

This local Vascular Access Policy (PICC section) is an example used in the NICE adoption support resource for the Sherlock 3CG Tip Confirmation System for placement of peripherally inserted central catheters. It was not produced for or commissioned by NICE

Part 6: Peripherally Inserted Central Venous Catheters (PICCs)

The use of PICCs should be considered when patients present with difficult to access veins, long term IV therapy and to reduce the number of acute non-tunnelled short term CVC in the neck or femoral vein. This guidance will help practitioners with care and maintenance of the PICC once inserted and should be used alongside the vascular access LocSSIP.

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Version Control Sheet

Version	Date	Document Lead(s)	Status	Comment
0.1	03/04/17	Advanced Nurse Practitioner Vascular Access		

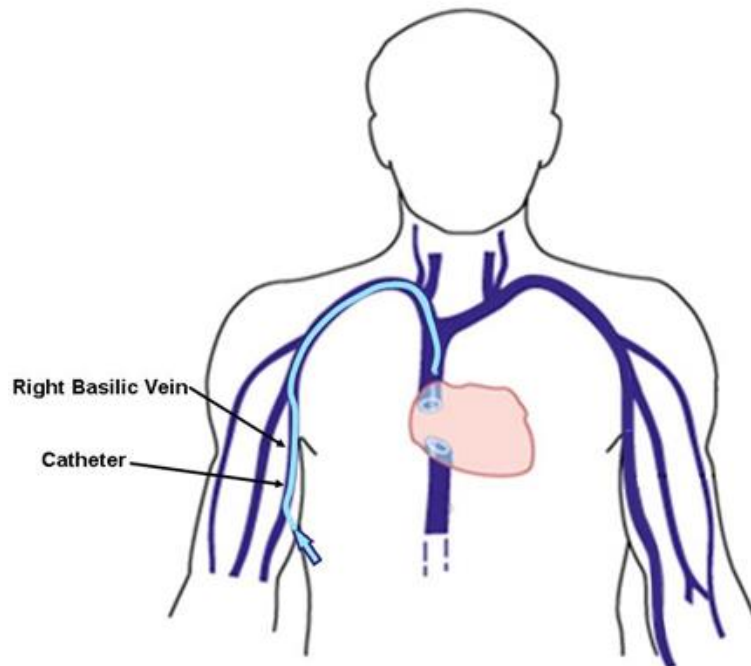
Document Location

Document Type	Location
Electronic	Trust Intranet
Paper	Frimley Park Hospital - <i>IVAS unit</i>
Paper	Wexham Park Hospital – Vascular Access Service

Related Documents

Document Type	Document Name
Electronic	Part 1 Vascular Access Policy
Electronic	Part 2 Vascular Access LocSSIP
Electronic	Part 3 Peripheral Cannulation Guidelines
Electronic	Part 4 Venepuncture Guidelines
Electronic	Part 5 Midline Guidelines
Electronic	Part 7 Short Term Acute CVC Guidelines
Electronic	Part 8 Implanted Port and Tunnelled Catheter Guidelines
Electronic	Part 9 Arterial Catheter Guidelines
Electronic	Part 10 Injectable Medicines Policy
Electronic	Part 11 Extravasation Guidelines
Electronic	Part 12 Long-term CVC Complication Guidelines
Electronic	Sedation Policy
Electronic	IPC Policy (Frimley Health)
Electronic	RCN Infusion Standards
Electronic	INS Infusion Standards
Electronic	EPIC

1. Peripherally Inserted Central Venous Catheters (PICCs)



Peripherally Inserted Central Venous Catheters (PICCs) can be **valved** or **non-valved**, clamped or non-clamped and power injectable. In order to reduce complications and maintain safety the organisation has standardised to one type of PICC, we use a power injectable valved polyurethane catheter.

The insertion of PICCs is governed by the vascular Access LocSSIP's. Only the Vascular Access team is permitted to place PICCs in the organisation, this allows standardisation of the pre-assessment and insertion technique. This will avoid inappropriate vascular access devices being placed and ensuring that the ECG method of placement is utilised for every PICC placement.

All PICCs in the organisation will be placed using the tip navigation and ECG confirmation technology. The only patients who will require a chest x-ray for confirmation will be those with an absent P wave or those under the age of 18. The technology can still be used as a guide but is not licenced in these patient groups to sign of tip location.

1. PICCs can be used for administration of any IV therapy and can be used to withdraw blood samples.
2. A PICC can be sited for treatment lasting a few days to many years depending on the type of IV therapy and how long the catheter remains viable.
3. Common complications to be aware of when a PICC is in situ are redness, pain and swelling in the arm as these can indicate phlebitis, infection or thrombosis.

1. Insertion Site

The right basilic vein is the 1st vessel of choice for PICC insertion above the anti-cubital fossa below the axilla. This is the most direct, uncomplicated vessel route to the Superior Vene-Cava(SVC). The 2nd choice is the right brachial vein although care should be taken to avoid arterial puncture as the brachial vein can be very close to the artery. The 3rd choice vessel is the cephalic vein; this is due to the complicated pathway the vessel takes to reach the SVC. A left sided approach in the same vessel order, basilic, brachial then cephalic, can be considered if the right side is not viable.

2. PICC specifications

1. The number of lumens used should be kept to a minimum in order to reduce complications.
2. The PICCs used in the organisation are valved externally. This means they don't need a clamp to close the catheter.
3. The valved PICCs in use in the organisation do not need heparinised saline flushing to maintain patency. A good 10ml push pause flush of normal saline 0.9% is effective in reducing occlusions.
4. The PICC configurations used in the organisation are single lumen 4fr, double lumen and triple lumen 5ft
5. A 3fr catheter is also available for paediatrics which is power injectable but not valved and therefore has a clamp.

Lumens	Catheter Size	Lumen Gauge Size	Average Gravity Flow Rate	Priming Volumes
Single	4 Fr	18 Ga.	1,272 ml/hr	0.67 ml
Single	5 Fr	18 Ga.	1,185 ml/hr	0.66 ml
Dual	5 Fr	18 Ga. / 18 Ga.	578 ml/hr / 578 ml/hr	0.57 ml / 0.57 ml
Dual	6 Fr	18 Ga. / 18 Ga.	753 ml/hr / 753 ml/hr	0.62 ml / 0.62 ml
Triple	5 Fr	18 Ga. / 20 Ga. / 20 Ga.	982 ml/hr / 131 ml/hr / 131 ml/hr	0.76 ml / 0.43 ml / 0.43 ml
Triple	6 Fr	17 Ga. / 19 Ga. / 19 Ga.	1,163 ml/hr / 275 ml/hr / 275 ml/hr	0.76 ml / 0.47 ml / 0.47 ml

3. Power Injection for CT and MRI contrast.

1. Power Injectable vascular access devices used in the organisation are PowerGlide midlines, PICCs and PORTS.
2. Power injectable means that CT contrast can be injected not the lumen of the catheter at high pressure.
3. The catheter lumen hub will display the power injection capability on it, if this information is missing from the lumen it is NOT power injectable and should not be used.
4. PORTs that are power injectable will have a CT identifiable symbol which is visible on an x-ray of the PORT.
5. Only trained staff should use a vascular access device for power injection

Power Injection of CT contrast via a power PICC

Frimley Health **NHS IVAS.**
NHS Foundation Trust
Committed To Excellence Working Together Facing The Future

1

Are you sure the PICC is power injectable /compatible for power Injection? Check the following;

- PICC is Purple ✓
- PICC Hub states flow rate 5mls per second. ✓
- The clear lumen states Power Injectable. ✓

Following confirmation that the PICC is Power Injectable it can used to administer room temperature contrast up to 5mls per second via a CT injection pump. The following procedure should be used:

2

IMPORTANT! - if the PICC does not flush well do not use it.

3

4

5

6

IMPORTANT!!
If there is any doubt that the PICC lumen is power injectable do NOT use it for CT contrast injection.

For help or advice contact the IVAS team on bleep 651 or Ext 2668

Andrew Barton/Version1/Oct 2016 ©

4. PICC Power Injection specifications

POWERPICC SOLO* CATHETER CONFIGURATION	LUMEN SIZE	USABLE LENGTH	POWER INJECTION FLOW RATE	MAXIMUM POWER INJECTOR PRESSURE SETTING	GRAVITY FLOW RATE (ml/hr)	PRIMING VOLUME (ml)
4 Fr. Single-Lumen	18	55 cm	5 ml/sec.	300 psi	1024	0.73
5 Fr. Single-Lumen	18	55 cm	5 ml/sec.	300 psi	978	0.73
5 Fr. Dual-Lumen	18/18	55 cm	5 ml/sec.	300 psi	498/498	0.65/0.65
6 Fr. Dual-Lumen	18/18	55 cm	5 ml/sec.	300 psi	740/740	0.75/0.75
6 Fr. Triple-Lumen						
RED LUMEN	17 Ga.	55 cm	5 ml/sec	300 psi	560	0.71
GREY LUMEN	19 Ga.	55 cm	N/A - No CT	N/A - No CT	308	0.57
WHITE LUMEN	19 Ga.	55 cm	N/A - No CT	N/A - No CT	308	0.57

5. Referral for a PICC

PICC referrals can be made in the following ways:

- Electronic referral on ICE under radiology special
 - By email (see contact page)
 - By internal telephone (see contact page)
 - By mobile phone (see contact page)
 - By bleep (see contact page)
1. In all cases an electronic referral will need to be made for audit purposes. The patient's clinical team must make the referral and the patient's consultant must be in agreement. This must be documented by the clinical team in the patient's clinical records.
 2. In some cases the Vascular Access specialist team may decide a PICC is inappropriate and offer an alternative, this will be discussed with the clinical team.
 3. Intravenous drug users are not permitted to have PICCs as they pose a significant risk to the patient if abused.
 4. PICCs requested just for taking blood will not routinely be placed as they often fail due to fibrin tail.
 5. Private patient referrals will be made by the consultant in charge of the patient's care to the interventional radiology consultants. If they are unable to place the PICC the vascular access team will do so.

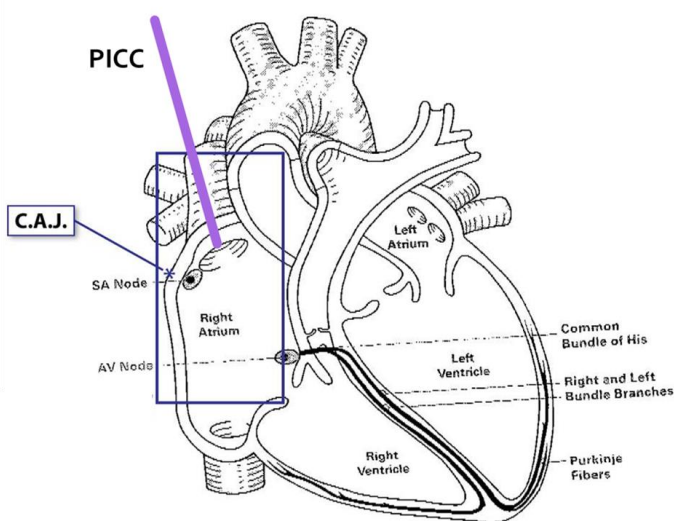
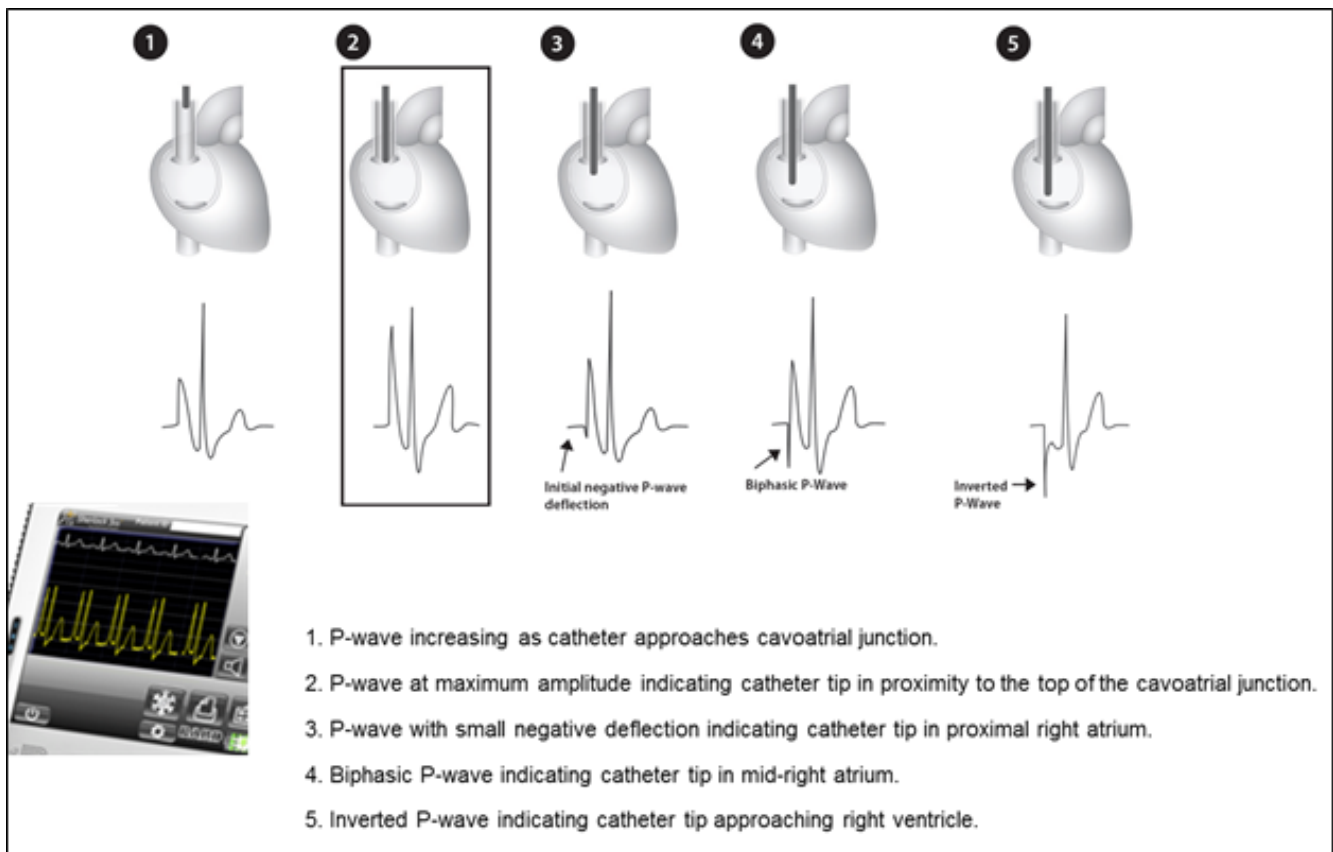
6. Equipment and Procedure

As with the central line the clinician should use strict asepsis and maximal barrier precautions (e.g large sterile drape and gown).

1. Lignocaine 1% can be used to anaesthetise the area and administered by the vascular access specialist nurse under patient group direction (Appendix).
2. Ideally the patient will be required to be no higher than 40⁰, preferably fully supine where possible with their shoulder and arm abducted from their body.
3. PICC insertion is permitted by the vascular access team and interventional radiology. It is a competency-based activity.
4. Ultrasound guidance must be used to access the vessel using a micro-introducer. This should only be attempted by those trained to use ultrasound and micro introducers.
5. Once in situ an adhesive fixation device must be used to secure the line and dress with a clear permeable dressing. Suturing of PICCs is not permitted.
6. The patient can be positioned as per personal preference and clinical need once the line is secured with a dressing and the area is made safe for other practitioners.
7. ECG and Tip navigation technology is used to place all PICCs in the Trust as this reduces the need for CXR and decreases the malposition rate. The exception to this is if the patient has an absent P wave in which case a chest x-ray must be used to verify tip placement, and this must be documented on the PICC insertion Performa prior to use.
8. Some patients will require PICC placement using fluoroscopy in interventional radiology and this will be undertaken by the interventional radiology team in line with their own protocols.

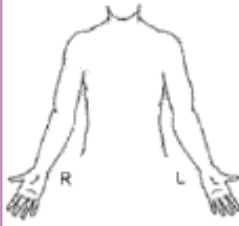
7. Confirming PICC Tip Location.

1. If ECG technology has been used to place the PICC a print out of the ECG can be used to document and confirm TIP location, in this instance a chest x-ray is not indicated.
2. The ECG technology uses the P wave of the cardiac cycle to identify how far into the SVC the PICC tip is. If a deflection is seen on the ECG monitor, this would indicate that the PICC has passed the SA node into the atrium. The PICC is then pulled back until the P wave is amplified with no deflection. This is then proof that the PICC tip is in the lower 3rd of the SVC or Cavo-Atrial junction and the PICC can be safely used. A print out of this ECG is then attached to the insertion notes to confirm placement.
3. Confirming PICC tip placement with ECG requires the patient to have an identifiable P wave on the cardiac monitor. If the P wave is absent a chest x-ray will be required to confirm PICC tip placement prior to using the PICC. Patients in Atrial Fibrillation will require a chest x-ray to confirm PICC placement.



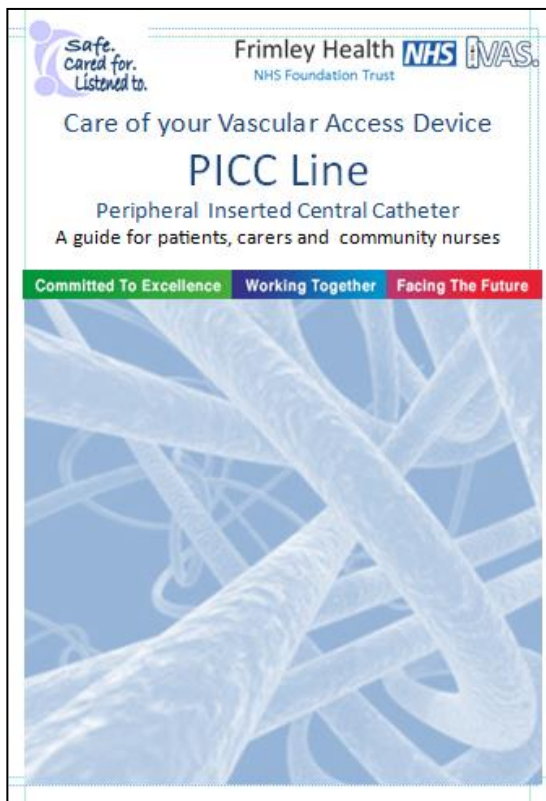
1. In line with national guidance the PICC tip should be below the carina and at or above the cavo-atrial junction.
2. If the patient has an absent 'P' wave on their ECG a chest x-ray will be required to confirm tip placement
3. For under 16's a chest x-ray is also mandatory

8. PICC Insertion Documentation

Patient Name:		Frimley Health NHS IVAS NHS Foundation Trust Intravenous Vascular Access Services Committed To Excellence Working Together Facing The Future PICC INSERTION RECORD	
DoB:			
ID No:			
NHS:			
Procedure Date:	Time:	Operator:	
Patient Location:		Reason for PICC:	
Consent Obtained: Yes/Unable		Action if unable:	
Verbal:	Written:		
Procedure explained:		Line Used:	
Allergies:		POWER INJECTABLE: Yes/No Maximum-5mls/Sec	
Relevant Blood Results:		Micro-Introducer used: Yes/No	
MRSA Status/ICP actions:		Ultrasound used: Yes/No	
Local Anaesthetic used – Lidocaine 1% 2mg: Yes / No :		Line Aspirated with blood: Yes/No	
Sign.....		Line Flushed with:	
<p>This PICC was placed with Sherlock 3ECG technology YES/NO.</p> <p>ECG PRINT OUT SHOULD BE FIXED HERE</p> <p>If the patient has an absent or unrecognisable P wave ECG cannot be used for confirming tip location.</p> <p>Reason for Chest x-ray confirmation:.....</p> <p>If TIP nit confirmed with ECG the patient will require a chest x-ray and the TIP should sit in the lower 3rd of the SVC around the 4th intercostal space, It is the reasonability of the clinical team to review the chest x-ray out of hours and confirm the PICC is safe to use but completing the lower portion of this proforma.</p> <p>ECG PRINT OUT SHOULD BE FIXED HERE</p>			
			
		Vein Accessed:	
		Insertion Length:	
		External Measurement:.....	
		Guide Wire Removed:	
		Asepsis Maintained:	
		3ml Chlorhexidine Skin Prep used:	
Chest X-ray required: Yes/No (if yes see below) OR Team to order CXR and review YES/NO DO NOT USE PICC UNTIL TIP PLACEMENT VERIFIED AND DOCUMENTED BELOW. Chest X-ray R/V – TIP location.....Line Pulled Back..... Documentation.....Sign.....			
Please remove the gauze dressing after 24 hours and apply a single large IV3000 or Tegaderm IV CVC dressing. Do not reapply any gauze.			
Operator Name:.....		Signature:.....	

PICC Insertion Record 2017-V5-A.BB/Bton

A PICC insertion record must be completed and filled in the patient's record, if the PICC has been placed by interventional radiology an entry will be made in the clinical notes and a report generated on IR



PICC insertion details	
Procedure Date:	Operator:
D/C Ward:	Reason For PICC:
Allergies:	
Make of PICC line : Bard SOLO Power PICC or other:	
POWER INJECTABLE: Yes/No - 5ml/sec maximum contrast	
PICC Tip confirmed in the SVC with ECG <input type="checkbox"/> Chest X-Ray <input type="checkbox"/>	
Details:	
Left arm / Right arm:	Vein Accessed:
Insertion Length:	Securement device:
External Measurement:	
From hub to exit site.....	
Valved Catheter Yes/No:	Needle free connectors:
Flushing Regime:	
Dressing Used:	
Contact Numbers: Frimley IV TEAM HUB: 01276 522668	
Lead Nurse: Andrew Barton- 07769673065	
Frimley Home IV therapy: Fiona Nadine- 07467353691	
Wexham IV TEAMHUB: 01753 634600	
Wexham Vascular Access: Jo Graziano- 07920756619	
Wexham Vascular Access: Chris Powers—07917070523	
Wexham Home IV therapy: Hilary Hodgson- 01753 633000	

For patients who are being discharged with the device a PICC passport must be completed and sent with the patient. This will ensure that the community nurse is aware of insertion length. The PICC passport is also the patient information leaflet, contains the IVAS team contact details and acts as the PICC care bundle. Whenever a patient is coming into the organisation. The PICC passport can also be used to document CT scan power injection and removal of PICC

10. PICC Fixation devices.



1. Foam adhesive clip – commonly a Statlock®, is used to secure the PICC in place externally. The blue arrows should always face the insertion site. Some patients may be sensitive to the adhesive on these devices. These devices should be changed weekly as part of the PICC care bundle.
2. If the patient has a skin reactions to the securement device please contact the vascular access team for advice.



- Subcutaneous fixation devices, known as SecurAcath®s are used in some areas of the organisation to anchor PICCs in place. These devices use small anchoring arms which are inserted into the exit site which spread into the subcutaneous tissue to hold the PICC in place. Some patients may find these uncomfortable and may prefer a foam adhesive device. Patients with an allergy to nickel should not have a SecurAcath®. See table below for removal instructions.

11. Tissue Adhesive (skin glue)

Tissue adhesive can be used to seal the catheter insertion site, this can reduce bleeding and the risk of infection entering the site. The use of tissue adhesive is not recommended as the primary catheter fixation method

12. Grip-lok

Grip-Lok's are adhesive securement devices which can be used to hold the vascular access device in place either at the insertion site as a primary fixation device or as a secondary device to support longer lumens.

- Grip-Lok's are primarily used in the Trust as a secondary securement device to support cuffed tunnelled catheter lumens in parenteral nutrition patients.



Grip-Lok applications.





Statlock® is used to secure vascular access devices to the patient skin using an adhesive pad and plastic clip that locks the catheter in place. This needs to be removed every 7 days along with the dressing and needle free connectors or sooner if soiled.

1. Using ANTT remove the old dressing.
2. Secure the PICC with some tape and remove the Statlock by lifting the locking mechanisms on either side of the catheter (Fig 1)
3. Remove the Statlock®, an alcohol swab can be used to loosen the adhesive if required.
4. Clean the skin under the Statlock® and around the PICC site with Chloraprep 3ml applicator and allow drying completely.



5. Place a new Statlock® under PICC hub and Insert blue prongs into the PICC hub holes.
6. Close the Statlock locking clips to secure the PICC.



7. Remove the adhesive backing and stick the Statlock® prepared skin using the preparation pad supplied in the Statlock® packet.



8. Reapply a sterile, transparent IV dressing and mark it with the date and time.



SecurAcath®

SecurAcath® is a subcutaneous clip which remains in situ for the duration of the time the PICC indwells and hold it in place with very little chance of the PICC migrating. This type of device is contraindicated in those who are allergic to nickel.



1. Every 7 days when the IV film dressing is changed
2. The skin should be cleaned under the SecurAcath® and allowed to dry before the new dressing is applied
3. To remove the SecurAcath® please see removal diagram
4. The PICC is removed before the SecurAcath®
5. Topical or local anaesthetic may be required for removal

15 SecurAcath® removal

securAcath.

REMOVAL

- Grip the HOLD tab with thumb and finger of one hand to stabilize device
- Pry upward at edge of LIFT tab with the other hand to release cover from anchor base
- Completely detach cover from anchor base
- Remove the catheter – do not use excessive force
- Hold pressure at site to achieve hemostasis
- If the insertion site is "crusty" or scabbed, use sterile gauze and saline to soak the site for a few minutes. The tissue will soften and SecurAcath removal will be easier
- Use a blunt tip scissors (Mettzenbaum, Mayo or similar) to cut anchor base completely in half lengthwise along the groove
- Anchor base must be in two separate pieces
- Place one hand near the insertion site to stabilize the tissue
- Stretch the skin taut by holding pressure with your fingers on each side of the insertion site
- Use a swift, deliberate tug to remove each half of the anchor base separately
- The flexible anchor will straighten as it is pulled out and will not cause tearing or trauma to the tissue

24-Hour Clinical Information Line 1-800-225-0000

Go to www.securacath.com for more information

Please refer to instructions for use for indications, contraindications, hazards, warnings, cautions and directions for use.

CE 0473

16. PICC Care and Maintenance

1. PICCs are central devices and should be handled with sterile ANTT when performing dressing change.
2. Needle free connectors, film dressings and adhesive fixation device should be changed every 7 days or earlier if visibly soiled or damaged.
3. The PICC is dressed with the film dressing – IV Advanced Tegaderm Film Dressing



A long-term CVC care bundle should be used to record PICC care and maintenance 3 times a day (every 6 hours with the drug round)

17. Flushing Technique:

1. The use of flushing is aimed at confirming catheter patency
2. ONLY A 10ml syringe or above should be used to access the catheter. A smaller syringe could damage the integrity or the catheter or dislodge the tip due to the higher intra-catheter pressure.
3. PICCs should be flushed before and after use with a 10ml flush of Sodium Chloride 0.9%
4. The lumen should flush freely with no resistance. If resistance is felt the flush should not be forced – DO NOT use a smaller syringe to unblock
5. If the PICC has multiple lumens, each lumen should be flushed with 10mls of sodium chloride 0.9%
6. Only registered healthcare professionals who have undertaken the IV course are permitted to flush central catheters.
7. Heparin/saline locks are not required and are poorly evidenced in maintaining catheter patency.
8. Some shared care patients such as nutritional support patients use Taurolock® between PICC usages.
9. If the PICC is not in use daily a weekly flush of normal saline 0.9% should be prescribed and administered.

LONG TERM CVC CARE BUNDLE—PICC/PORT/TUNNELLED CATHETER

Name: _____

NHS Number: _____

Hospital No: _____

DOB: _____ Ward: _____

• GLOVES must be worn when handling/accessing vascular access device. AMTT must be observed.
 • Chloraprep 1.5ml application must be used to clean the skin during dressing change
 • Needle free connectors must be used on all hubs and changed every 7 days or 200 activations
 • The film dressing must be changed after 24hrs and the gauze pad removed then changed every 7 days—document which day the dressing is on.
 • VIP should be assessed every 6 to 8 hours.
 • The device should be removed if no longer required

DEVICE:	PICC :4fr single	5fr double	6fr triple	Skin Tunnelled single	Skin Tunnelled double	Implanted PORT
Insertion date:	Site of device:		Length of external device after insertion:			

DATE:	E L N			E L N			E L N			E L N		
	DAY:	DAY:	DAY:	DAY:	DAY:	DAY:	DAY:	DAY:	DAY:	DAY:	DAY:	
Assessment 6 to 8 hourly E/L/N												
Visual assessment—VIP score:												
Dressing in situ—day number:												
Dressing clean and intact—if not please change dressing and document:												
Dressing dated with insertion date:												
Needle free connectors present on all lumens:												
Device lumens all flushing and patent:												
Needle free connectors replaced every 7 days or after 200 activations:												
Needle-free bungs cleaned before each use: (2% Chlorhexidine wipe)												
Microbial contamination prevention followed (see table above):												
Discuss with team, device still required—if no please remove:												
IVI lines labeled with date/time*:												
External measurement once per week on dressing day—document measurement:		cm			cm			cm			cm	
PRINT NAME:												

DAY 7 CHANGE DRESSING, FIXATION DEVICE AND NEEDLE FREE CONNECTORS

* IVI giving sets should be labelled with date and time stickers—TPN line 24hrs; clear fluids 72hrs; blood after transfusion.

Date & time of removal	Reason for removal	Signature & designation of competent professional removing cannula
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