chlorhexidine replace with Povidone for all line care.

TIVAD access and routine flush may also need bloods – Huber may remain in place after bloods if treatment in 48 hrs

Huber needles need to be secured firmly to prevent dislodgement of the needle and an increased risk of extravasation

Action	Rationale
Equipment Required **Dressing Pack containing sterile towel and gloves** **Gauze swabs x 3, 10ml syringes x 2** **Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol swab or Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator** **Sterile 10ml 0.9% pre filled Sodium Chloride for injection syringe x2** **Blunt filter drawing up needle. Sharps container** **Small sterile fenestrated drape** **Alcohol hand rub** **Non coring needle (e.g. Huber) with needle free system ideally the Polyperf Perouse Huber needle** **Highly permeable dressing/securing dressing if receiving therapy in addition to flushing** **Plastic apron and pair of non sterile gloves** **Biopatch or AG patch** **AVOID CRYOGESIC SPRAY ON PORT POCKET**	Increases risks for port erosion
▪ Explain procedure to the patient. Ensure that valid consent is gained. ▪ Assess the need for topical local anaesthetic cream prior to assessing device ensuring that only the septum of the port is covered if being accessed prior to chemotherapy ▪ Prior to patient contact decontaminate hands using soap and water and don an apron and	Ensures patient compliance and reduces anxiety Reduce the risk of infection, to

non sterile gloves. ▪ Remove anaesthetic cream if used, locate septum of TIVAD by palpation, remove gloves ▪ Maintain ANTT at all times ▪ Ensure that the working area is as clean as possible. ▪ Ensure that all equipment is gathered before commencing the procedure and all packaging is intact and in date. ▪ Open pack and prepare an aseptic field ▪ Decontaminate hands ▪ Put on sterile gloves connect the blunt drawing up filter needle to the syringe Prime the non-coring needle device including its tubing with 0.9% Sodium Chloride and clamp extension tube, remove syringe. ▪ Clean the skin covering the TIVAD with Chlorhexidine Gluconate 2% in 70% Isopropyl impregnated applicator and a wider area to allow for arm manipulation. Allow to dry ▪ Place small fenestrated drape, exposing the port site ▪ Remove needle cover from non-coring needle device. Insert the non-coring needle at 90-degree angle through the skin into the septum of the TIVAD until the needle comes into contact with the metal backing while firmly securing the device with fingers of non-dominate gloved hand. ▪ Needle free device must be cleaned prior to reattaching syringe – thoroughly clean the hub of the needle free system with 2% Chlorhexidine impregnated wipe, rubbing the top of the needle free connector to the sides. This should be done several times over a period of 15 seconds. Allow to dry. ▪ Attach pre filled saline syringe , aspirate enough blood to blush the solution and inject the flush using a push pause action clamping as the last ml of the solution is instilled into the catheter. Remove the syringe and discard. ▪ If there is no flash back of blood or if there is swelling around the TIVAD site assess for correct needle placement, attempt to rotate the Huber to ensure the bevel of the needle is in line with the port line, if correct placement if in doubt remove the needle and re-access. Note when the port is flushed with the Polyperf Huber needle there is a splash of the flush on correct removal of the Huber needle which confirms correct flushing technique. . ▪ If TIVAD was accessed for flushing purposes only, remove the needle and apply pressure over puncture site for a few minutes until bleeding stops. ▪ If the needle is to remain in situ ensure the needle is secured using appropriate highly permeable dressing.	avoid contamination To maintain asepsis To prevent the device moving when inserting the Huber needle Positive pressure flushing

▪ Remove drape Remove gloves. Wash hands ▪ Clear away equipment used. Dispose of contaminated waste as per organisational policy ▪ Document care in patient's records electronically and within the hand held records if available.	maintains the patency of the device by preventing the reflux of blood on removal of the Huber needle.

Totally Implanted Venous Access Device (TIVAD) e.g. Port-a-Cath Blood sampling as part of accessing Surgical ANTT

Action	Rationale
Equipment Required **Dressing Pack containing sterile towel and gloves** **Gauze swabs x 3, 10ml syringes x 4,** **Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol swab or Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator** **X2 10ml 0.9% Sodium Chloride for injection or pre filled syringe** **Alcohol hand rub** **Non coring needle (e.g. Huber or gripper needle) Perouse Polyperf with needle free system** **Plastic apron and non sterile gloves** **Semi-permeable transparent IV dressing and securing device if receiving therapy other than for flushing**	
▪ Explain procedure to the patient. Ensure that valid consent is gained. ▪ Assess the need for anaesthetic cream. ▪ Prior contact with patient decontaminate hands using soap and water and don an apron and non sterile gloves ▪ Remove local anaesthetic cream if required and locate septum of TIVAD by palpation, remove gloves ▪ Maintain ANTT at all times ▪ Ensure that the working area is as clean as possible. ▪ Ensure that all equipment is gathered before commencing the procedure and all packaging is intact and in date. ▪ Open pack and prepare an aseptic field. ▪ Decontaminate hands. ▪ Put on sterile gloves ▪ Prime the non-coring needle device including its tubing with saline and clamp extension tube, remove syringe. ▪ Clean the skin covering the TIVAD with Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator and a wider area to allow for arm manipulation.Allow to dry ▪ Place small fenestrated drape around the port site	Ensures patient compliance and reduces anxiety Reduce the risk of infection, to avoid contamination To maintain asepsis

▪ Remove needle cover from non-coring needle device. Insert the non-coring needle at 90-degree angle through the skin into the septum of the TIVAD until the needle comes into contact with the metal backing while firmly securing the device with a gloved hand. ▪ Needle free device must be cleaned prior to reattaching syringe – thoroughly clean the hub of the needle free system with 2% Chlorhexidine impregnated wipe, rubbing the top of the needle free connector to the sides. This should be done several times over a period of 15 seconds. Allow to dry. ▪ Attach empty 10ml syringe unclamp and aspirate 5-10mls of blood. Clamp catheter and remove the syringe and discard the sample. If unable to obtain blood flush the catheter as directed below then discard. Using a second syringe, take amount of blood required decant into tubes protecting key parts. ▪ Attach pre filled saline syringe and inject the flush using a push pause action camping as the last ml of the solution is instilled into the catheter. Remove the syringe and discard. ▪ If there is swelling around the TIVAD site assess for correct needle placement, remove the needle and re-access ▪ If TIVAD was accessed for maintenance flushing purposes only remove the needle during flushing with positive pressure and apply pressure over puncture site for a few minutes until bleeding stops. Apply a small aseptic dressing for a few hours that the patient may remove. ▪ If the needle is to remain in situ ensure the needle is secured using securing tapes and appropriate highly permeable dressing. ▪ Remove dressing towel and discard. Remove gloves. Wash hands ▪ Clear away equipment used. Dispose of contaminated waste as per organisational policy ▪ Document care in patient's records	To prevent the device moving when inserting Huber needle

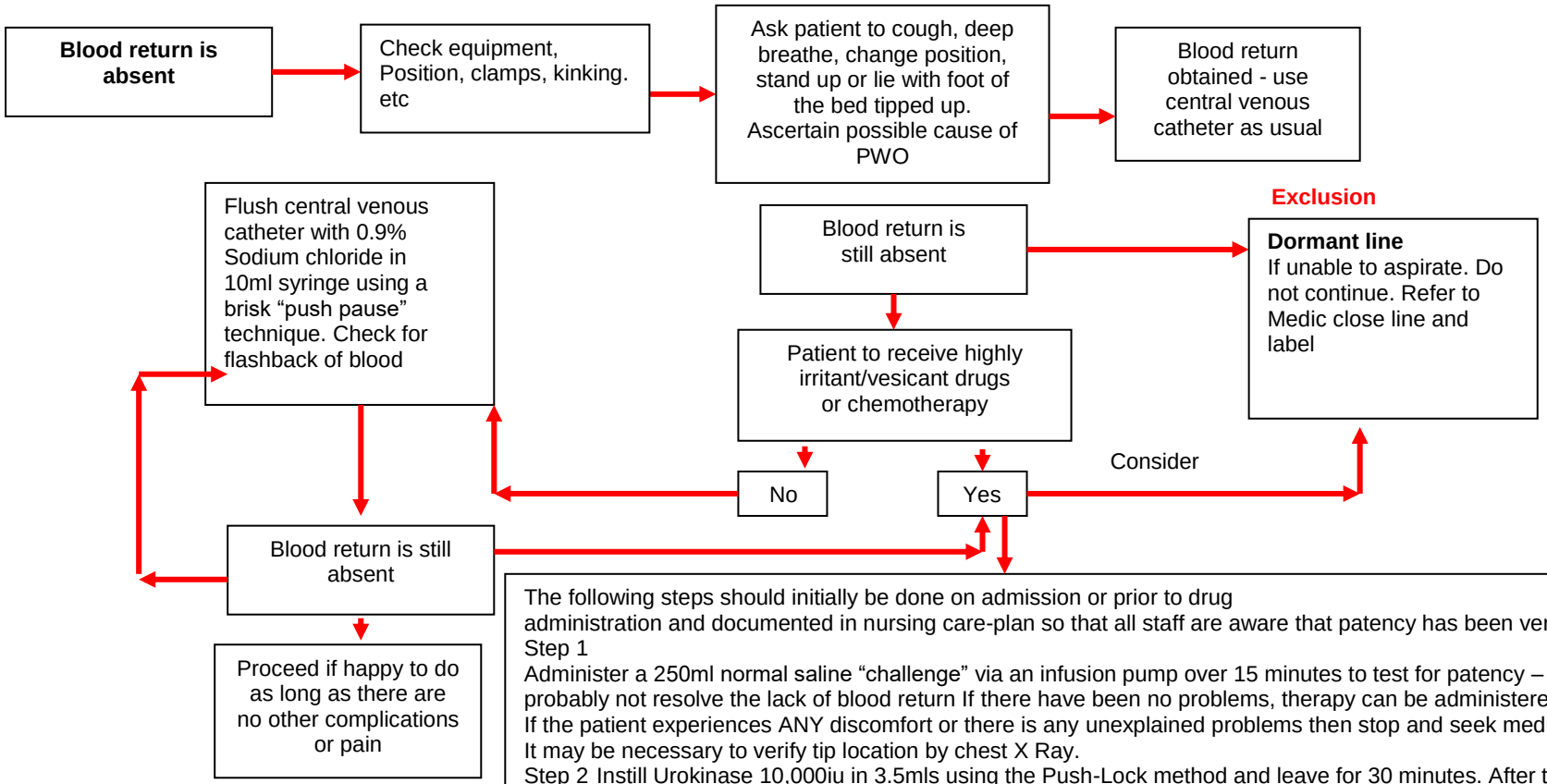
Totally Implanted Venous Access Device (TIVAD) e.g. Port-a-Cath Administration of antibiotics/infusion/additives once accessed – Standard ANTT

Action	Rationale
Equipment Required **Gloves** **Gauze swabs x 3, 10ml syringes x 2** **Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol swab or Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator** **10ml 0.9% Sodium Chloride for injection** **Surgical tape, Alcohol hand rub** **Non coring needle (e.g. Huber or gripper needle) Perouse Polyperf with needle free system** **Highly permeable dressing and securing device if receiving therapy other than for flushing** **Plastic apron** **Antibiotics/additives/infusion as prescribed**	
▪ Explain procedure to the patient. Ensure that valid consent is gained. ▪ Assess the need for local anaesthetic cream ensuring only to the septum is covered if patient is to receive chemotherapy. ▪ Prior to patient contact decontaminate hand using soap and water and don an apron. Maintain ANTT at all times ▪ Ensure that the working area is as clean as possible. ▪ Ensure that all equipment is gathered before commencing the procedure and all packaging is intact and in date. ▪ Open equipment and create a clean field ▪ Decontaminate hands ▪ Don non sterile gloves ▪ Scrub the hub thoroughly of the needle free system with 2% Chlorhexidine impregnated wipe, rubbing the top of the needle free connector to the sides. This should be done several times over a period of 15 seconds. Allow to dry. ▪ Attach syringe with 0.9% Sodium Chloride, aspirate enough blood to colour the solution	Ensures patient compliance and reduces anxiety Reduce the risk of infection, to avoid contamination To maintain asepsis

and inject the flush using a push pause action clamping as the last ml of the solution is instilled into the catheter. Remove the syringe and discard. ▪ If there is no flash back of blood or if there is swelling around the TIVAD site assess for correct needle placement, remove the needle and re-access. ▪ Following successful 0.9% Sodium Chloride for injection flush, administer antibiotics/infusion/additives as prescribed following local Trust Policy ▪ Flush the catheter again with the appropriate volume of 0.9% Sodium Chloride for injection, using a push/pause action, clamping as the last ml of the solution is instilled into the catheter ▪ If the needle is to remain in situ ensure the needle is secured using appropriate highly permeable dressing. ▪ Remove dressing towel and discard. Remove gloves. Wash hands ▪ Clear away equipment used. Dispose of contaminated waste as per organisational policy ▪ Document care in patient's records and electronically	

Algorithm persistent withdrawal occlusion

i.e. fluids can be infused freely by gravity but blood cannot be withdrawn from



Adapted from Standards for InfusionTherapy RCN (2016)

The following steps should initially be done on admission or prior to drug administration and documented in nursing care-plan so that all staff are aware that patency has been verified

Step 1

Administer a 250ml normal saline "challenge" via an infusion pump over 15 minutes to test for patency – the infusion will probably not resolve the lack of blood return If there have been no problems, therapy can be administered as normal.

If the patient experiences ANY discomfort or there is any unexplained problems then stop and seek medical advice.

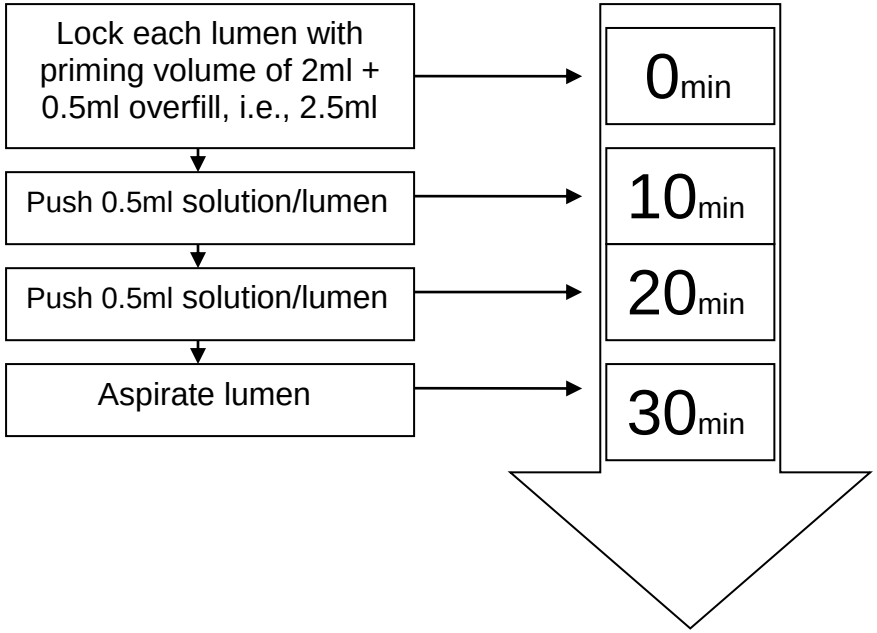
It may be necessary to verify tip location by chest X Ray.

Step 2 Instill Urokinase 10,000iu in 3.5mls using the Push-Lock method and leave for 30 minutes. After this time withdraw the Urokinase and assess the catheter again.

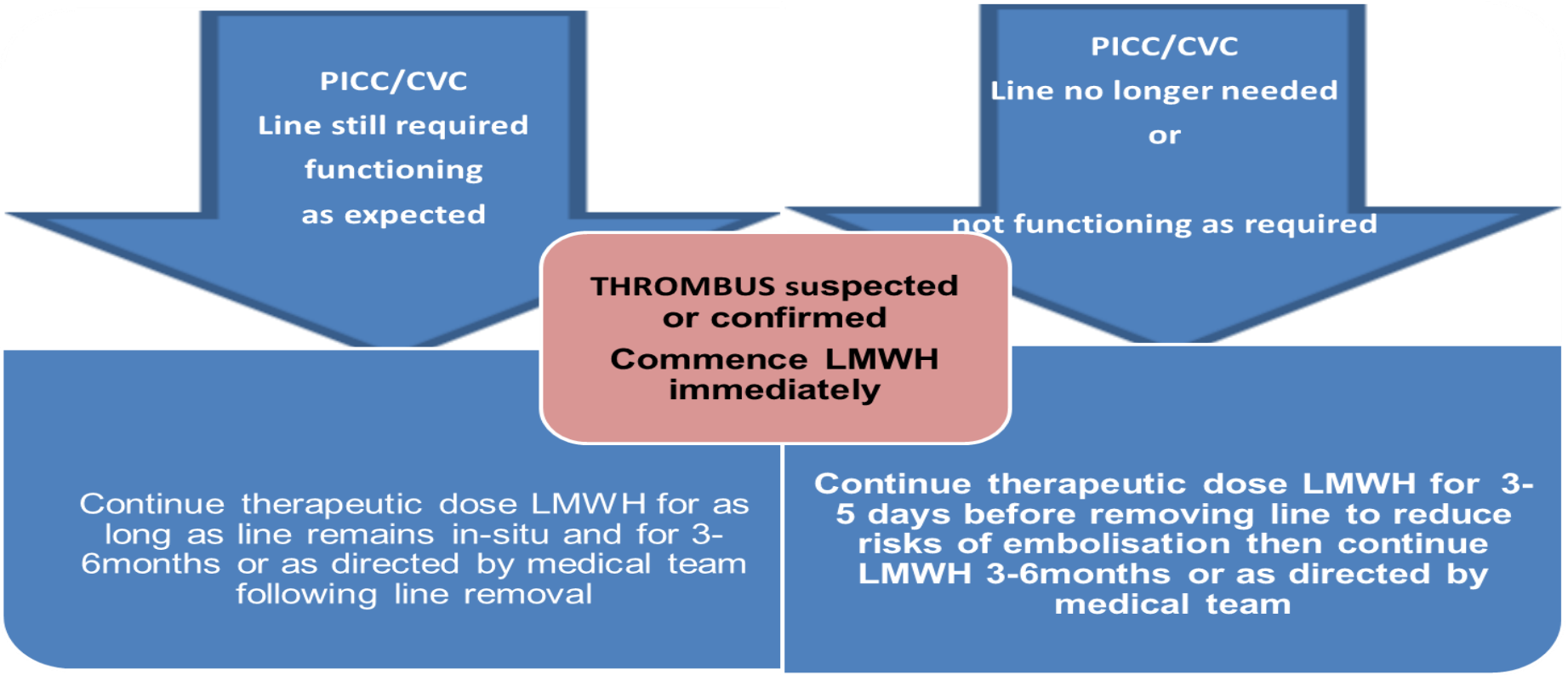
Repeat as necessary.

If blood return is still absent, it may be necessary to verify tip location by chest X Ray. .in the absence of Urokinase instill Actilyse, 2mg in 2ml left for 2 hours then aspirate. May repeat, often line will bleed on the next occasion. For long term lines it may be necessary to schedule this procedure regularly

The Push–Lock Method: Reconstitute a 10,000IU vial of Urokinase using 3.5ml of 0.9% sodium chloride for each lumen.



In the absence of Urokinase instill Actilyse 2mg in 2ml and leave for 2 hours, then aspirate this can be repeated. It may be necessary to schedule this regularly for long term lines.



Algorithm for the management of Upper Extremity Deep Vein Thrombosis (UEDVT)

References

1. **Department of Health (DOH) (2001)** Guidelines for preventing infection associated with the insertion and maintenance of central venous catheters, Journal of Hospital Infection, 47 Supplement S47 – S67

2. **Department of Health (DOH 2003).** Winning Ways: Working together to reduce health care associated infection in England

3. **Department of Health (DOH 2005**). Saving Lives: A delivery programme to reduce health care associated infection including MRSA

4. **Goodwin M, Carlson I (1993)** The peripherally inserted catheter: a retrospective look at 3 years of insertions, Journal of Intravenous Nursing, 16 (2) 92-103

5. **Hadaway L (1998)** Catheter connection, Journal of Vascular access devices 3 (3), 40.

6. **INS (2000)** Infusion Nursing Standards of Practice**,** Journal of Intravenous Nursing 23 (6S) supplement

7. **Todd J (1998)** Peripherally inserted central catheters. Professional Nurse 13(5) 297-302

8. **Jones A (2004)** Dressings for the Management of Catheter Sites – A review. JAVA, Vol. 9 No 1, 1-8.

9. **Campbell H, Carrington M (1999)** Peripheral IV cannula dressings: advantages and disadvantages. British Journal of Nursing, 8(21):1420-1422, 1424-1427.

10. **Treston-Aurand J et al (1997)** Impact of dressing materials on central venous catheter infection rates. Journal of Intravenous Nursing 20(4):201-206.

11. **Wille JC (1993)** A comparison of two transparent film-type dressings in central venous therapy. Journal of Hospital Infection 23(2):113-121
12. **Wall, C. et al. (2016**) Catheter –related thrombosis: A practical approach