



## CLINICAL GUIDELINE

# Vascular Access Devices (VADs), Care and Maintenance

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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### Important Note:

The Intranet version of this document is the only version that is maintained. Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

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## Introduction

This is the clinical guideline for care and maintenance of vascular access devices (VADs) incorporating NHS Greater Glasgow and Clyde (NHSGGC) adult (acute, mental health and community), paediatric and neonatal services. VADs are inserted for therapeutic purposes such as administration of intravenous (IV) fluids, medicines, blood transfusions, parenteral nutrition (PN) and systemic anti-cancer therapy (SACT, (chemotherapy)). Other purposes for specific VADs are renal dialysis, blood sampling and central or arterial pressure monitoring.

This document is organised with core introduction followed by care and maintenance standard operating procedure (SOP) templates. These outline commonly used procedures with either a standard or surgical approach to Aseptic Non Touch Technique (ANTT®). The information contained is based on current information available. Quality improvement, audit and research within clinical areas mean that this evidence base is constantly evolving. Practitioners should endeavour to use the most up-to-date evidence on which to base their practice.

The purpose of this guideline is to state the care and maintenance required for the following VADs:

### Peripheral Devices:

- Peripheral Venous Cannula (PVC)
- Midline Catheter
- Arterial Cannula

### Central Venous Catheters:

- Peripherally Inserted Central Catheter (PICC)
- Non-Tunnelled Central Venous Catheter (ntCVC)
- Tunnelled Central Venous Catheter (tCVC)
- Dialysis Central Venous Catheter
  - Non-Tunnelled Dialysis Central Venous Catheter (ntDCVC)
  - Tunnelled Dialysis Central Venous Catheter (tDCVC)
- Implanted Ports

The detailed procedures for insertion of VADs are outside the scope of this guideline. Practitioners involved with insertion of VADs will be informed of where specific insertion

procedure guidance can be found.

Patients with VADS are placed at increased risk of harm if not appropriately managed, e.g. healthcare associated infections and bloodstream infections are a significant cause of morbidity and mortality (NICE, 2014). Reports of mortality attributed to device related blood stream infections vary between 15% and 30% (Hattori et al, 2018). VAD related bloodstream infections caused by inadequate device management significantly reduces the survival of patients in our care.

Patient harm can be reduced through:

- Trained and competent staff
- Adherence to relevant policies and guidance
- Underpinning knowledge of different VADs
- Good care and maintenance of VADs
- Appropriate use of care bundles and accurate documentation (e.g. PVC and CVC care plans and device specific diaries)
- Prevention, early recognition and management of complications
- Inserting a VAD only when clinically indicated and removing at earliest opportunity
- Robust governance and regular audit of VAD related complications

## **Scope**

This guideline is relevant to all health care practitioners that care for patients with a VAD within NHSGGC areas. This includes registered nurses/midwives, medical staff, allied health practitioners, associated students in undergraduate programmes on placement, bank and agency staff. This guideline should be used in conjunction with other relevant guidelines and SOPs. A list of [appropriate guidelines](#) is included at the end of this document.

Staff in specialist clinical areas caring for particularly vulnerable patient groups may have local SOPs in use which should be referred and adhered to.

## **Roles and responsibilities**

To be involved in the care and maintenance of any VAD, staff should be appropriately trained and supervised until considered competent. A practitioner can be described as competent if they have had the necessary training, clinical experience, skills and knowledge to undertake a task safely and without supervision. If, following clinical risk assessment, a practitioner deems it appropriate to deviate from the guidelines; this must be clearly

documented in the patient's notes.

## **Consent**

Consent is required before healthcare practitioners undertake any care for a patient. This may be informal (verbal) or formal (written) for more complex procedures. The patient should be fully informed and provided with patient information leaflets when necessary. If a healthcare practitioner makes an assessment that a patient may lack capacity to make decisions regarding their hospital care an **urgent assessment of their ability to consent to their care by a doctor of FY2 grade or above is required**. The doctor will consider whether use of the Adults with Incapacity (Scotland) Act 2000 and/or the Mental Health (Care and Treatment) (Scotland) Act 2003 is appropriate. This allows healthcare practitioners to provide treatment that is required.

In emergency situations, common law and duty of care reasoning allows healthcare practitioners to use clinical judgement as to whether the risks of delaying a procedure outweigh the need for formal consent. The healthcare practitioner must ensure that it is **necessary, reasonable** and **proportionate**.

\*Children and young people: Those under 16 years have legal capacity to consent (or refuse) treatment on their own behalf, if they are deemed capable of understanding the nature and possible consequences of treatment. A parent or legal guardian may consent to medical treatment **if** the child lacks decision-making capacity.

## Common principles

The following information contains a number of recommendations when caring for a patient with a VAD, aimed at improving patient safety and reducing the risk of harm.

Principle	Rationale and action
<b>VAD inspection</b>	<p>The VAD should be checked and observed every time the device is being used. If the VAD is not being used for continuous infusions, then the patency of the device should be assessed as frequently as required for the VAD and prior to any medicine administration, transfusions or other infusions.</p> <p>Frequency of VAD checks by a healthcare practitioner is dependent on clinical area, patient's clinical condition and types of IV medicines being administered e.g. patients receiving irritant medications may have increased frequency checks; patients in community setting may have a decreased frequency of checks. Observation should include:</p> <ul style="list-style-type: none"> <li>• Insertion point and surrounding tissue – are there any signs of inflammation, phlebitis, infection, infiltration or extravasation?</li> <li>• Dressing – is it clean and intact?</li> <li>• Integrity of VAD – does the VAD show signs of leakage (fluid/air escaping) or any visible fractures (cracks)?</li> <li>• Security of connections – is the VAD and connections secure, is there evidence of leakage? If fixation device or sutures are used, do these look secure?</li> <li>• Dislodgement or migration of device – does the VAD look as if it has moved, dislodged or migrated from its previous position?</li> </ul> <p>All checks and actions should be clearly documented.</p>
<b>Dressings</b>	<p>If the dressing is loose, damp or soiled, it should be replaced immediately and the patency of the VAD should be assessed.</p> <p>All central VADs should have a chlorhexidine impregnated dressing or patch placed over the exit site to reduce the risk of catheter related bloodstream infection. This includes PICCs, non-tunneled and tunneled central venous catheters and dialysis catheters.</p>
<b>Dwell times</b>	<p>All VADs should be removed when no longer clinically indicated. VADs</p>

	<p>may remain in situ for as long as required unless there is a clinical indication for removal and there are no signs of phlebitis or infection. Maximum dwell times should be in line with manufacturer's recommendations.</p> <p>Medical and nursing staff should review the need for intravenous therapy, including antibiotics, on a daily basis and consider IV to oral switch over, if appropriate. The NHSGGC Intravenous Oral Switch Therapy (IVOST) policy can be found <a href="#">here</a>. The paediatric IVOST policy can be found <a href="#">here</a>.</p>
<p><b>Aseptic Non-Touch Technique® (ANTT)</b></p>	<p>A framework that promotes safe and effective aseptic technique for clinical procedures which is based on the principles of Rowley (2010). The <a href="#">NHSGGC Aseptic Non Touch Technique (ANTT®) Guideline</a> has specific guidance and picture templates for procedures. A short video on 'ANTT® Competency what you need to know' can be found <a href="#">here</a>.</p>
<p><b>Standard Infection Control Precautions</b></p>	<p>Current local and national guidance advise that <a href="#">Standard Infection Control Precautions</a> (SICPs) should be embedded into all aspects of care delivery including the care of patients with VADs. Practitioners are expected to adhere to the principles of SICPs to reduce patient harm.</p>
<p><b>Needle Free Access Devices (NFAD)</b></p>	<p>The purpose of a NFAD is to facilitate accessing a VAD during the administration of single or multiple IV infusions, reduce the risk of catheter related blood stream infections (CRBSI) and needle stick injuries. NFADs should be attached to VADs, unless these connectors are inappropriate for use with a particular VAD.</p> <p>All needle free access devices, whether single or multiple, with or without extension sets, must be primed before use with sterile IV 0.9% sodium chloride solution. There are a huge variety of different NFADs available and clinical specialities/practitioners should determine the NFAD appropriate to the patient's need and VAD requirements. Anti-reflux valve NFADs are also available and should be considered for use when high risk for extravasation medications and therapies are being administered.</p> <p>NFADs should be changed according to manufacturer's advice, unless there is a clinical rationale to increase the frequency.</p>

	<p>*Some clinical areas may have a rationale to change NFAD more frequently than manufacturer's recommendations e.g. every 72 hours.</p> <p>A PVC <b>must always</b> have a NFAD with extension set attached to avoid inadvertent mechanical phlebitis when attaching and disconnecting to the NFAD (*exception theatres/endoscopy/imaging)</p> <p>'Scrub the hub' of the NFAD for at least 30 seconds using 2% chlorhexidine and 70% isopropyl alcohol wipe and allow to dry before attaching syringes or administration sets.</p>
<b>Port protectors</b> (*alcohol impregnated)	Disinfecting port protectors may be considered as part of a care bundle / strategy to reduce the risk of CRBSI. When removing a port protector to connect an administration set or syringe, the NFAD end should still be decontaminated with 2% chlorhexidine in 70% isopropyl alcohol wipe ('scrub the hub') for a minimum of 30secs and allow to dry.
<b>Flushing of VADs</b>	<p>Flush is normally sterile 0.9% sodium chloride solution. All flush solutions should be independently checked with a registered healthcare practitioner. The necks of flush ampoules or vials should be decontaminated with 2% chlorhexidine in 70% isopropyl alcohol. Flush solution should be drawn up using a blunt filter needle or a 23g safety hypodermic needle and a 10ml luer lock syringe, or larger. A <b>turbulent push-pause</b> flush with sterile 0.9% sodium chloride (NaCl) finishing with <b>positive pressure</b> is required to maintain catheter patency. The volume of flush will vary depending of the patient, VAD and NFAD in use.</p> <p><b>* Paediatrics and neonates will use a smaller volume of flush</b></p> <p>For further information see <a href="#">NHSGGC IV Medicine and flush administration policy (2021)</a>.</p>
<b>Locking of VADs</b>	Evidence-based research recommends that using a <b>turbulent push-pause flush with sterile 0.9% sodium chloride (NaCl) in a 10ml syringe (or larger) finishing with positive pressure</b> is sufficient to maintain catheter patency and 'lock' VADs.
<b>Blood discards</b>	Blood discards are small volumes of blood withdrawn to ensure patency and placement of the tip of the VAD. This small sample is frequently referred to as a 'blood discard' as it is not used for therapeutic



	<p>monitoring purposes. Small blood volume losses from repeated blood discards can have an accumulative effect and can become particularly significant in infants and small children where total blood volume is much less overall. In this situation, consideration should be given to the volume discarded and the overall impact this may have and whether the blood needs to be discarded or returned.</p>
<p><b>Parenteral Nutrition</b></p>	<p><b>Adult</b> Parenteral Nutrition: A VAD that is inserted for administration of parenteral nutrition (PN) in adult patients should <b>never</b> be used for any other purpose e.g. blood / fluid / medicine administration or blood sampling. This would affect the ability to continue to use the VAD for PN and could have adverse effects for patients.</p> <p><b>Paediatric</b> Parenteral Nutrition: VADs may be inserted for multipurpose use. This may require that VADs used for administration of parenteral nutrition in paediatric patients may also require to be used for administration of other medications/therapies or blood sampling. This is done on an individual/case-by-case review and risk assessment undertaken and documented by the multi-disciplinary team and is due to the limited availability of vascular access.</p>
<p><b>Blood Sampling from VADS</b></p>	<p>Within NHSGGC, <b>blood samples are routinely obtained using venepuncture equipment and a peripheral blood sample.</b> In certain circumstances, some VADs may be used to obtain blood samples. The decision making process is complex and multifactorial.</p> <p>When considering using a VAD to obtain blood samples, it is crucial to consider the potential increased risk of infection when accessing the VAD over increased skin punctures from multiple venepuncture attempts. Some VADs are inserted with particular purpose in mind. For example, patients undergoing long term chemotherapy treatment with difficult intravenous access may have a VAD inserted to avoid multiple cannulations and venepunctures - it <b>may</b> be appropriate to sample from the VAD. Blood sampling from VADs must only be undertaken by registered healthcare practitioners, competent to do so.</p> <p>Registered healthcare practitioners must undertake a risk assessment using the <a href="#">NHSGGC VAD blood sampling decision tool</a> to guide and</p>

	<p>inform clinical decision making. <a href="#">NHSGGC Blood Sampling Standard Operating Procedure (SOP)</a> <b>must</b> be used when using VADs for blood sampling. Blood sampling for therapeutic monitoring is <b>not</b> recommended from a VAD that is being used to deliver medications as this will affect the results. Established PVCs and below antecubital fossa midlines should <b>not</b> be used for blood sampling.</p> <p><b>Adult patients: VADs that have been inserted for administration of parenteral nutrition must <u>not</u> be used for blood sampling, even when the patient has difficult intravenous access. This will affect the continuation of using the VAD for administration of parenteral nutrition.</b></p>
<p><b>Administration sets</b></p>	<p>When an administration set is connected to a VAD, it is essential, that a <b>closed system</b> is maintained, avoiding unnecessary disconnection. The choice and selection of the appropriate NFAD is important as a multiple lumen NFAD would prevent many unnecessary disconnections. When the closed system is interrupted it is essential to observe an aseptic non touch technique (ANTT®). Administration sets are single use and should be discarded once disconnected. In some clinical situations, it may not be possible to avoid disconnection of administration sets due to the type of treatment being administered to the patient. The practitioner should assess the rationale for the disconnection. If it is essential for patient care that the treatment / equipment cannot be disposed of, an ANTT® procedure should be adhered to and the VAD should be flushed appropriately sterile 0.9% sodium chloride (NaCl), and the administration set sealed with a sterile cap.</p>
<p><b>Allergy</b></p>	<p>Patient's allergies must be checked prior to any procedure from a dressing, topical solutions and medicines perspective. If the patient has a chlorhexidine allergy, alcoholic povidone-iodine solution can be used instead of 2% chlorhexidine in 70% isopropyl alcohol.</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an</p>

	alternative for babies less than 3 months old.
<b>Medicines prescription</b>	All medicines must be prescribed as appropriate. This may be on an approved electronic system or paper medicine prescription chart. The process of not prescribing or recording the administration of flush solutions (except in paediatric patients) is an authorised <b>exemption</b> to the normal practice for all other Prescription Only Medicines (POMs), as described on the <a href="#">NHSGGC Safe and Secure Handling of Medicines policy</a> . For further information see <a href="#">NHSGGC IV Medicine and flush administration policy (2021)</a> .
<b>Lattice pattern skin decontamination</b>	Decontamination of VAD entry point and surrounding area should be undertaken using a 'lattice pattern'. This describes gentle repeated up and down, back and forth strokes, using 2% chlorhexidine and 70% isopropyl alcohol, for 30 seconds before working outwards to the periphery. The solution should be allowed to fully air dry before progressing to the next step.

## Description of VADs

There are several types of VADs. These devices are classified as either a peripheral or central access device. A VAD is chosen dependent on:

- Clinical need of the patient
- Type of IV therapy / treatment required
- Anticipated length of therapy

## Peripheral Devices

### Peripheral Venous Cannula (PVC)

A temporary plastic catheter that is inserted into a peripheral vein to allow administration of IV fluids, medication / IV therapies (e.g. dyes and contrast media) and transfusion of blood products. This device is usually a short-term VAD. PVCs may be ported or non-ported. Immediately following insertion, top ports may be considered sterile and used to administer time critical medications (e.g. anaesthetic medications).

The top ports of PVCs should only be utilised in an emergency as it cannot be adequately decontaminated due to the design of the device. The top port should never be used to administer systemic anti-cancer therapies (SACT) due to the risk of exposure for the practitioner.

#### Care and maintenance points

The continuing need for a PVC should be reviewed and documented daily

PVC check is done twice per day and documented on the PVC careplan

Flush a minimum of once per day; before, between and after medicine administration

Needlefree access devices are changed every 7 days and include an integral tubing to minimise mechanical phlebitis

Blood sampling should only be done on insertion of PVC, and before administration of flush. Established PVCs should **not** be used for blood sampling

The flush should be administered with ease. If there are signs of resistance, infiltration, extravasation or inflammation discontinue flushing process and consider replacing PVC

Sterile semi permeable transparent dressings are used and changed if loose or soiled

Device securing strips are used to minimise movement of the PVC under the dressing

	<p>Record care and maintenance and complete PVC care plan</p> <p>Ensure VAD is positioned to ensure skin health is maintained</p> <p>PVCs are removed by a suitably competent practitioner</p>
<p><b>Midline Catheter</b></p>	
<p>A temporary polyurethane catheter 8 – 20cm in length inserted in a peripheral vein. A midline catheter is a peripheral device, the tip of which sits in a peripheral vein and does not enter a central vein. Some midlines are inserted in the lower arm and some in the upper arm, care and maintenance varies depending on device. Users need be aware of which device is inserted and look at the information supplied regarding care and maintenance. Midlines come in variable gauges that can be inserted at ward level at the bedside or under ultrasound guidance. The size of catheter inserted will depend on the intended duration and nature of treatment. This is ideal for patients who have multiple PVC insertions or require extended term IV access. The midline catheter is also useful when further haemodilution of medications is required, but not necessarily via a central venous catheter. Both types of midline are maintained and cared for as a peripheral venous catheter.</p>	
<p>Care and maintenance points</p>	<p>The continuing need for a midline catheter should be reviewed and documented daily.</p> <p>The midline catheter should be assessed for patency (flushed) prior to each medicine administration and at least weekly, if the midline is not in constant use</p> <p>Below antecubital fossa midlines should not be used for blood sampling.</p> <p>The flush should be administered with ease. If there are signs of resistance, infiltration, extravasation or inflammation discontinue flushing process and consider replacing midline</p> <p>Fixation devices and sterile semi permeable transparent dressings are used and changed every 7 days or when loose or soiled</p> <p>Needlefree access devices are changed every 7 days.</p> <p>Midline diary should be used to document care and maintenance</p> <p>Midline is positioned to ensure skin health is maintained</p> <p>Midlines should be removed when no longer clinically indicated. Midlines are removed by a suitably competent practitioner</p>
<p><b>Arterial Cannula</b></p>	
<p>A temporary plastic catheter that is inserted into a peripheral artery. Arterial cannulas are often</p>	

inserted in patients who are critically unwell and allows invasive blood pressure and haemodynamic monitoring and can be used for frequent blood sampling. These devices are **never** used for administration of any IV preparation (medicines / blood products / fluids, with the exception of the transducer set).

Care and maintenance points

The continuing need to an arterial line should be reviewed daily.

Arterial cannula care and maintenance should be documented on arterial care plan (paper or electronic)

**Adult patients:** Arterial cannulas are normally sutured and transduced with 0.9% sodium chloride

**Paediatric patients:** Arterial cannulas need to be secured to prevent dislodgement. This may be sutures or wound closure strips to prevent damage to skin. Transducers are filled with heparin sodium I.V. flush as the gauge of arterial cannulas is small and prone to blockage. Sterile semi permeable transparent dressing are used and changed every 7 days or when loose or soiled

Needlefree access devices are changed every 4 days, in line with the transducer set

Ensure arterial cannula is positioned to ensure skin health is maintained.

Arterial cannulas are removed by suitably competent practitioners

## Central Devices

### Peripherally Inserted Central Catheter (PICC)

A Peripherally Inserted Central Catheter (PICC) is inserted into a peripheral vein in the upper arm (basilic, cephalic or brachial vein) and is then advanced until the tip is placed in a central vein, normally the lower superior vena cava (SVC) or proximal right atrium. This is a central device that is inserted peripherally, and is most commonly used for short - midterm venous access to facilitate administration of extended IV therapy such as cytotoxic chemotherapy, Parenteral Nutrition and IV medication that needs to be administered centrally. PICCs have centimetre markings to allow easy observation of migration of the catheter. PICCs can be single or multi lumen. PICCs inserted within NHSGGC are non-valved, however valved versions of the device may be used in other health boards. A PICC can remain in place for the duration of therapy if no complications occur.

\*Neonatal services: PICCs can be placed in any limb, and sometimes the scalp.

Care and maintenance

Flush and lock of catheter should be carried out every 7 days.

points	<p>Clamps integral to PICC should be repositioned on PICC to prevent damage to the device and to optimise the life of the catheter and minimise risks of blockage</p> <p>Observe the external length of the PICC for signs of migration, from the exit site to the start of the hub</p> <p>Dressings for PICCs should be a chlorhexidine (CHG) impregnated patch and sterile semi permeable, transparent dressing. Dressing and patch should be changed every 7 days, or if loose or soiled</p> <p>Loosen and carefully remove the old dressing in an <b>upward</b> direction towards the exit site, taking care not to pull or dislodge the catheter</p> <p>PICCs are secured using a fixation device in addition to the CHG patch and dressing. These are also changed every 7 days or if loose or soiled. Fixation devices should be positioned to allow visualisation of the exit site.</p> <p>Paediatrics – If no infusion to be connected, or lumens not being used, PICC lumen may be flushed with heparin sodium I.V. flush 10u/ml. Seek advice.</p> <p>Inspection should be documented on the PICC care plan</p> <p>The PICC is positioned to ensure skin health is maintained</p> <p>PICCs should be removed as soon as no longer clinical indicated. PICCs are removed by suitably competent practitioners at ward level. Although the tip of the PICC is situated in a central vein, the risk of air embolism is small due to the entry point being in a peripheral site. The PICC removal appendix outlines the appropriate process (that is different to a non tunnelled CVC). A suitable sterile dressing should be applied to the puncture site for 24hours</p>
Blood sampling	<p><b>Peripheral venepuncture is the NHSGGC preferred method of blood sampling.</b> The <a href="#">NHSGGC blood sampling decision tool</a> should be referred to and the <a href="#">NHSGGC Standard Operating Procedure for blood sampling</a> from a VAD should be strictly adhered to.</p> <p><b>Adult:</b> PICCs that are used for administration of Parenteral Nutrition should <b>NOT</b> be used for blood sampling.</p> <p><b>Paediatrics:</b> Very fine bore PICCs used in paediatrics /.neonates are <b>not</b> used for blood sampling. Due to limited vascular access in paediatric patients, some PICCs may be used for multiple purposes.</p>
<b>Non-Tunnelled Central Venous Catheter (ntCVC)</b>	
A non-tunnelled CVC is inserted directly into a large central vein. Depending on the insertion site,	

the tip of the device will lie in the superior or inferior vena cava. ntCVCs are inserted to provide treatment in the acutely unwell patient for example, the administration of IV medications that require central access, aggressive fluid resuscitation and central venous pressure/haemodynamic monitoring. ntCVCs must be secured in place with sutures. This is a short term central VAD, and is available as a single or multi-lumen device.

Care and maintenance points

ntCVCs should be flushed with sterile 0.9% sodium chloride as often as necessary to administer medications as prescribed; and at least once every 24 hours if CVC not be used for administration of IV fluids or medicines.

Paediatrics – If no infusion to be connected, or lumens not being used, CVC lumen may be flushed with heparin sodium I.V. flush solution 10u/ml. Seek advice.

Record procedures and complete CVC care plan or diary

ntCVC is positioned to ensure skin health is maintained

Dressings should be chlorhexidine (CHG) impregnated. This may be a CHG dressing or a CHG patch and sterile semi permeable, transparent dressing. Dressing (and/or patch) should be changed every 7 days, or if loose or soiled

The individual lumens and access ports of a ntCVC should have a needle free access device attached to reduce the risk of catheter related blood stream infections. These should be changed every 7 days or as manufacturer recommendations

ntCVCs should be sutured in place and checked daily

ntCVC removal should be considered when there is no longer a clinical need for the device, infection is suspected or a more permanent VAD is required. ntCVC are removed by competent practitioners:

- Patient **MUST BE** in bed lying flat in a head-down-tilt position unless contraindicated – seek advice
- **Air embolism is a significant risk if procedure not followed. If suspected, turn patient left side down (Trendelenburg position), administer 100% oxygen via a non-rebreathing mask and call 2222**

Cover the site with a sterile occlusive **hydrocolloid** dressing, ensuring a good adherence of the dressing to the skin (for 24 hours).

**Cuffed Tunnelled Central Venous Catheter (tCVC)**

A tCVC is sited with the tip in a large central vein (typically the superior or inferior vena cava) and



<p>the catheter is tunnelled within subcutaneous tissue to exit the skin surface at a point distant to the entry to the vein. These devices are inserted to provide long term IV therapy, such as chemotherapy and Parenteral Nutrition. tCVCs inserted within NHSGGC have a cuff to prevent migration of the catheter and can act as a mechanical barrier to reduce risk of bloodstream infections, however uncuffed versions of the device may be used in other health boards. A tCVC can be valved or non-valved, single or multi lumen.</p>	
<p>Care and maintenance points</p>	<p>After 3 weeks the purse string suture (if used) can be removed as Dacron cuff will have embedded subcutaneously (check with insertion service as not all will have a purse string suture).</p> <p>Dressings should be chlorhexidine (CHG) impregnated. This may be a CHG dressing or a CHG patch and sterile semi permeable, transparent dressing. Dressing (and/or patch) should be changed every 7 days, or if loose or soiled</p> <p>Place the line in a loop and apply dressing, ensure adherence</p> <p>Record procedure and complete CVC care plan or diary</p> <p>tCVC is positioned to ensure skin health is maintained</p> <p>Inspect exit site and surrounding skin for signs of phlebitis or infection</p> <p>Removal of cuffed tCVC should be undertaken by specially trained and competent practitioners. This would normally be undertaken in the area that was responsible for the insertion e.g. Vascular Access Service, theatre, interventional radiology services or haematology clinical nurse specialists. Appropriate referrals should be made.</p>
<p><b>Dialysis CVC (tunnelled and non-tunnelled)</b></p>	
<p><b>Non-Tunnelled Dialysis Central Venous Catheter (ntDCVC)</b></p>	<p>A ntDCVC is inserted directly into a large central vein. The tip of these devices will lie in the superior or inferior vena cava. ntDCVCs have an access lumen and a return lumen to facilitate the flow of blood for renal dialysis treatment. ntDCVCs must be secured in place with sutures. This is a short term central VAD, inserted to administer renal dialysis.</p>
<p><b>Tunnelled Dialysis Central Venous</b></p>	<p>tDCVC is sited with the tip in a large central vein (typically the superior or inferior vena cava) and the catheter is tunnelled within subcutaneous tissue to exit the skin at a point distal to the entry to the vein. ntDCVCs have an access lumen and a return lumen to facilitate the flow of blood for renal dialysis treatment. These are</p>

<b>Catheter (tDCVC)</b>	long term devices inserted to administer renal dialysis.
Care and maintenance points	<p>*Paediatrics may consider immobiliser (used to fix and secure wings of VAD)</p> <p>Dialysis CVCs (tunnelled and non tunnelled) should have sterile chlorhexidine impregnated semi permeable dressing applied. This may be a CHG dressing or a CHG patch and sterile dressing. Dressing and/or patch should be changed every 7 days, or if loose or soiled</p> <p>Record procedures and CVC care plan or dialysis book</p> <p>VAD is positioned to ensure skin health is maintained</p> <p>Dialysis CVC removal should be considered when there is no longer a clinical need for the device, infection is suspected or a more permanent VAD is required.</p> <p>Non tunnelled Dialysis CVC are removed by suitably competent practitioners</p> <p>Patient <b>MUST BE</b> in bed lying flat in a (Trendelenburg) head-down-tilt position unless contraindicated – seek advice</p> <p>Ask patient to hold their breath and perform a Valsalva Manoeuvre. If valsalva cannot be performed, the catheter should be removed on expiration</p> <ul style="list-style-type: none"> <li>• <b>Air embolism is a significant risk if procedure not followed. If suspected, turn patient left lateral trendelenburg position, administer 100% oxygen and call 2222</b></li> </ul> <p>Cover the site with a sterile occlusive <b>hydrocolloid</b> dressing, ensuring a good adherence of the dressing to the skin (for 24hours)</p> <p>Minimize activity for at least one hour post removal. Observe insertion site for signs of leakage, haemorrhage, or haematoma. Assess the site for bleeding every 5 minutes for 30 minutes, then every 30 minutes. Observe limb closest to insertion site for signs of swelling and or pain. Dressing must remain in situ for a minimum of 24 hours following CVC removal and then dressed as required until site has healed</p> <p>For femoral venous catheters: Nurse patient flat for 2 hours when possible. Apply pressure for at least 15 minutes. Ensure complete cessation of bleeding ensured prior to applying dressing. Do not allow hip flexion during this period</p> <p>Tunnelled dialysis CVCs are removed by specially trained and competent practitioners. This would normally be undertaken in the area that was responsible for the insertion e.g. Vascular Access Service or Renal Service. Appropriate</p>

	referrals should be made.
<b>Implanted Ports</b>	
<p>An implanted port is a central venous access device, often referred to as a Port-a-cath®. These are useful for long term vascular access. They are designed to permit repeated access to the venous system for the parenteral delivery of medications, fluids and nutritional solutions.</p> <p>A port consists of a portal chamber (reservoir), which can be made of special plastic, stainless steel or titanium. It has a silicone septum (injection area) and is attached to a catheter which is tunnelled under the skin and advanced until the tip of the catheter lies in the central venous system, normally the lower superior vena cava or proximal right atrium).</p> <p>This device is available as a single chamber or double chamber system. The port is always accessed through the septum of the port into the port reservoir using a deflected tip (Huber) needle to prevent coring of the silicone septum and subsequent leakage.</p>	
Care and maintenance points	<p>A minimum volume of flush is at least twice the volume of the catheter. 5mls heparin sodium I.V. flush 100u/ml is used to lock implanted ports</p> <p>The volume of the flush solution can vary depending on the patient age, make of device, catheter size and nature and type of infusion / medication.</p> <p>A specialist non coring needle must be used. The size of the non coring (huber/ GRIPPER®) needle required should be clearly documented. The non coring needle should be inserted and removed at 90° to the skin.</p> <p>Newly implanted ports should not have local anaesthetic creams applied to the site, until fully healed. Huber/ GRIPPER® needles may be left in situ to prevent discomfort accessing the port. Sterile semi permeable transparent dressing would secure the non coring needle in place.</p> <p>The implanted port requires to be flushed before and after and in between medicine administration, or IV Fluids, after collecting blood samples and monthly when the port is not in use.</p> <p>The implanted port should be inspected for signs of infection or phlebitis each time it is accessed or at least once daily – minimum whilst an inpatient / acute areas.</p> <p>The site surrounding the implanted port should be inspected for signs of infection or phlebitis each visit for patients receiving care at home / community – minimum</p> <p>Care should be document in the implanted port care plan</p> <p>*Paediatrics - Prior to accessing the implanted port, topical anaesthetic may be</p>

applied over the site, covered with an adhesive semi-permeable dressing. Leave for recommended duration for maximum anaesthetic effect. Ensure that the topical anaesthetic has been removed immediately prior to preparing the site for access.

Stretching the skin, or asking the patient to change position or lie flat can assist the user/nurse to identify the nodules of the device.

The tissue surrounding the implanted port should be monitored throughout the procedure for:

- Redness
- Swelling
- Discomfort surrounding the port

It is inadvisable to use the port if these signs are noted – inform medical staff and document. Monitor vital signs

Long term implanted port related complications: These include extravasation, catheter blockage due to thrombosis, local and systemic infection associated with the insertion and maintenance of Central Venous Catheters and breakdown of skin integrity over the portal.

Seek medical / nurse specialist advice.

If a patient has pyrexia or complains of any symptoms such as pain, swelling or discolouration of the skin, a doctor or person expert in implanted port complications e.g. specialist nurses, should be informed immediately so that the problem can be investigated

Removal of implanted ports should be undertaken by specially trained and competent practitioners. This would normally be undertaken in the area that was responsible for the insertion e.g. Radiology or Theatres. Appropriate referrals should be made.

## Complications and troubleshooting

There are many complications associated with insertion, care and maintenance of VADs. Most complications and adverse events can be prevented or minimised through:

- Education and training to ensure practitioner competence
- Careful insertion technique
- Adhering to ANTT® principles
- “Scrub the hub” before accessing needle free access device (NFAD) – cleaning the NFAD for at least 30 secs with 2% chlorhexidine and 70% isopropyl alcohol before use, and allowing to dry
- Allowing skin to dry following decontamination (before insertion of VAD and at dressing changes)
- Securing the device appropriately with either device securing strips or sutures (device dependent)
- Using appropriate dressings, covering puncture site and changing these when they become loose or soiled. Central VADs should have a dressing that is impregnated with chlorhexidine
- Appropriate flushing technique using sterile 0.9% sodium chloride solution using 10ml syringe with a turbulent **push-pause technique and finishing with positive end pressure** before clamping or disconnecting the flush syringe to ensure patency
- Flush should be administered before, between and following each medicine administration
- VAD should be removed immediately when no longer clinically indicated
- Repositioning VAD integral clamps to prevent damage to the lumen that may cause the VAD to block or fracture

Issue	Explanation and remedial actions
<b>Infection</b>	Insertion site should be inspected for signs of infection or phlebitis each time it is accessed or at least once daily (minimum) whilst an inpatient / acute areas or at each home/clinic visit for patients receiving care at home / community (minimum).  <b>Signs:</b> generally feeling unwell, pyrexia or rigor, increasing early warning

	<p>score (NEWS/PEWS/MEWS).</p> <p><b>Action: Refer to medical team</b> – catheter may be removed or infection may be treatable without device removal, depending on the patients clinical status and colonising organism.</p> <p>Only take blood cultures from the VAD if it is thought to be the source of the infection. Document and report on Datix. Obtain blood cultures from each lumen of the VAD and peripherally.</p> <p>PVCs should be removed.</p> <p>Monitor NEWS/PEWS/MEWS, frequency will depend on patient’s clinical status – Consider Sepsis!</p> <p>For catheter salvage – consider antibiotic or <a href="#">Taurolidine citrate</a> (discuss with Microbiologist. <b>N.B. Taurolidine citrate is a pharmaceutical product which needs to be prescribed with the correct formulation.</b></p> <p>Exit site infection would be noted with tenderness/phlebitis at the exit site +/- exudate. Action: Obtain wound swab for culture and sensitivity. Redress exit site. If exudate present, increase frequency of dressing change. Refer to medical team, consider antibiotic therapy.</p>
<b>Phlebitis</b>	<p>The inflammation of the intima layer of the vein. Signs of phlebitis include localised pain, redness and swelling. There are three main types:</p> <ul style="list-style-type: none"> <li>• Mechanical - caused by venous catheter irritation to the lumen of the vein e.g. direct manipulation of PVC resulting in movement in vein or large PVC in a small vein</li> <li>• Chemical - caused by irritation from chemicals e.g. medications and chemotherapy</li> <li>• Infective - usually bacterial and can present in a number of ways including discomfort, local site inflammation and systemic infection</li> </ul> <p><b>Action:</b> Consider removing VAD and replacing. Treatment will vary depending on the individual patient, and severity of the phlebitis. Seek advice from appropriate clinical team members.</p>
<b>Migration</b>	<p>The inserted VAD moves from its intended position. VADs should be inspected on each use to monitor for signs of migration.</p> <p><b>Action: DO NOT PUSH THE VAD BACK IN.</b> Consider patency and position of tip of VAD. VAD may require to be removed and replaced.</p>

	<p><b>Central VADs:</b> A chest x-ray should be carried out to review the position of the tip of the VAD and reviewed by appropriate practitioner. The VAD may require to be removed if not in an appropriate position.</p> <p>Dacron cuff of tCVC is visibly exposed - The migrated cuffed tunnelled CVC should not be used. Secure catheter in current position and make an urgent referral for removal of device and insertion of a new device due to risk of bleeding and/or air embolus.</p>
<b>Infiltration</b>	<p>The inadvertent leaking of a non-vesicant solution from its intended vascular pathway (vein) into the surrounding tissue. It is increasingly seen as a benign event as it generally does not lead to tissue necrosis; however, large volume of infiltrate can cause compression of nerves.</p> <p><b>Action:</b> Stop IV administration; remove VAD and re-site, if required. Document event and actions taken.</p> <p>The affected limb could be elevated to encourage lymphatic drainage of the excess fluid.</p>
<b>Extravasation</b>	<p>The inadvertent leaking of an irritant or vesicant solution from its intended vascular pathway (vein) into the surrounding tissue. A vesicant refers to any medicine or fluid with the potential to cause blisters, severe tissue injury or necrosis if it escapes from the intended venous pathway. The degree of injury may range from mild skin reaction to severe necrosis.</p> <p><b>Action:</b> Stop infusion immediately; leave VAD in situ initially; aspirate any fluid; NEVER flush VAD.</p> <p>Seek immediate advice from pharmacy and medical staff prior to removing VAD, who may advise administration of suitable neutralising agent. The VAD can then be removed and re-sited, if required</p> <p>Apply hot pack or cold pack, if appropriate.</p> <p>Subsequent management depends upon the medication involved and degree of damage.</p> <p>Mark perimeter of area of redness with skin marker.</p> <p>Document event and actions taken. Report in Datix, ensuring the name of the medication is noted clearly.</p> <p>For Systemic Anti-Cancer Therapies - refer to the <a href="#">West of Scotland Extravasation in Practice, Policy, Guidance and Tools</a></p>

<p><b>Blood discards</b></p>	<p>A VAD used for haemodialysis in the paediatric population requires additional considerations. Children may be too small to have formation of an arterio-venous fistula and may be dependent on / need a VAD for long-term for survival. Small blood volume losses from repeated blood discards become more significant in infants and small children where total blood volume is much less overall.</p>
<p><b>Occlusion</b></p>	<p>A VAD or one of its lumens is blocked by blood, medications or lipids. Repositioning of VAD integral clamps will also prevent damage to the lumen.</p> <p><b>Action:</b> Check that there are no kinks in the catheter.</p> <p>Ensure that clamps are open, move the clamp up/down the VAD then roll the previously clamped section between your fingers gently to ensure that the catheter walls are not ‘stuck’ together.</p> <p>Try altering the patient’s position or position of the arm.</p> <p>Replace needle free access device.</p> <p>Peripheral devices - Remove VAD and re-site.</p> <p>Central Devices - Flush catheter with IV 0.9% sodium chloride 2-3mls using a brisk push / pause flushing technique, check if blood can now be aspirated. If successful, flush with normal flushing procedure. If not successful consider Urokinase administration (requires a valid prescription).</p> <p>*Paediatric and neonatal services – volume may differ. Refer to local guidelines.</p> <p>Do not flush if resistance felt.</p>
<p><b>Catheter fracture and possible dislocation</b></p>	<p>This can be caused by material weakness or over manipulation of device on insertion. Using a syringe smaller than 10mls to flush also increases the risk of internal catheter fracture, further increasing the risk of infiltration or extravasation.</p> <p>All VADs should be inspected for damage on removal. Any device that is removed and found to be fractured or incomplete, must be reported to the patient’s medical team for review and advice.</p> <p><b>Signs:</b> Fluid / blood leaking</p> <p><b>Action:</b> Stop infusion. If there is a clamp, clamp the catheter above the damaged area without delay to prevent possible air embolism. Cover the whole catheter with an occlusive dressing. A single lumen catheter may be</p>



	<p>able to be repaired. This should be discussed without delay with the team who inserted it e.g. vascular access service. If unable to repair, the catheter should be removed as soon as possible to minimise risk of infections and air embolism.</p> <p>Inspect VAD on removal. If obvious damage to VAD, report to medical team.</p> <p><b>PICC external catheter fracture:</b> In event of an external catheter fracture, PICCs should be removed immediately.</p> <p><b>Central VADs leaking / cracking of catheter or hub:</b> Do not use a tCVC. Secure the tCVC in its current position. Referral for removal of tCVC and reinsertion of tCVC.</p>
<b>Haematoma</b>	<p>A swelling of blood under the skin causing a hard, painful lump. There are various causes such as transfixation or transection of the vein; inadequate pressure to puncture site on removal of device and unsuccessful attempt at insertion of device.</p> <p><b>Action:</b> Apply pressure to puncture site, monitor site. Document and report to medical team.</p>
<b>Air embolism</b>	<p>Occurs when one or more air bubble(s) enter a vein or artery and block it. Correct techniques and good practice can minimise risks of air embolism occurring.</p> <p>Signs of an air embolism are:</p> <ul style="list-style-type: none"> <li>• Signs of breathlessness</li> <li>• Chest pain</li> <li>• Hypotension</li> <li>• Cardiac Arrest</li> </ul> <p>This can occur due to unclamped or open lumen or following the removal of a CVC.</p> <p><b>Action:</b> Turn patient onto left lateral, Trendelenburg position (head down). Administer 100% oxygen via non-rebreathing mask and call emergency team on 2222 or 999 if in community setting</p>
<b>Deep Venous Thrombosis/ Upper Limb Vein</b>	<p>This would be indicated by swelling of leg or shoulder/neck/arm or face with or without pain, inflammation, distention of the neck veins/peripheral vessels.</p>

<b>Thrombosis</b>	<b>Action:</b> Refer to medical team for further investigation and treatment. If thrombosis is suspected – consider diagnostic ultrasound to confirm diagnosis. VAD may require to be removed.
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### **Review of the Vascular Access Procedure and Practice Guideline**

This document has been developed by a Short Life Working Group (SLWG) consisting of staff representing services across NHSGGC. Following agreement with Chief Nurses / Chief of Medicine, it was then reviewed and ratified by the following groups:

- NHSGGC Acute Services Clinical Governance Forum
- NHSGGC Mental Health Clinical Governance Forum
- NHSGGC Partnerships Clinical Governance Forum
- NHSGGC Board Clinical Governance Forum

This document will be due for review in January 2025 (2 years).

## List of associated guidelines

Infection prevention and control guidelines can be found [here](#)

NHSGGC Consent policy on healthcare assessment, care and treatment can be found [here](#)

NHSGGC IV Medicine and Flush Administration policy can be found [here](#)

NHSGGC Management of occupational and non occupational exposures to blood borne viruses including needle stick injuries and sexual exposures policy can be found [here](#)

West of Scotland Cancer Network Extravasation in Practice Guidelines, policy and tools can be found [here](#)

## Paediatric specific guidance:

Haemato-oncology patient's fluid and electrolytes management (Schiehallion) can be found [here](#)

Policy and Guideline for the Safe Prescribing, Dispensing and Administration of Systemic Anti-cancer therapy for Children, Teenagers and Young Adults under the care of the Haematology/Oncology Team RHC, Glasgow (Schiehallion Ward and Schiehallion Day Care Unit) can be found [here](#)

Intravenous fluid guidance for previously well children aged 7 days to 16 years can be found [here](#)

Intravenous fluid therapy in children and young people in hospital can be found [here](#)

Prophylaxis against gram negative and fungal infections in immunocompromised babies, children & young people with a Central Venous Access Device (CVAD) can be found [here](#)

Guidelines for the management of paediatric line-related sepsis can be found [here](#)

## **Working group members**

The Short Life Working Group (SLWG) consisted of staff representing services across NHSGGC. Services represented on the group:

Practice Development

Imaging Services

Vascular Access Service

Renal Services (adult and paediatrics)

Oncology and cancer services (adult and paediatrics)

Nutrition Teams (adult and paediatrics)

Anaesthetics/Critical care/Theatres (adult and paediatrics)

Out of Hospital Treatment teams

Antimicrobial Pharmacists

Included for consultation and comment:

Chief Nurses and Midwife

**Aseptic Non Touch Technique (ANTT®)** states that the key principle to preventing infection is to maintain the asepsis of **Key Parts** and **Key Sites**.

*Rule of ANTT®: Key Parts must only come into contact with other Key Parts or Key Sites.*

Aseptic: free from pathogenic micro-organisms that can be introduced by hands, surfaces and / or equipment

Non-Touch: method used to prevent contamination of **Key Parts** and **Key Sites** by hands, surfaces or equipment.

Technique: assess the risk of contamination and choosing the appropriate approach

**Healthcare practitioners should risk assess each procedure, bearing in mind the condition and location of the patient, type of VAD, anticipated length of time for procedure and the number of key parts and key sites to decide the approach required.** The NHSGGC ANTT® guideline can be found [here](#). Further information on ANTT® approach can be found [here](#).

<b>ANTT® terminology</b>	<p><b>Key Part:</b> the critical parts of the equipment, that if contaminated will transfer micro-organisms to the patient e.g. tip of needle or syringe</p> <p><b>Key Site:</b> any break in the patient's skin integrity that allows an entry point for micro-organisms e.g. insertion site of VADs.</p> <p><b>Micro Critical Aseptic Field:</b> the protection of <b>Key Parts</b> by utilising caps, inside of wrappers or covers, ensuring asepsis.</p> <p><b>Critical Aseptic Field:</b> is used when there are a large number of <b>Key Parts</b> and <b>Key Sites</b> or the complexity of the procedure means that they cannot be protected through the use of <b>Micro Critical Aseptic Fields</b>. A larger sterile surface is utilised such as a sterile dressing pack and / or drape(s) and sterile gloves, ensuring asepsis.</p> <p><b>Decontamination:</b> a general term that refers to one or more of the process below:</p> <ul style="list-style-type: none"><li>• <b>Clean:</b> reduce the bio burden and remove foreign material. In healthcare settings it is typically performed with water, soap or detergent and materials such as paper towels or impregnated wipes.</li><li>• <b>Disinfection:</b> the destruction of pathogenic microorganisms, usually by thermal or chemical means.</li><li>• <b>Sterilisation:</b> a process by which all viable forms of microorganisms (including spores) are destroyed.</li></ul>
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<b>Standard ANTT® approach</b>	Suitable for uncomplicated procedures where the <b>Key Parts</b> and <b>Key Sites</b> are identified and protected by <b>Micro Critical Aseptic Fields</b> , such as the inside of a syringe wrapper or a sterile cap.
<b>Surgical ANTT® approach</b>	Suitable for complicated procedures with many <b>Key Parts</b> and <b>Key Sites</b> and a <b>Critical Aseptic Field</b> , such as sterile dressing pack and / or sterile drapes. Sterile gloves may be necessary to maintain asepsis of the Critical Aseptic Field.

## Appendices

These example templates outline a commonly used ANTT® approach and are not intended to stipulate the ANTT® approach in all circumstances. . **Healthcare practitioners should risk assess each procedure, bearing in mind the condition and location of the patient, type of VAD, anticipated length of time for procedure and the number of key parts and key sites to decide the ANTT® approach required.**

### Appendix 1. Peripheral devices

- a) [PVC site assessment and flush](#)
- b) [PVC dressing change](#)
- c) [PVC removal](#)
- d) [Midline patency assessment and flush](#)
- e) [Midline dressing change](#)
- f) [Midline dressing change, flush & needle free access device change](#)
- g) [Midline removal](#)
- h) [Arterial cannula dressing change](#)
- i) [Arterial cannula removal](#)

### Appendix 2 Central devices

- a) [PICC patency assessment and flush](#)
- b) [PICC dressing change](#)
- c) [PICC dressing change, flush & needle free access device change](#)
- d) [PICC removal](#)
- e) [Non-tunnelled CVC insertion patency assessment](#)
- f) [Non-tunnelled CVC dressing change](#)
- g) [Tunnelled and non-tunnelled CVC, dressing, needle free access device change and flush](#)
- h) [Non-tunnelled CVC removal](#)
- i) [Cuffed tunnelled CVC exit site suture removal and dressing change](#)
- j) [Cuffed tunnelled CVC entry site dressing change](#)
- k) [Cuffed tunnelled CVC exit site dressing change](#)
- l) [Cuffed tunnelled CVC removal](#)
- m) [Dialysis CVC \(tunnelled and non-tunnelled\) dressing change](#)
- n) [Dialysis CVC \(tunnelled and non-tunnelled\) dressing change, flush and lock](#)
- o) [Non tunnelled dialysis CVC and tunnelled dialysis CVC removal](#)
- p) [Implanted port administration patency assessment and flush](#)
- q) [Implanted port removal](#)
- r) [Urokinase administration in complete catheter occlusion](#)
- s) [Urokinase administration on persistent withdrawal occlusion](#)
- t) [Connecting Parenteral Nutrition](#)
- u) [Disconnecting Parenteral Nutrition](#)

## PVC patency assessment and flush (using a standard ANTT® approach)

Statement	The PVC site and patency must be assessed for signs of complications to reduce patient harm.
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>10ml syringe</p> <p>IV 0.9% sodium chloride (NaCl) (appropriate volume for patient and VAD)</p> <p>23g safety hypodermic needle or blunt filter needle</p> <p>2% chlorhexidine in 70% isopropyl alcohol wipe / wand</p> <p>Clinical waste bag and sharps bin</p>
Timing	<p>The continuing need for a PVC should be reviewed daily.</p> <p>PVC check is done twice per day and documented on the PVC careplan. The flush a minimum of once per day; before and after medicine administration</p>
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Decontaminate neck of ampoule with 2% chlorhexidine and 70% alcohol wipe and allow to dry. Using an aseptic non touch technique, draw up flush using 10ml syringe and hypodermic needle. Dispose of needle into sharps bin and protect tip of syringe by placing in Micro Critical Field (sterile syringe packet)</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Scrub the hub of the NFAD for at least 30 seconds using 2% chlorhexidine and 70% alcohol and allow to dry</li> <li>• Using an aseptic non touch technique, access PVC via the NFAD using prepared syringe. Unclamp NFAD and flush the PVC using a turbulent push / pause technique, clamp NFAD whilst maintaining positive end pressure</li> <li>• The flush should be administered with ease. If there are signs of resistance, infiltration, extravasation or inflammation discontinue flushing process and consider replacing PVC</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
<p>The PVC top port should only be used in emergency situations as it cannot be adequately decontaminated due to the design of the device. Immediately following PVC insertion, the top port is sterile and can be used to administer time critical medications. Top ports should never be used for administration of systemic anti-cancer therapies (SACT).</p>	
Aftercare	<p>Record procedure and complete PVC care plan.</p> <p>Ensure VAD is positioned to ensure skin health is maintained.</p>



## PVC dressing change (using a standard ANTT® approach)

Statement	The PVC is secured with an appropriate sterile dressing, whilst allowing for inspection of the insertion point *Neonatal services refer to local guidelines
Requirements	PPE (minimal consideration disposable apron and gloves) Clean tray 2% chlorhexidine and 70% isopropyl alcohol wipes / wand <b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old Sterile semi permeable, transparent dressing Clinical waste bag
Timing	As required, if dressing is visibly loose or soiled Every 7 days if it is clinically indicated that PVC is required to remain in situ and no signs of phlebitis or infection
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Loosen and carefully remove the old dressing in an <b>upward</b> direction towards the puncture site, taking care not to pull or dislodge the PVC</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Using an aseptic non touch technique, cleanse area around entry site using 2% chlorhexidine and 70% isopropyl alcohol in a 'lattice' pattern and allow to dry</li> <li>• Inspect entry point and surrounding skin for signs of phlebitis or infection</li> <li>• Apply sterile device stabilising strips and dressing ensuring adherence</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	Record procedure and complete PVC care plan. VAD is positioned to ensure skin health is maintained.

**PVC removal** (using a standard ANTT® approach)

Statement	The need for a PVC is assessed on a daily basis and should be removed as soon as it is no longer required
Requirements	PPE (minimal consideration disposable apron and gloves) Sterile gauze swabs Sterile adhesive dressing (check allergies) Clinical waste bag
Procedure	<ul style="list-style-type: none"><li>• Explain the process to the patient / child and parent and gain consent</li><li>• Perform hand hygiene</li><li>• Stop all fluids being infused via the PVC and disconnect administration set</li><li>• Perform hand hygiene</li><li>• Apply PPE</li><li>• Carefully remove the PVC dressing</li><li>• Hold a piece of sterile, dry cotton gauze over the insertion site and remove the PVC</li><li>• Apply firm pressure immediately to insertion site for approximately 2-3mins or long enough to ensure that there is no bleeding</li><li>• After removal, the PVC should be inspected for integrity and damage</li><li>• Apply sterile adhesive dressing to the insertion site, checking for any allergies</li></ul> *Neonatal services may not use an adhesive dressing <ul style="list-style-type: none"><li>• Discard all disposable equipment</li><li>• Remove PPE and discard as healthcare waste</li><li>• Perform hand hygiene</li></ul>
Aftercare	Record procedure and complete PVC care plan

## Midline catheter patency assessment and flush (using a standard ANTT® approach)

Statement	The midline catheter insertion site and patency must be assessed for signs of complications to reduce patient harm
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>10ml syringe</p> <p>IV 0.9% sodium chloride (NaCl) (appropriate volume for patient and VAD)</p> <p>23g safety hypodermic needle or blunt filter needle</p> <p>2% chlorhexidine in 70% isopropyl alcohol wipes</p> <p>Clinical waste bag / sharps bin</p>
Timing	The continuing need for a midline catheter should be reviewed and documented daily. The midline catheter should be assessed for patency prior to each medicine administration and at least weekly, if the midline is not in constant use.
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Decontaminate neck of ampoule with 2% chlorhexidine and 70% alcohol wipe and allow to dry. Using an aseptic non touch technique, draw up flush using 10ml syringe and hypodermic needle. Dispose of needle into sharps bin and protect tip of syringe by placing in Micro Critical Field (sterile syringe packet)</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Scrub the hub of the NFAD for at least 30 seconds using 2% chlorhexidine and 70% alcohol and allow to dry</li> <li>• Using an aseptic non touch technique, access midline via the NFAD using prepared syringe. Unclamp NFAD and flush the midline using a turbulent push / pause technique, clamp NFAD whilst maintaining positive end pressure</li> <li>• The flush should be administered with ease. If there are signs of resistance, infiltration, extravasation or inflammation discontinue flushing process and consider replacing midline</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete midline catheter care plan</p> <p>Ensure VAD is positioned to ensure skin health is maintained</p>

## Midline catheter dressing change (using a standard ANTT® approach)

Statement	The midline catheter is secured with an appropriate sterile dressing, whilst allowing for inspection of the insertion point
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipe / wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile semi permeable transparent dressing</p> <p>Clinical waste bag</p>
Timing	<p>As required if dressing is visibly loose or soiled</p> <p>Every 7 days if it is clinically indicated that midline is required to remain in situ and no signs of phlebitis or infection</p>
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Loosen and carefully remove the old dressing in an <b>upward</b> direction towards the puncture site, taking care not to pull or dislodge the midline</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Using an aseptic non touch technique, cleanse area around entry site with 2% chlorhexidine and 70% isopropyl alcohol wipe / wand / stick in a 'lattice' pattern and allow to dry</li> <li>• Inspect entry point and surrounding skin for signs of phlebitis or infection</li> <li>• Apply sterile dressing ensuring adherence</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete midline care plan</p> <p>Ensure VAD is positioned to ensure skin health is maintained</p>

**Midline catheter dressing change, flush and needle free access device change** (using a standard ANTT® approach)

Statement	The necessary care and maintenance is performed at least weekly to minimise the potential complications and to optimise the life of the midline
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>2% chlorhexidine in 70% isopropyl alcohol solution wipe / wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old</p> <p>Adhesive semi permeable transparent dressing</p> <p>NFAD x 1 per lumen</p> <p>10ml luer lock syringe</p> <p>IV 0.9% Sodium Chloride (appropriate volume for patient and VAD)</p> <p>23g safety hypodermic needle or blunt filter needle x2</p> <p>Clinical waste bag / sharps bin</p>
Timing	Every 7 days or sooner if dressing visibly loose or soiled
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Decontaminate neck of ampoule with 2% chlorhexidine and 70% alcohol wipe and allow to dry. Using an aseptic non touch technique, draw up flush using 10ml syringe and hypodermic needle. Prime NFAD. Dispose of needle into sharps bin and protect tip of syringe by placing in Micro Critical Field (sterile syringe packet)</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Loosen and carefully remove the old dressing in an upward direction towards the puncture site, taking care not to pull the catheter</li> <li>• Discard / change gloves if dressing is heavily contaminated with body fluids</li> <li>• Using an aseptic non touch technique, hold the catheter, clean the site and surrounding skin with the 2% chlorhexidine in 70% isopropyl alcohol wand / stick starting at the puncture site, using a 'lattice' pattern for 30 seconds. Allow to dry</li> <li>• Using an aseptic non touch technique, ensure midline is clamped, remove NFAD and discard</li> <li>• Using an aseptic non touch technique, scrub the hub threads with the 2% chlorhexidine in 70% isopropyl alcohol wipe for 30 secs. Allow to dry. Apply primed NFAD</li> <li>• Apply semi permeable dressing to site ensuring that the catheter is covered with the dressing and good adherence to the skin</li> <li>• Using an aseptic non touch technique, attach 10ml syringe filled with 0.9% sodium chloride, flush the midline using a turbulent push / pause technique, clamp NFAD whilst maintaining positive end pressure. Apply clamp. Detach syringe</li> </ul> <p>If there are signs of resistance, infiltration, extravasation or inflammation discontinue flushing process and consider replacing midline</p> <ul style="list-style-type: none"> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> </ul>

	<ul style="list-style-type: none"><li>• Perform hand hygiene</li></ul>
Aftercare	Record procedure and complete midline care plan Ensure VAD is positioned to ensure skin health is maintained

## Midline catheter removal (using a standard ANTT® approach)

Statement	The need for a midline is assessed on a daily basis and should be removed as soon as it is no longer required. A midline should not remain in situ after the manufacturers recommended length of dwell time unless there is a clinical indication to do so, and this is documented in the patient notes
Requirements	PPE (minimal consideration disposable apron and gloves) Clean tray Gauze swabs Sterile adhesive dressing (check allergies) Clinical waste bag
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Stop all fluids being infused via the midline and disconnect the administration set</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove the midline dressing</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Hold a piece of dry cotton gauze over the insertion site and remove the midline</li> <li>• Apply firm pressure immediately to insertion site for approximately 2-3 mins or long enough to ensure that there is no bleeding</li> <li>• After removal, the midline should be inspected for integrity, length and damage</li> <li>• Apply sterile adhesive dressing to the insertion site, checking for any allergies</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	Record procedure and complete midline care plan Observe midline site for signs of infection, bleeding and bruising

## Arterial cannula dressing change (using a standard ANTT® approach)

Statement	<p>The arterial cannula is secured with sutures and an appropriate sterile dressing, whilst allowing for inspection of the insertion point</p> <p>*Paediatrics and neonates – may use wound closure strips to secure arterial cannula</p> <p>*Neonatal services refer to local guidelines</p>
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipe / wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile semi permeable transparent dressing</p> <p>Clinical waste bag</p>
Timing	<p>As required if dressing is visibly loose or soiled</p> <p>Every 7 days if it is clinically indicated that arterial cannula is required to remain in situ, and no signs of phlebitis or infection</p>
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Loosen and carefully remove the old dressing in an <b>upward</b> direction towards the puncture site, taking care not to pull or dislodge the arterial cannula</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Using an aseptic non touch technique, cleanse area around entry site using 2% chlorhexidine and 70% isopropyl alcohol in a 'lattice' pattern and allow to dry</li> <li>• Inspect sutures (or securing strips) and entry point surrounding skin for signs of phlebitis or infection</li> <li>• Apply sterile dressing ensuring adherence</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete arterial cannula care plan.</p> <p>Arterial cannula is positioned to ensure skin health is maintained.</p>



## Removal of arterial cannula (using a standard ANTT® approach)

Statement	The need for an arterial cannula is assessed on a daily basis and should be removed as soon as it is no longer required.
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>Sterile dressing pack</p> <p>Suture cutter</p> <p>Sterile gauze swabs</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipe / wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile adhesive dressing (check allergies)</p> <p>Clinical waste bag</p>
Procedure	<ul style="list-style-type: none"> <li>• Assess patients bleeding risk and if they are either therapeutically anti-coagulated or have an abnormal clotting screen seek advice from patient's consultant prior to removal</li> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Stop all fluids being infused via the transducer administration set</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Loosen and carefully remove the dressing in an <b>upward</b> direction towards the puncture site, taking care not to pull or dislodge the arterial cannula</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Place the sterile drape under the insertion site</li> <li>• Clean around insertion site with 2% chlorhexidine and 70% isopropyl alcohol wipe or wand. Remove sutures / wound closure strips</li> <li>• Hold a piece of sterile cotton gauze over the insertion site and remove the arterial cannula in a slow and steady motion</li> <li>• If resistance is felt, seek advice</li> <li>• Apply firm pressure immediately to insertion site until haemostasis is achieved</li> <li>• After removal the arterial cannula should be inspected for integrity, length and damage</li> <li>• Apply sterile adhesive dressing to the insertion site, checking for any allergies</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete arterial cannula care plan</p> <p>Observe arterial cannula site for signs of infection, bleeding and bruising</p>

## PICC patency assessment and flush (using a standard ANTT® approach)

Statement	Care and maintenance is to minimise the potential complications associated with long term central venous catheterisation and to optimise the life of the catheter.
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>2% chlorhexidine in 70% isopropyl alcohol wipe / wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Needle free access device x 1 per lumen (if due changed)</p> <p>10ml luer lock syringe</p> <p>IV 0.9% Sodium Chloride (appropriate volume for patient and VAD)</p> <p>23g safety hypodermic needle or blunt filter needle x 2</p> <p>Clinical waste bag / sharps bin</p>
Timing	<p>Flush and lock of catheter should be carried out every 7 days.</p> <p>Inspection should be documented on the CVC care plan on a daily basis.</p>
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Decontaminate neck of ampoule with 2% chlorhexidine and 70% alcohol wipe and allow to dry. Using an aseptic non touch technique, draw up flush using 10ml syringe and hypodermic needle. Dispose of needle into sharps bin and protect tip of syringe by placing onto sterile field or by placing in Micro Critical Field (sterile syringe packet). Prime NFAD (if changing)</li> <li>• Observe the external length of the PICC, from the exit site to the start of the hub</li> <li>• Apply clamp</li> <li>• If needle free access device is due changed - Remove needle free access device and discard. Scrub the hub threads with the 2% chlorhexidine in 70% alcohol wipe and allow to dry. Apply new 'primed' needle free access device</li> <li>• If removing lock - using an aseptic non touch technique, attach an empty 10ml syringe, unclamp and gently aspirate 5mls of blood from the PICC. Reapply clamp and discard syringe</li> </ul> <p>*Neonatal services and some clinical specialities will not aspirate from PICCs</p> <ul style="list-style-type: none"> <li>• Using an aseptic non touch technique, attach 10ml syringe filled with 0.9% NaCl, unclamp, flush the catheter using a push / pause technique, maintain positive pressure on plunger of syringe. Reapply clamp. Detach syringe. Never flush if resistance felt. Repeat for each lumen if required</li> </ul> <p>* Paediatrics – If no infusion to be connected, or lumens not being used, PICC lumen may be flushed with Taurolock. Seek advice</p> <ul style="list-style-type: none"> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<ul style="list-style-type: none"> <li>• Record procedure and complete PICC care plan or PICC diary</li> <li>• PICC is positioned to ensure skin health is maintained</li> </ul>

## PICC dressing change (using a surgical ANTT® approach)

Statement	Care and maintenance is performed at least weekly to minimize the potential complications and to optimise the life of the catheter
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Sterile gloves</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack</p> <p>2% chlorhexidine in 70% isopropyl alcohol wand / stick</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile chlorhexidine impregnated patch</p> <p>Sterile semi permeable transparent dressing</p> <p>Catheter securing device e.g. Statlock, Griplock or steri-strips or equivalent</p> <p>Clinical waste bag</p>
Timing	The catheter securing device should be changed every 7 days, or if visibly loose. Further dressing changes should be carried out every 7 days, or if dressing is visibly loose or soiled
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Open dressing pack. Using aseptic non touch technique, assemble sterile field, open all equipment onto sterile field</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Loosen and carefully remove the old dressing in an <b>upward</b> direction towards the exit site, taking care not to pull or dislodge the catheter.</li> <li>• Discard gloves and don sterile gloves</li> <li>• Observe the external length of the PICC, from the exit site to the start of the hub.</li> <li>• Holding the catheter with a sterile swab, clean the exit site and surrounding skin with the 2% chlorhexidine in 70% isopropyl alcohol wipe / wand / stick starting at the exit site, in a 'lattice' pattern for 30 seconds before working outward to the periphery (an area slightly larger than the new dressing). Allow to dry</li> <li>• <b>Apply fixation device to the PICC. DO NOT PLACE OVER THE EXIT SITE</b></li> <li>• Cover exit site with sterile chlorhexidine impregnated patch ensuring the arrows are aligned correctly. Apply sterile semi permeable dressing, ensuring that the exit site is covered</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	Record procedure and complete PICC care plan. Ensure VAD is positioned to ensure skin health is maintained

**PICC dressing change, flush, needle free access device change and catheter lock (using a surgical ANTT® approach)**

Statement	The necessary care and maintenance is performed at least weekly to minimize the potential complications and to optimise the life of the catheter
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack</p> <p>Sterile gloves</p> <p>2% chlorhexidine in 70% isopropyl alcohol solution wipe / wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile chlorhexidine impregnated patch</p> <p>Sterile semi permeable transparent dressing</p> <p>Catheter securing device e.g. Statlock, Griplock or wound closure strips or equivalent</p> <p>Needle free access device x 1 per lumen</p> <p>10ml luer lock syringe</p> <p>IV 0.9% Sodium Chloride 10ml (appropriate volume for patient and VAD)</p> <p>23g safety hypodermic needle or blunt filter needle x2</p> <p>Sterile swab for culture (only if signs of infection)</p> <p>Clinical waste bag / sharps bin</p>
Timing	Every 7 days or sooner if dressing visibly loose or soiled
Aftercare	Record procedure and complete PICC care plan. PICC is positioned to ensure skin health is maintained

Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Open sterile dressing pack. Using an aseptic non touch technique, assemble sterile field, open all other equipment onto sterile field</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Loosen and carefully remove the old dressing in an <b>upward</b> direction towards the exit site, taking care not to pull the catheter.</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Observe the external length of the PICC, from the exit site to the start of the hub</li> <li>• Carefully remove catheter securing connector</li> <li>• Holding the catheter, clean the exit site and surrounding skin with the 2% chlorhexidine in 70% isopropyl alcohol solution starting at the exit site, using a 'lattice' pattern for 30 seconds before working outward to the periphery (an area slightly larger than the new dressing). Allow to dry</li> <li>• Apply catheter securing device. <b>DO NOT PLACE OVER EXIT SITE</b></li> <li>• Apply adhesive semi permeable dressing, ensuring the catheter is covered with the dressing and good adherence to the skin</li> <li>• Apply clamp</li> <li>• Remove needle free access device and discard. Scrub the hub threads with the 2% chlorhexidine in 70% isopropyl alcohol wipe for 30 secs. Allow to dry. Apply primed needle free access device</li> <li>• If removing lock - using an aseptic non touch technique, attach an empty 10ml syringe, unclamp catheter and, <ul style="list-style-type: none"> <li>○ gently aspirate 5mls of blood from the PICC</li> <li>○ Reapply clamp</li> <li>○ Remove syringe and discard (*Paediatrics may not discard – check local guidelines)</li> </ul> </li> </ul> <p>* Neonatal services and some other clinical specialties will not aspirate from PICCs</p> <ul style="list-style-type: none"> <li>• Using an aseptic non touch technique, attach a 10ml syringe filled with 0.9% NaCl, unclamp, flush the catheter using a push / pause technique, keep positive pressure on plunger of syringe. Reapply clamp. Detach syringe. Never flush if resistance felt. Repeat for each lumen if required</li> </ul> <p>* Neonates / paediatrics may consider a smaller volume of flush</p> <ul style="list-style-type: none"> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
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## PICC removal (using a standard ANTT® approach)

Statement	The need for a PICC is assessed on a daily basis and should be removed as soon as it is no longer required. A PICC should not remain in situ after the manufacturers recommended length of dwell time unless there is a clinical indication to do so, and this is documented in the patient notes
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile gauze swabs</p> <p>2% chlorhexidine in 70% isopropyl alcohol wand / stick</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile adhesive dressing (check allergies)</p> <p>Clinical waste bag</p>
Procedure	<ul style="list-style-type: none"> <li>• Assess patients bleeding risk and if they are either therapeutically anti-coagulated or have an abnormal clotting screen seek advice from patient's consultant prior to removal</li> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Ensure patient is positioned with arm lower than the level of the heart during removal</li> <li>• Perform hand hygiene</li> <li>• Stop all fluids being infused via the PICC</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove the dressing in an <b>upward</b> direction towards the exit site, taking care not to pull or dislodge the catheter. Carefully remove catheter securing device</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Using an aseptic non touch technique, clean around the insertion site with 2% chlorhexidine in 70% isopropyl alcohol</li> <li>• Hold a piece of dry cotton gauze over the insertion site and remove the PICC in a slow and steady motion</li> <li>• If resistance is felt, seek advice</li> <li>• Apply firm pressure immediately to insertion site until haemostasis is achieved</li> <li>• After removal the PICC should be inspected for integrity, length and damage</li> <li>• Apply sterile adhesive dressing to the insertion site, checking for any allergies</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete PICC care plan</p> <p>Observe PICC site for signs of infection, bleeding and bruising</p>

**Tunnelled and Non-tunnelled patency assessment and flush without dressing change**  
(using a standard ANTT® approach)

Statement	The ntCVC patency must be assessed for signs of complications and to reduce patient harm. To ensure patients receive prescribed medications, in a safe and timely manner
Requirements	PPE (minimal consideration disposable apron and gloves) Clean tray 10ml syringe(s) 0.9% sterile sodium chloride amp(s) 23g safety hypodermic needle or blunt filter needle(s) 2% chlorhexidine and 70% isopropyl alcohol wipe / wand Clinical waste bag
Timing	As often as necessary to administer medications as prescribed; once every 24 hours if ntCVC not be used for administration of IV fluids or medicines. For patients receiving care in the community, the ntCVC should be inspected at each visit and flushed at least every 7 days. Tunnelled CVC, if not in regular use, every 7 days
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Clean tray with disinfectant wipes</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Decontaminate neck of ampoule with 2% chlorhexidine and 70% alcohol wipe and allow to dry. Using an aseptic non touch technique, draw up flush using 10ml syringe and hypodermic needle. Dispose of needle into sharps bin and protect tip of syringe by placing in Micro Critical Field (sterile syringe packet)</li> <li>• Scrub the hub for 30 seconds with 2% chlorhexidine and 70% isopropyl alcohol wipe and allow to dry</li> <li>• Ensure catheter / device is clamped</li> <li>• Using an aseptic non touch technique, attach the sodium chloride filled syringe to needle free access device, secure, unclamp lumen / catheter and flush catheter / device using push / pause technique. Repeat for each lumen if required. On completion of flush administration, maintain positive pressure on plunger, apply clamp and disconnect syringe</li> <li>• Check all sutures and dressing are in place and secure</li> </ul>
	* Paediatrics – If no infusion to be connected, or lumens not being used, CVC lumen may be flushed with Taurolock. Seek advice.
	<ul style="list-style-type: none"> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	Record procedure and complete ntCVC care plan Ensure the ntCVC is positioned to ensure skin health is maintained

## Non-tunnelled CVC dressing change (Using a standard ANTT® approach)

Statement	The non-tunnelled CVC is secured with an appropriate dressing, whilst allowing for inspection of the insertion point
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>2% chlorhexidine and 70% isopropyl alcohol wand or stick</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile chlorhexidine impregnated semi permeable transparent dressing or chlorhexidine impregnated patch and sterile semi permeable transparent dressing</p> <p>Clinical waste bag</p>
Timing	Every 7 days or as required if dressing is visibly loose or soiled
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Clean tray with disinfectant wipes</li> <li>• Perform hand hygiene</li> <li>• Using an aseptic non touch technique, prepare equipment using Micro Critical Field (sterile packet)</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove existing dressing</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Cleanse area around entry site using 2% chlorhexidine and 70% isopropyl alcohol wand or stick in a 'lattice pattern' and allow to dry</li> <li>• Check all sutures holding catheter / device are in place and secure</li> <li>• Apply dressing ensure adherence and visibility of insertion site</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete ntCVC care plan</p> <p>ntVAD is positioned to ensure skin health is maintained</p>



## Tunnelled or non-tunnelled CVC dressing change, needle free access device change and flush (Using a standard ANTT® approach)

Statement	The individual lumens and access ports of a CVC should have a needle free access device attached to reduce the risk of catheter related blood stream infections
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>Needle free access device(s)</p> <p>IV 0.9% sodium chloride</p> <p>10ml luer lock syringe</p> <p>23g safety hypodermic syringe or blunt filter needle</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipe(s)</p> <p>Sterile chlorhexidine impregnated semi permeable transparent dressing or chlorhexidine impregnated patch and sterile semi permeable transparent dressing</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Clinical waste bag</p>
Timing	Every 7 days or as manufacturer recommendations
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Decontaminate neck of ampoule with 2% chlorhexidine and 70% alcohol wipe and allow to dry. Using an aseptic non touch technique, draw up flush using 10ml syringe and hypodermic needle. Dispose of needle into sharps bin and protect tip of syringe by placing in Micro Critical Field (sterile syringe packet). Prime NFAD, protect tip by placing in Micro Critical Field (sterile packet)</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Ensure catheter / device lumen is clamped</li> <li>• Detach NFAD</li> <li>• ‘Scrub the hub’ with 2% chlorhexidine and 70% isopropyl alcohol wipe for 30seconds and allow to dry</li> <li>• Attach new (primed) NFAD</li> <li>• Using a aseptic non touch technique, attached a 10ml syringe filled with 0.9% sodium chloride, unclamp catheter / device flush device using a brisk push / pause technique, finishing on positive pressure while reapplying clamp. Detach syringe. Never flush if resistance is felt. Repeat for each lumen as required.</li> <li>• Neonates / paediatrics may consider a smaller volume of flush</li> <li>• Check all sutures holding catheter / device are in place and secure</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete CVC care plan</p> <p>VAD is positioned to ensure skin health is maintained</p>

## Non-tunnelled CVC removal (Using a standard ANTT® approach)

Statement	ntCVC removal should be considered when there is no longer a clinical need for the device, infection is suspected or a more permanent VAD is required
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Dressing pack</p> <p>Stitch cutter</p> <p>2% chlorhexidine and 70% isopropyl alcohol stick / wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile hydrocolloid dressing</p> <p>Clinical waste bag / sharps bin</p>
Timing	When there is no further clinical need or infection of the device is suspected or proven
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent, and should include a description of timed inspiration and breath holding</li> <li>• Patient <b>MUST BE</b> in bed lying flat in a Trendelenburg (head-down-tilt) position unless contraindicated – seek advice</li> <li>• Perform hand hygiene</li> <li>• Using an aseptic non touch technique open sterile dressing pack. Using an aseptic non touch technique, open sterile field and assemble equipment</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove dressing and discard</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Cleanse the area with the 2% chlorhexidine and 70% isopropyl alcohol wand for 30 seconds and allow to dry</li> <li>• Remove the securing sutures</li> </ul>
<p>Ask patient to hold their breath and perform a Valsalva Manoeuvre. If valsalva cannot be performed, the catheter should be removed on expiration.</p> <p>** Increasing the intra thoracic pressure is different in a spontaneous breathing patient and a patient receiving positive pressure ventilation. (please see specific instructions <a href="#">below</a>)</p>	
	<ul style="list-style-type: none"> <li>• As the CVC is being withdrawn / removed, cover insertion site with a sterile swab, applying gentle pressure at the insertion site as the catheter is being removed</li> <li>• Apply firm pressure immediately to insertion site until haemostasis is achieved</li> <li>• Cover the site with a hydrocolloid dressing, ensuring a good adherence of the dressing to the skin</li> <li>• After removal the CVC should be inspected for integrity, length and damage</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> <li>• Patients may then be returned to a comfortable position</li> </ul>

Aftercare	<ul style="list-style-type: none"> <li>• Minimize activity for at least one hour post removal</li> <li>• Observe the patient's NEWS / PEWS / vital signs Observe limb closest to insertion site for signs of swelling and or pain</li> <li>• Dressing must remain in situ for a minimum of 24 hours following CVC removal and then dressed as required until site has healed</li> <li>• Record procedure and complete CVC care plan or dialysis book</li> <li>• Dressing must remain in situ for a minimum of 24 hours following CVC removal and then dressed as required until site has healed</li> <li>• For femoral venous catheters: Nurse patient flat for 2 hours when possible. Apply pressure for at least 15 minutes. Ensure complete cessation of bleeding ensured prior to applying dressing. Do not allow hip flexion during this period</li> </ul>
<p style="text-align: center;"><b>Air embolism is a significant risk if procedure not followed. If suspected, turn patient left side, head down (Trendelenburg position), administer 100% oxygen via non rebreathing mask and call 2222</b></p>	

\*\* Spontaneous Breathing / Non Ventilated Patients / Continuous Positive Airway Pressure (CPAP) only / Pressure Support Ventilation (PSV) or Non-Invasive Ventilation (**when Pressure Support (PS) set at zero**): In these situation the removal must be timed with **expiration** (because the intra thoracic pressure is at its highest)

Instruct the patient to hold their breath and where possible perform a Valsalva Manoeuvre  
If valsalva cannot be performed, the catheter should be removed on expiration

\*\* Patient receiving Positive Pressure Ventilation (fully ventilated) PSV or NIV (**when PS is set higher than zero**): In these situations the removal must be timed with **inspiration** (because the intra thoracic pressure is at its highest)

**Cuffed tunnelled CVC exit site suture removal and dressing change** (Using a standard ANTT® approach)

Statement	The cuffed tunnelled CVC is dressed with an appropriate dressing, whilst allowing for inspection of the exit site.
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack</p> <p>2% chlorhexidine and 70% isopropyl alcohol wand / stick</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Stitch cutter</p> <p>Sterile semi permeable transparent dressing</p> <p>Clinical waste bag / sharps bin</p>
Timing	<p>Every 7 days or when dressing is visibly loose or soiled</p> <p>After 3 weeks the purse string suture can be removed as Dacron cuff will have subcutaneously embedded</p>
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Clean trolley with disinfectant wipes</li> <li>• Perform hand hygiene</li> <li>• Open sterile dressing pack. Using an aseptic non touch technique, assemble sterile field, open all other equipment onto sterile field</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove existing dressing</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Cleanse area around entry site with 2% chlorhexidine and 70% isopropyl alcohol wand or stick in a 'lattice' pattern for 30 secs and allow to dry</li> <li>• Remove sutures</li> <li>• Apply dressing ensuring good adherence to the skin</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete CVC care plan or CVC patient held record</p> <p>VAD is positioned to ensure skin health is maintained</p>

## Cuffed tunnelled CVC entry site dressing change (using a standard ANTT® approach)

Statement	A tunnelled CVC entry site is covered with an appropriate dressing, whilst allowing for inspection of the entry point
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack</p> <p>2% chlorhexidine and 70% isopropyl alcohol wand or stick</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile chlorhexidine impregnated semi permeable dressing</p> <p>Clinical waste bag</p>
Timing	After 7 days or when dressing is visibly loose or soiled.
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Clean trolley with disinfectant wipes</li> <li>• Perform hand hygiene</li> <li>• Open sterile dressing pack. Using an aseptic non touch technique assemble sterile field, open all other equipment onto sterile field</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove existing dressing and steri-strips</li> <li>• Discard / change gloves if dressing is heavily soiled with body fluids</li> <li>• Cleanse area around entry site with 2% chlorhexidine and 70% isopropyl alcohol wand or stick in a 'lattice' pattern for 30 secs and allow to dry</li> <li>• Apply dressing ensure adherence</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete CVC care plan or CVC patient held record</p> <p>VAD is positioned to ensure skin health is maintained</p>

## Cuffed tunnelled CVC exit site dressing change (using a Standard ANTT® approach)

Statement	The tunnelled CVC is covered with an appropriate dressing, whilst allowing for inspection of the exit site
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack</p> <p>2% chlorhexidine and 70% isopropyl alcohol wand or stick</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile chlorhexidine impregnated semi permeable transparent dressing or sterile chlorhexidine impregnated patch and sterile semi permeable transparent dressing</p> <p>Clinical waste bag</p>
Timing	Every 7 days or when the dressing is visibly loose or soiled.
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Clean trolley / tray with disinfectant wipes</li> <li>• Perform hand hygiene</li> <li>• Using an aseptic non touch technique, open/assemble equipment using micro critical sterile fields</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove existing dressing</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Cleanse area around entry site with 2% chlorhexidine and 70% isopropyl alcohol wand or stick in a 'lattice' pattern for 30 seconds and allow to dry</li> <li>• Inspect exit site and surrounding skin for signs of phlebitis or infection</li> <li>• Apply patch and/or dressing - ensure adherence</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and complete CVC care plan</p> <p>VAD is positioned to ensure skin health is maintained</p>

## **Cuffed tunnelled CVC removal**

**Removal of cuffed tunnelled CVC should be undertaken by specially trained and competent practitioners. This would normally be undertaken in the area that was responsible for the insertion e.g. Vascular Access Service, theatre, interventional radiology services or haematology clinical nurse specialists.**

**Dialysis CVC (tunnelled and non-tunnelled) dressing change** (using a Standard ANTT® approach)

Statement	The non-tunnelled and tunnelled double lumen dialysis CVC insertion sites and patency must be assessed for signs of complications to reduce patient harm. There is a high risk for the introduction of organisms through the exit site
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>2% chlorhexidine in 70% isopropyl alcohol wand / stick</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Sterile semi permeable chlorhexidine impregnated dressing or sterile chlorhexidine impregnated patch and sterile semi permeable transparent dressing</p> <p>*Paediatrics may consider mobiliser (used to fix and secure wings of line)</p> <p>Clinical waste bag</p>
Timing	All non-tunnelled and tunnelled dialysis CVC exit sites are redressed every 7 days or as required if dressing is visibly loose or soiled
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Carefully remove existing dressing</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Inspect the site and surrounding skin for signs of infection or phlebitis</li> <li>• Clean site using 'lattice' pattern with 2% chlorhexidine in 70% isopropyl alcohol for 30 seconds and allow to dry</li> <li>• *Apply mobiliser, if using</li> <li>• Apply sterile dressing ensuring adherence</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	<p>Record procedure and CVC care plan or dialysis book</p> <p>Inspect the CVC / insertion site for</p> <ul style="list-style-type: none"> <li>• Integrity of the CVC</li> <li>• Insertion site and surrounding tissue for signs of phlebitis or infection</li> </ul> <p>VAD is positioned to ensure skin health is maintained</p>



**Dialysis CVC (tunnelled and non tunnelled) dressing change, flush and Tauralock (Using a Surgical ANTT® approach)**

Statement	To ensure safe care and maintenance of catheter / device and maintain patency of catheter / device when not in continuous use
Requirements	<p>PPE (minimal consideration of gloves and aprons)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack</p> <p>Sterile gloves</p> <p>2 x 20ml luer lock syringe</p> <p>2 x 5ml luer lock syringes</p> <p>2 x 2.5ml luer lock syringes</p> <p>(*syringe size will vary in paediatrics: 2 x 2.5ml or 5ml luer lock syringes</p> <p>4 x 10ml luer lock syringes)</p> <p>IV 0.9% Sodium Chloride (NaCl) amp(s) (appropriate volume for patient and VAD)</p> <p>Tauralock 500 or Taurolock urokinase - volume as guided by size of catheter (*refer to local SOPs and manufacturer recommendations for exact volume)</p> <p>CVC catheter caps</p> <p>Sterile semi permeable chlorhexidine impregnated dressing or sterile chlorhexidine impregnated patch and sterile semi permeable transparent dressing</p> <p>21g safety hypodermic needle</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipe or wand</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Clinical waste bag / sharps bin</p>
Timing	As required
Aftercare	<p>Document procedure in CVC care plan or Dialysis book</p> <p>VAD is positioned to ensure skin health is maintained</p>

Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Clean trolley / tray with disinfectant wipes</li> <li>• Perform hand hygiene</li> <li>• Open sterile dressing pack. Using an aseptic non touch technique, assemble sterile file, open all other equipment onto sterile field</li> <li>• Apply PPE, consider eye protection (visor)</li> <li>• Carefully remove existing dressing</li> <li>• Replace gloves if heavily contaminated with body fluids</li> <li>• Attach syringe(s) to sterile needle draw up 20mls of 0.9% sodium chloride , expel all air, place on sterile field</li> <li>• Attach 2.5ml sterile syringe(s) to sterile needle draw up an <b>appropriate</b> volume of Tauralock500, expel all air, place in sterile field</li> <li>• Place sterile drape under catheter lumens</li> <li>• Clean exit site with 2% chlorhexidine and 70% isopropyl alcohol applicator for 30 secs and allow to dry</li> <li>• Apply sterile dressing</li> <li>• 'Scrub the cap' - each CVC cap for 30 seconds with 2% chlorhexidine and 70% isopropyl alcohol wipe and allow to dry. A separate wipe should be used for each lumen</li> <li>• Ensure clamps are <b>closed</b>. Remove CVC catheter cap from <b>red</b> (access) lumen</li> <li>• Attach 5ml luer lock syringe to <b>red</b> lumen, unclamp and remove 2.5ml of blood stained fluid. Apply clamp.</li> <li>• Repeat previous 2 steps for the <b>blue</b> (return) lumen</li> <li>• Disconnect syringe and immediately attach 20ml syringe filled with 0.9% sodium chloride solution to <b>red</b> lumen, unclamp and flush lumen using a push / pause technique. Keep positive pressure on plunger. Apply clamp. Repeat for <b>blue</b> lumen.</li> <li>* Neonates / paediatric may consider a smaller volume of flush</li> <li>• Disconnect syringe and immediately attach primed 2.5ml syringe with Taulock500 or tauolock urokinase to <b>red</b> lumen, unclamp and insert appropriate volume of lock into <b>red</b> lumen. Keep positive pressure on plunger. Apply clamp.</li> <li>• Repeat for <b>blue</b> lumen</li> <li>• Disconnect syringe and immediately attach sterile CVC catheter caps to both <b>red</b> and <b>blue</b> lumen</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
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## **Non tunnelled dialysis CVC Removal**

**ntDCVC are removed in the same way as other non-tunnelled CVCs. Refer to the appropriate template.**

## **Tunnelled dialysis CVC removal**

**Removal of tunnelled dialysis CVCs should be undertaken by specially trained and competent practitioners. This would normally be undertaken in the area that was responsible for the insertion e.g. Vascular Access Service or Renal Service.**

## Implanted Ports (Port-a-Cath®) – Administration of flush and patency assessment (Using a Surgical ANTT® approach)

Statement	To maintain the patency of the device when not in continuous use and to optimise the lifespan of the (Port-a-cath®). It is essential that the necessary care and maintenance of the device must be performed in relation to flushing
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack or drapes</p> <p>Sterile gloves</p> <p>10ml syringes</p> <p>21g safety hypodermic needles</p> <p>18g blunt filter needle for glass ampoule</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipe</p> <p>70% isopropyl alcohol impregnated swabs, one for each vial or ampoule</p> <p>2% chlorhexidine and 70% isopropyl alcohol applicator</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>Appropriate size 'GRIPPER®' / 'Huber' needle, depending on type of Port-a-cath®</p> <p>Needle Free Access Device</p> <p>Topical anaesthetic cream</p> <p>Prescription Sheet</p> <p>Sodium Chloride 0.9% for routine flushing</p> <p>Adult patients: heparin sodium I.V. flush 10iu / ml – should be used when port is in daily use</p> <p>Heparin sodium I.V. flush 100iu / ml – should <b>only</b> be used prior to needle being removed</p> <p>The volume of the flush solution can vary depending on the patient age, make of device, catheter size and nature and type of infusion / medication</p> <p>A minimum volume of flush is at least twice the volume of the catheter</p> <p>Clinical waste bag / sharps bin</p>
Timing	The Port-a-cath® device requires to be flushed before, in between and after medicine administration, or IV Fluids, after collecting blood samples and monthly when the port is not in use.
Aftercare	Document in nursing notes

Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Ascertain that the patient has had no pain or discomfort with the Port-a-cath® before palpating the position of the portal. If pain or swelling present seek expert advice</li> <li>• Prior to accessing the port, topical anaesthetic may be applied over the site, covered with an adhesive semi-permeable dressing. Leave for recommended duration for maximum anaesthetic effect</li> <li>• Ensure that the topical anaesthetic has been removed immediately prior to preparing the site for access</li> <li>• Perform hand hygiene</li> <li>• Clean trolley / tray with disinfectant wipes</li> <li>• Perform hand hygiene</li> <li>• Open sterile dressing pack and assemble all equipment using a non-touch technique onto sterile field</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Draw up and prepare flushing agents and prescribed medicines / fluids in accordance with Medicine policy</li> <li>• Prime “GRIPPER®” needle with 0.9% sodium chloride (approximately 2mL if has extension tubing) clamp lumen closed and remove syringe.</li> <li>• Connect the primed needle free access device to the port needle hub.</li> <li>• Place drape below Port-a-cath® site.</li> <li>• Cleanse area at port site using 2% chlorhexidine and 70% isopropyl alcohol wand or stick in a ‘lattice pattern’ and allow to dry</li> <li>• Using an aseptic technique palpate and stabilize the portal septum</li> <li>• Insert “GRIPPER®” needle at a 90° angle until base of portal septum felt with needle</li> <li>• Attach empty syringe, unclamp catheter, withdraw 3- 5mL of blood stained fluid</li> <li>• If no blood flash-back is observed try check patient position / correct needle placement. Medical referral may need to be considered</li> <li>• Clamp line and remove syringe</li> <li>• Scrub the hub and clamp and needle free device using 2% chlorhexidine and 70% isopropyl alcohol wipe for 30 seconds and allow to dry</li> <li>• Attach syringe with 0.9% sodium chloride. Unclamp lumen, slowly inject 5ml 0.9% sodium chloride using push / pause technique</li> <li>• Keep positive pressure on plunger, apply clamp and disconnect syringe</li> <li>• <b>Adult:</b> If Port-a-cath® needle has to remain in situ for further use then flush with Heparin sodium I.V. flush 10u/ml using a pulsating push / pause technique. On completion, keep positive pressure on plunger, apply clamp and disconnect syringe</li> <li>• <b>Adult:</b> If Port-a-cath® needle is being removed catheter must have final flush with Heparin sodium I.V. flush 100u/ml using a pulsating push / pause technique. On completion, keep positive pressure on plunger, apply clamp and disconnect syringe</li> </ul>
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- Secure Port-a-cath® needle with a semi permeable dressing, if to be left in situ
- Scrub the hub with 2% chlorhexidine and 70% isopropyl alcohol solution for minimum of 30 seconds and allow to dry
- Discard all disposable equipment
- Remove PPE and discard as healthcare waste
- Perform hand hygiene

- **Port-a-cath® needle removal** – this should only be undertaken by a specially trained and competent practitioner
- Explain the process to the patient / child and parent and gain consent
- Perform hand hygiene
- Apply PPE
- Stabilise the port with two gloved fingers of one hand and withdraw needle with other hand
- Apply pressure if bleeding until bleeding stops.
- Apply sterile adhesive dressing if required.
- Discard all disposable equipment
- Remove PPE and discard as healthcare waste
- Perform hand hygiene

## **Implanted port removal**

**Removal of implanted ports should be undertaken by specially trained and competent practitioners. This would normally be undertaken in the area that was responsible for the insertion e.g. Radiology or Theatres.**

## Urokinase administration in complete catheter occlusion (Adult only)

\*Alternative anti-thrombolytic solution may be used if Urokinase is not available

Statement	<p>Complete catheter occlusion is when there is an inability to infuse any solution into the catheter together with the inability to aspirate any blood from it. Complete occlusion can result from thrombotic and non-thrombotic causes.</p> <p>A <b>thrombotic complete occlusion</b> develops as a result of a build-up of blood within the catheter.</p> <p>If a <b>thrombus</b> within the line is suspected, practitioners should consider the use administration of Urokinase and proceed with steps outlined below.</p>
Troubleshooting	<p><b>Before proceeding with Urokinase administration check the following:</b></p> <ul style="list-style-type: none"> <li>• Withdrawal of blood and flushing has already been attempted (see appropriate templates)</li> <li>• No kinks / clamps occluding the catheter</li> <li>• Ask the patient to take a deep breath in and hold whilst attempting to aspirate the catheter</li> <li>• Try altering the position of the arm and / or 30° head down tilt</li> <li>• If clamps are present, move clamp further down the catheter then roll the previously clamped section in your fingers gently to ensure that the catheter walls are not 'stuck' together'</li> <li>• Prior to administering Urokinase, an x-ray may be obtained to verify the correct position of the catheter in a blood vessel</li> </ul>
Requirements	<p>PPE (minimal consideration disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack</p> <p>10ml syringe(s)*</p> <p>23g safety hypodermic needle(s) or blunt fill filter needle(s)</p> <p>2% chlorhexidine in 70% isopropyl alcohol wipes</p> <p>Urokinase 5,000 units per lumen, reconstituted with 0.9% sodium chloride, 2mls per lumen</p> <p>Heparin sodium I.V. flush 10 units / ml, 2ml per lumen** (if required)</p> <p>3-way tap (not required in fibrin sheath)</p> <p><b>Implanted port:</b></p> <p>5ml heparin sodium I.V. flush 10u/ml or 100u/ml</p> <p>5ml Urokinase 5,000 units per lumen reconstituted with 0.9% sodium chloride</p> <p>GRIPPER® / Huber needle</p> <ul style="list-style-type: none"> <li>• Length (3 / 4 inch, 1 inch or 1 ¼ inch): dependant on the amount of subcutaneous tissue between the skin surface and the port</li> <li>• Gauge (19 or 22) depending on the viscosity of the fluid to be infused</li> </ul>
Timing	<p>When clinically necessary but only within normal working hours (09.00 – 17.00). This should be conducted in a hospital environment and must always be prescribed.</p>
Aftercare	<p>Document in patient notes, CVC care plan or CVC patient held record</p> <p>Ongoing care and maintenance should be undertaken.</p>



<p>Procedure</p>	<p>Explain to patient and gain consent</p> <p>Perform hand hygiene</p> <p>Open sterile dressing pack. Using a non touch technique, assemble equipment onto the sterile field</p> <p>Perform hand hygiene</p> <p>Apply PPE</p> <p>Place the sterile drape to create a sterile field</p> <p>Using a 10ml syringe, reconstitute the Urokinase vial to achieve 5,000 units in 2mls per lumen</p> <p>Prime the 3-way tap with the Urokinase solution at 3 o'clock access point on the tap. <b>Do not disconnect the syringe</b></p> <p>Scrub the hub of needle free access device with 2% chlorhexidine in 70% isopropyl alcohol wipe for at least 30 seconds and allow to dry</p> <p>Using a non touch technique, attach 3 way tap to needle free access device</p> <p>Using a non touch technique, attach an empty syringe to port at 6 o'clock position. Ensure the three way tap is now open to the lumen and the 6 o'clock position. Pull gently back on the empty syringe plunger to create a vacuum in the catheter to approximately 8mls and hold the plunger at 8mls whilst turning the closed position onto the empty syringe. Turn 3 way tap so that it is open to the Urokinase and the line</p> <p>A small amount of Urokinase will then be drawn into vacuum. <b>Remove the empty syringe and expel air from the empty syringe</b></p> <p>Repeat process of creating vacuum and administering Urokinase until the 2ml volume is administered. Remove empty syringes and disconnect 3 way tap</p> <p>When Urokinase successfully administered:</p> <p><b>Adult:</b> leave for 20-60mins and then withdraw the Urokinase lock. If the catheter has an external clamp this should be left unclamped while the Urokinase lock is in situ</p> <p><b>Paediatric:</b> Leave the urokinase for 1 – 4 hours and then withdraw Urokinase lock. Clamp external clamps while the Urokinase lock is in situ</p> <p>Discard all disposable equipment</p> <p>Remove PPE and discard as healthcare waste</p> <p>Perform hand hygiene</p>
	<p><b>To withdraw Urokinase lock:</b> Using a non touch technique, attach a sterile 10ml syringe attempt to withdraw blood</p> <p><b>If unsuccessful,</b> this process can be repeated a further once in 24 hours. Practitioners may consider leaving Urokinase in situ for a period of 12 to 24 hours. This must be done with consultation of medical teams and the patient must remain as an inpatient for this period</p> <p><b>If successful,</b> discard aspirated blood stained fluid and flush / lock line with 0.9% Sodium Chloride 10mls and heparin sodium I.V. flush (10u/ml) 2ml per lumen</p>

## Urokinase administration in persistent withdrawal occlusion (Adult Only)

Statement	<p>Persistent Withdrawal Occlusion (PWO) can be described as the inability to withdraw blood via the catheter while retaining the capacity to infuse solutions without difficulty.</p> <p>The main significance of PWO is that the practitioner cannot be certain that the catheter is in the correct position when there is no free flowing blood return. A satisfactory blood return is the verification that the catheter is in a vein and that the catheter is functioning correctly prior to any intravenous therapy.</p>
Troubleshooting	<p><b>Before proceeding with Urokinase administration check the following:</b></p> <ul style="list-style-type: none"> <li>• Withdrawal of blood and flushing has already been attempted (see appropriate templates)</li> <li>• No kinks / clamps occluding the catheter</li> <li>• Ask the patient to take a deep breath in and hold whilst attempting to aspirate the catheter</li> <li>• Try altering the position of the arm and / or 30° head down tilt</li> <li>• If clamps are present, move clamp further down the catheter then roll the previously clamped section in your fingers gently to ensure that the catheter walls are not 'stuck' together'</li> <li>• Prior to administering Urokinase, an x-ray may be obtained to verify the correct position of the catheter in a blood vessel</li> </ul>
Requirements	<p>PPE (minimal consideration disposable apron and gloves)            Clean tray / trolley            Sterile dressing pack            10ml syringe(s)*            23g safety hypodermic needle(s) or blunt fill filter needle(s)            2% chlorhexidine in 70% isopropyl alcohol wipes            Urokinase 5,000 units per lumen reconstituted with 0.9% sodium chloride 2mls per lumen            Heparin sodium I.V. flush 10u/ml, 2ml per lumen** (if required)            3-way tap (not required in fibrin sheath)</p> <p><b>Implanted port:</b></p> <p>5ml heparin sodium I.V. flush 10u/ml or 100u/ml            5ml Urokinase 5,000 units per lumen reconstituted with 0.9% sodium chloride            GRIPPER® / Huber needle</p> <ul style="list-style-type: none"> <li>• Length (3 / 4 inch, 1 inch or 1 ¼ inch): dependant on the amount of subcutaneous tissue between the skin surface and the port</li> <li>• Gauge (19 or 22) dependant on the viscosity of the fluid to be infused</li> </ul>
Timing	<p>When clinically necessary but only within normal working hours (09.00 – 17.00). This should be conducted in a hospital environment and must always be prescribed.</p>
Aftercare	<p>Document in patient notes or CVC care plan or CVC patient held record            Ongoing care and maintenance should be undertaken</p>

Procedure	<p>Explain to patient and gain consent</p> <p>Perform hand hygiene</p> <p>Open sterile dressing pack. Using a non touch technique, assemble equipment onto the sterile field</p> <p>Perform hand hygiene</p> <p>Apply PPE</p> <p>Place the sterile drape to create a sterile field</p> <p>Using a 10ml syringe reconstitute the Urokinase vial to achieve 5,000 units in 2mls per lumen</p> <p>Scrub the hub of needle free access device with 2% chlorhexidine in 70% isopropyl alcohol wipe for at least 30 seconds and allow to dry</p> <p>Connect 10ml syringe filled with Urokinase to the needle free access device and using push pause technique to deliver the 2 ml solution. Repeat for other lumen.</p> <p><b>If the catheter has an external clamp this should be left unclamped while the Urokinase lock is in situ</b></p> <p>Discard all disposable equipment</p> <p>Remove PPE and discard as healthcare waste</p> <p>Perform hand hygiene</p> <p>Leave the Urokinase in situ for 20 -60 minutes, and then withdraw the Urokinase lock</p> <hr/> <p><b>To withdraw Urokinase lock:</b> Using a non touch technique, attach a sterile 10ml syringe attempt to withdraw blood</p> <p><b>If successful,</b> discard aspirated blood stained fluid and flush / lock line with 10 ml 0.9% sodium chloride and heparin sodium I.V. flush 10u/ml 2ml per lumen</p> <p><b>If unsuccessful,</b> this process can be repeated a further once in 24 hours; practitioners may consider leaving Urokinase in situ for a period of 12 to 24 hours. This must be done with consultation of medical teams and the patient must remain as an inpatient for this period.</p>
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## Connecting Parenteral Nutrition / Support

Aim	To ensure safe care and maintenance of catheter / device and maintain patency of catheter / device when connecting Parenteral Nutrition / Support
Requirements	<p>PPE (minimal considerations disposable apron)</p> <p>Clean Trolley</p> <p>Sterile sheet x 2 / dressing pack</p> <p>Tape</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipes x 3</p> <p>Parenteral Nutrition administration set (code VLPN00)</p> <p>Parenteral Support (PS) (2 x nurse check) remove from fridge and <b>hang</b> for 1 hour before use.</p>
Timing	As required. Parenteral Nutrition should always be prescribed.
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child, explain procedure and obtain consent</li> <li>• Gather equipment</li> <li>• Perform hand hygiene and apply apron</li> <li>• Clean trolley: Use paper towel and antiseptic soap or a detergent wipe. Rinse, dry and disinfect with 2% chlorhexidine and 70% isopropyl alcohol wipe. Clean from furthest away point towards self</li> <li>• Perform hand hygiene</li> <li>• Open sterile sheet / dressing pack onto trolley</li> <li>• Open out sterile sheet touching corners only</li> <li>• Open all equipment onto sterile sheet</li> <li>• Place tape at end of trolley</li> <li>• Place sterile sheet under VAD and secure with tape. Remove port protector (if used)</li> <li>• Apply alcohol hand rub (apply gloves if using)</li> <li>• Scrub the hub of the port of PN bag with 2% chlorhexidine and 70% isopropyl alcohol wipe for 30 secs, break seal and allow to dry</li> <li>• Insert administration set spike into port of PN bag and prime administration set</li> <li>• Scrub the hub of needle free access device with 2% chlorhexidine and 70% isopropyl alcohol wipe for at least 30 seconds. Allow to dry</li> <li>• Attach primed administration set to needle free access device</li> <li>• Insert administration set into infusion pump, set rate, open clamp and commence infusion</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	Document procedure and complete VAD careplan. Update fluid balance chart. VAD is positioned to ensure skin health is maintained.

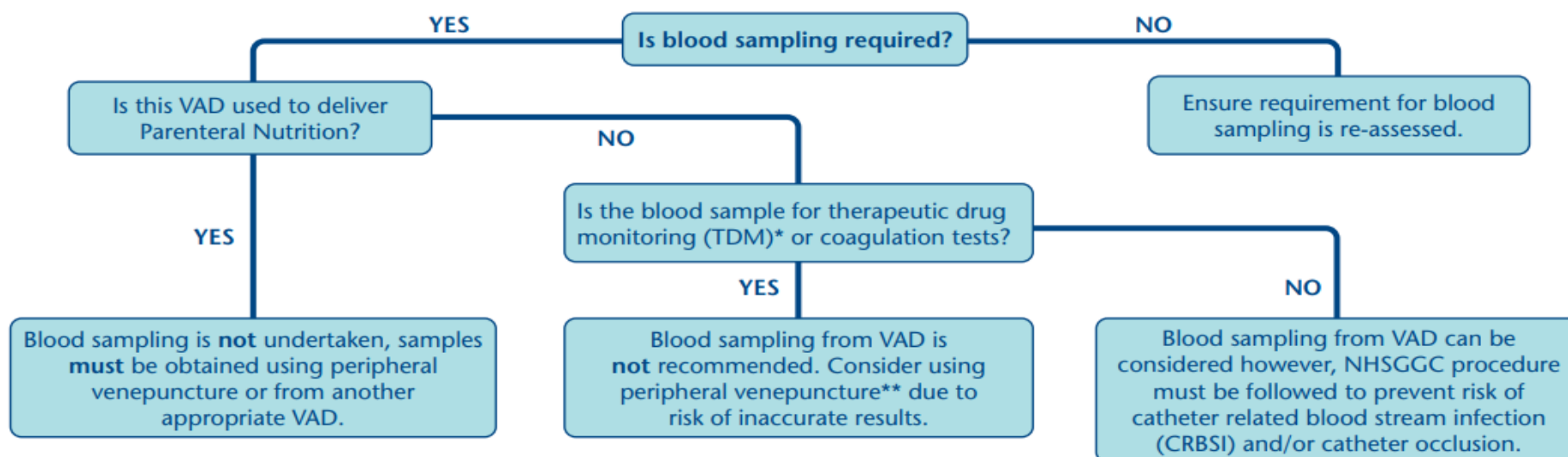
## Disconnecting Parenteral Nutrition

Statement	To ensure safe care and maintenance of catheter / device and maintain patency of catheter / device when disconnecting Parenteral Nutrition / Support
Requirements	<p>PPE (minimal considerations disposable apron)</p> <p>Clean trolley</p> <p>Sterile sheet x 2 / dressing pack</p> <p>Tape</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipes x 3</p> <p>1 x 10ml leuc lock syringe</p> <p>23g safety hypodermic needle or blunt filter needle</p> <p>10ml sterile 0.9% sodium chloride</p> <p>1 x 70% isopropyl alcohol impregnated port protector</p> <p>Clinical waste bag / sharps bin</p>
Timing	As required.
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Apply apron</li> <li>• Gather equipment</li> <li>• Clean trolley: Use paper towel and antimicrobial soap or a detergent wipe. Rinse, dry and disinfect (2% chlorhexidine and 70% isopropyl alcohol wipe). Clean from furthest away point towards self.</li> <li>• Clamp vascular access device and stop pump</li> <li>• Perform hand hygiene</li> <li>• Using an aseptic non touch technique open sterile dressing pack. Using an aseptic non touch technique, open sterile field and assemble equipment</li> <li>• Decontaminate the sodium chloride vial, open and place at the side of the sterile sheet</li> <li>• Place tape at end of trolley</li> <li>• Place port protector on trolley outside of sterile sheet</li> <li>• Place sterile sheet under VAD and secure with tape</li> <li>• Disconnect administration set</li> <li>• Perform hand hygiene</li> <li>• Clean needle free access device with 2% chlorhexidine in 70% isopropyl alcohol for 30 secs and allow to dry</li> <li>• Using an aseptic non touch technique attach the hypodermic needle to the syringe and draw up the 0.9% sodium chloride</li> <li>• Dispose of used hypodermic needle into sharps bin</li> <li>• Using an aseptic non touch technique attach the prefilled syringe to the needle free access device. Administer flush using a pulsatile push/pause technique and clamp under positive pressure</li> <li>• Attach port protector</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and dispose of healthcare waste</li> <li>• Perform hand hygiene</li> </ul>
Aftercare	Document in nursing notes, complete care plan and update fluid balance chart.

# Vascular Access Device (VAD) Blood Sampling Decision Tool



In some circumstances, VADs can be used for blood sampling for laboratory processing and for other purposes. It is recognised that at times decision making will be multifactorial, this tool is designed to guide and inform clinical decision making. When collecting blood samples from VADs, the NHSGGC procedure must be followed.



\* If a **TDM** sample is taken from a VAD used to administer the medication ensure this is documented on the request so that this can be considered by laboratory and clinical staff when interpreting the result.

\*\* Consideration should be given to difficult intravenous access (DIVA) and needle phobia.

**VADs must be flushed immediately post use using the correct technique. A sufficient volume of 0.9% sodium chloride solution should be used to clear the catheter of all residual blood after blood sampling using push, pause/positive pressure technique.**

Standard Operating Procedure to obtain blood samples via a Vascular Access Device (VAD) using a standard ANTT® approach.

**(\*exception of PVC, below antecubital fossa midline or VAD used for administering Parenteral Nutrition in an adult patient)**

**Refer to Blood Sampling Decision making tool prior to procedure**

Requirements	<p>PPE (minimum consideration disposable apron and gloves)</p> <p>Clean tray</p> <p>Vacurette® tube holder and sterile hub adaptor or Holdex® device</p> <p>2% chlorhexidine in 70% isopropyl alcohol wipes</p> <p>2 x 10ml sterile leur lock syringes</p> <p>Sterile blunt filter needle or 23g hypodermic safety needle</p> <p>Sterile sodium chloride 0.9%</p> <p>Appropriate blood bottles</p> <p>Clinical waste bag</p>
Timing	As required
Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient/child and parent and gain consent. Position patient appropriately.</li> <li>• Gather equipment</li> <li>• Perform hand hygiene</li> <li>• Clean tray with disinfectant wipes and prepare equipment</li> <li>• Perform hand hygiene</li> <li>• Apply apron and perform hand hygiene</li> <li>• Using an aseptic non touch technique, prepare equipment</li> <li>• Decontaminate the neck of ampoule with 2% chlorhexidine in 70% isopropyl alcohol wipe for 30 seconds and allow to dry</li> <li>• Use 10ml leur lock syringe and safety hypodermic needle or blunt filter needle to draw up 0.9% sodium chloride</li> <li>• Prepare the Holdex® or Vacurette® tube holder and hub adaptor</li> <li>• Perform hand hygiene. Apply non sterile gloves</li> <li>• Hold needle free access device (NFAD) securely. ‘Scrub the hub’ of NFAD with 2% chlorhexidine in 70% isopropyl alcohol for 30 seconds and allow to dry maintaining a secure hold of the NFAD to prevent contamination.</li> <li>• Attach 10ml leur lock syringe to NFAD. Undo clamp.</li> <li>• Aspirate required volume for blood discard (should be twice the lumen of the VAD. Apply clamp. Disconnect syringe and discard.</li> <li>• <i>*Paediatric and neonates will have a smaller blood discard volume or may return the discard.</i></li> <li>• Attach Holdex® or Vacurette® to NFAD. Use a ‘push and twist’ technique to securely attach to NFAD. Undo clamp and process blood bottles according to order of draw.</li> <li>• Apply clamp. Disconnect Holdex® or Vacurette® and discard in sharps bin</li> <li>• Attach 10ml leur lock syringe with flush to NFAD. Undo clamp. Administer flush using a pulsatile push/pause technique and positive pressure (push plunger as clamp applied). Reposition clamp to prevent damage to lumen of VAD. Disconnect syringe and discard.</li> <li>• ‘Scrub the hub’ of NFAD with 2% chlorhexidine in 70% isopropyl alcohol for 30 seconds and allow to dry.</li> <li>• Discard all disposable equipment</li> <li>• Remove PPE and discard as healthcare waste</li> <li>• Perform hand hygiene.</li> </ul>

## Implanted ports (Port-a-cath®) blood sampling (using a Surgical ANTT® approach)

Statement	To ensure that blood samples are easily and safely obtained as required from (Port-a-cath® )
Requirements	<p>PPE (minimal consideration of disposable apron and gloves)</p> <p>Clean tray / trolley</p> <p>Sterile dressing pack or drape</p> <p>10ml syringes</p> <p>21g safety hypodermic needles</p> <p>18g blunt filter needle for glass ampoule</p> <p>2% chlorhexidine and 70% isopropyl alcohol wipe</p> <p><b>*Paediatric / Neonatal Services:</b> 2% chlorhexidine in 70% isopropyl alcohol cannot be used in neonates less than 32 weeks gestation who are less than 7 days old. Refer to local guidelines for further advice. 0.5% chlorhexidine in 70% isopropyl alcohol is recommended as an alternative for babies less than 3 months old.</p> <p>70% isopropyl alcohol impregnated swabs, one for each vial or ampoule</p> <p>2% chlorhexidine and 70% isopropyl alcohol applicator</p> <p>Appropriate size 'GRIPPER®' / 'Huber' needle, depending on type of Port-a-cath®</p> <p>Needle Free Access Device</p> <p>Topical anaesthetic cream</p> <p>Sterile, semi permeable, transparent dressing</p> <p>IV Fluid administration set if required</p> <p>Blood bottles</p> <p>Laboratory order forms</p> <p>Prescription Sheet</p> <p>Prescribed Intravenous medications or IV fluids</p> <p>Sodium Chloride 0.9% for routine flushing</p> <p>Heparin sodium I.V. flush 10u/ml – should be used when port is in daily use</p> <p>Heparin sodium I.V. flush 100u/ml – should <b>only</b> be used prior to needle being removed.</p> <p>The volume of the flush solution can vary depending on the patient age, make of device, catheter size and nature and type of infusion / medication.</p> <p>A minimum volume of flush is at least twice the volume of the catheter.</p> <p>Clinical waste bag / sharps bin</p>
Timing	The Port-a-cath® device requires to be flushed before and after obtaining blood specimens
Aftercare	Document procedure in nursing notes.



Procedure	<ul style="list-style-type: none"> <li>• Explain the process to the patient / child and parent and gain consent</li> <li>• Perform hand hygiene</li> <li>• Ascertain that the patient has had no pain or discomfort with the Port-a-cath® before palpating the position of the portal. If pain or swelling present seek expert advice</li> <li>• Prior to accessing the port, topical anaesthetic may be applied over the site, covered with an adhesive semi-permeable dressing. Leave for recommended duration for maximum anaesthetic effect</li> <li>• Ensure that the topical anaesthetic has been removed immediately prior to preparing the site for access</li> <li>• Perform hand hygiene</li> <li>• Open sterile dressing pack and assemble all equipment using an aseptic non-touch technique onto sterile field</li> <li>• Perform hand hygiene</li> <li>• Apply PPE</li> <li>• Draw up and prepare flushing agents in accordance with Medicine policy</li> <li>• Prime “GRIPPER®” needle with 0.9% sodium chloride (approximately 2 ml if has extension tubing) clamp lumen closed and remove syringe</li> <li>• Connect the primed needle free access device to the port needle hub</li> <li>• Place drape below Port-a-cath® site</li> <li>• Cleanse area at port site using 2% chlorhexidine and 70% isopropyl alcohol wand or stick in a ‘lattice pattern’ and allow to dry</li> <li>• Palpate and stabilize the portal septum maintaining asepsis</li> <li>• Insert “GRIPPER®” needle at a 90° angle until base of portal septum felt with needle</li> <li>• Attach empty syringe, unclamp and withdraw 3- 5mL of blood stained fluid.</li> <li>• If no blood flash-back is observed try check patient position / correct needle placement. Medical referral may need to be considered</li> <li>• Clamp catheter and remove syringe</li> <li>• Secure with semi-permeable membrane dressing if needle remaining for continued treatment</li> <li>• Scrub the hub of needle free device and clamp using 2% chlorhexidine and 70% isopropyl alcohol wand or stick in a ‘lattice pattern’ and allow to dry</li> <li>• Place catheter on a sterile drape. Ensure clamp is closed</li> <li>• Attach empty syringe and unclamp. Withdraw required amount of blood for specimen</li> <li>• Close clamp on lumen before removing syringe</li> <li>• Attach syringe with sodium chloride 0.9% unclamp lumen, slowly inject 5ml 0.9% sodium chloride using a push / pause technique. Reapply clamp</li> <li>• <b>Adult:</b> If Port-a-cath® needle has to remain in situ for further use then flush with heparin sodium I.V. flush 10u/ml using a pulsating push / pause technique. Keep positive pressure on plunger, apply clamp and disconnect syringe</li> <li>• <b>Adult:</b> If Port-a-cath® needle is being removed catheter must have final flush with heparin sodium I.V. flush 100u/ml using a pulsating push / pause technique. Keep positive pressure on plunger, apply clamp and disconnect</li> </ul>
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syringe

- Clean needle free access port with 2% chlorhexidine and 70% alcohol solution for minimum of 30 seconds and allow to dry
- Transfer blood sample to appropriate laboratory container(s)
- Label samples in accordance with protocols and send to lab
- Discard all disposable equipment
- Remove PPE and discard as healthcare waste
- Perform hand hygiene

**Port-a-cath® needle removal** – this should only be undertaken by a specially trained and competent practitioner.

- Explain the process to the patient / child and parent and gain consent
- Perform hand hygiene
- Apply PPE
- Stabilise the port with two gloved fingers of one hand and withdraw needle with other hand
- Apply pressure if bleeding until bleeding stops
- Apply sterile adhesive dressing if required
- Discard all disposable equipment
- Remove PPE and discard as healthcare waste
- Perform hand hygiene

<b>Care plans</b>		
<b>Vascular access device</b>	<b>Care plan</b>	<b>Order Code</b>
Peripheral Venous Catheter (PVC)	PVC careplan	Med Ills 269426 v4.0 PECOS GGC0057
Midline catheter	Midline diary	Med Ills 335712
Arterial Cannula	Arterial care plan	Med Ills 330516v1.1
Peripherally Inserted Central Catheter (PICC)	<b>Short term</b> Non tunnelled CVC/PICC	Med Ills 269425-1v2.0 PECOS GGC0057
	<b>Long term</b> VAD diary	Med Ills 330171_2_0
Non-Tunnelled Central Venous Catheter	Short term Non Tunnelled CVC/PICC	Med Ills 269425-1v2.0 PECOS GGC0057
Tunnelled Central Venous Catheter	Long term VAD diary or Dialysis book (Renal units only)	Meds Ills 330171_2_0
Dialysis Central venous Catheter	Short term non tunnelled CVC/PICC Or Dialysis Book (Renal units only)	Med Ills 269425-1v2.0 PECOS GGC0057
Implanted Ports (Port-a-cath ®)	Long term VAD diary	330171_2_0