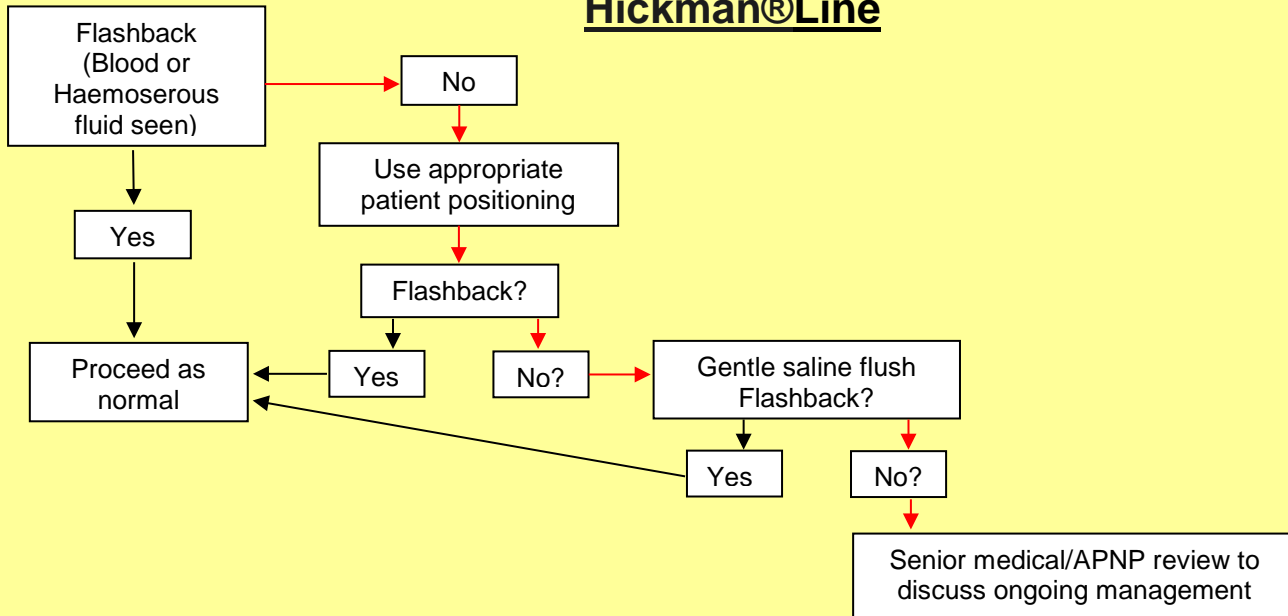




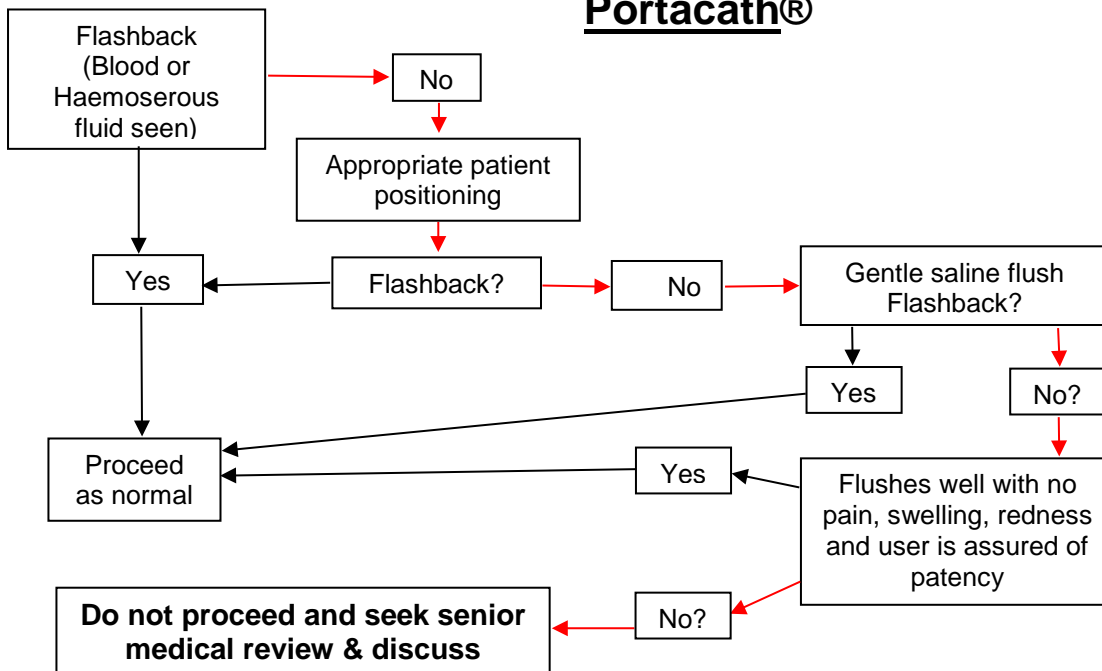
## PATENCY TROUBLE SHOOTING GUIDE

### Hickman®Line



Any complaints of pain, swelling or redness **STOP** immediately and seek senior medical advice

### Portacath®

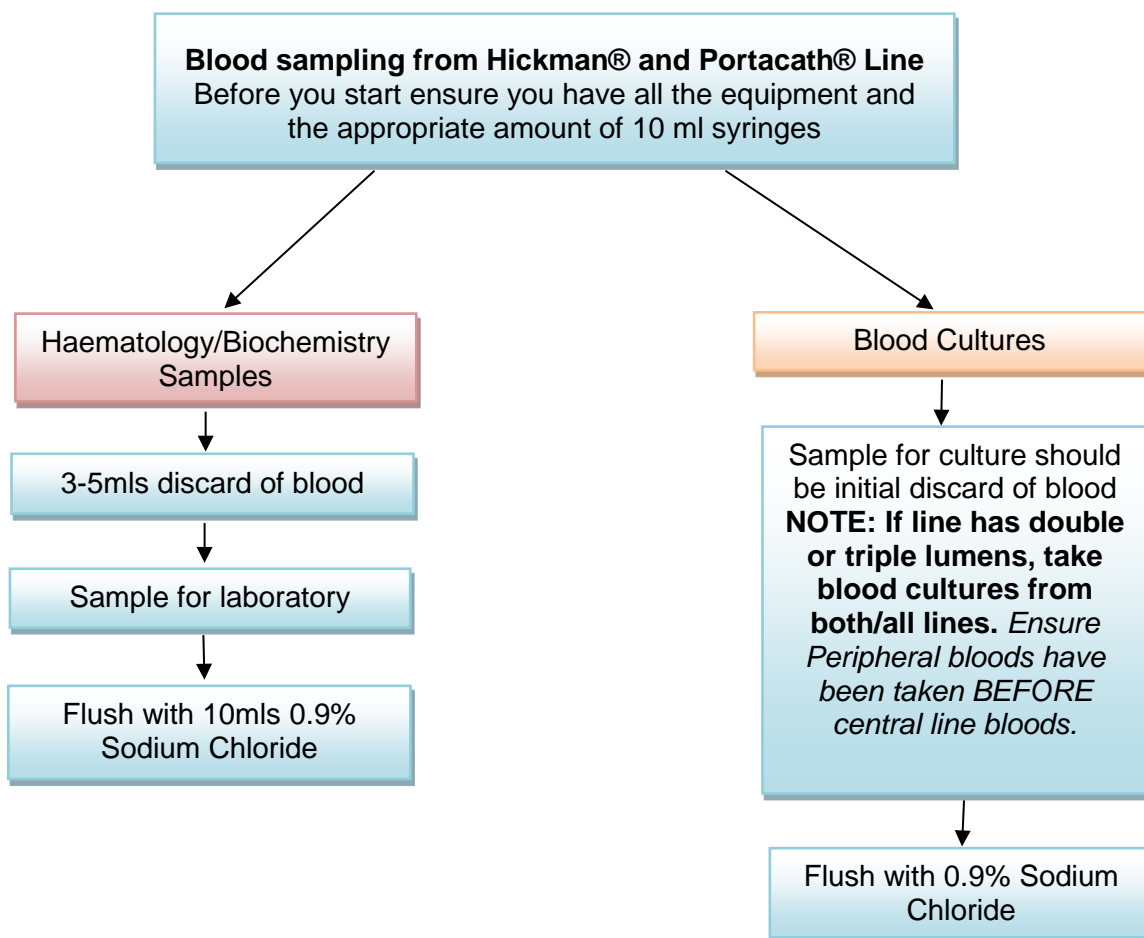


Gripper needle stays in for the duration of Intravenous therapy unless damaged or dislodged, then change

## Peripherally Inserted Central Catheters (PICC)

1. Ensure that PICC line flushes adequately. You will feel some slight resistance but it should still flush satisfactorily.
  2. Do not try to obtain a flashback in a PICC line unless you have had specific instructions to do so.
  3. Any pain, swelling, redness or tracking around PICC line site should be reviewed by senior medical staff.
- DO NOT** use the PICC line unless instructed to do so.

# Blood sampling from a Central Venous Access Device (CVAD)



Do not take blood from PICC lines unless it has been documented that the line can sample blood.

Is the blood sample necessary? You should not be sampling from CVAD if it is not essential  
DO NOT take drug levels from CVAD because this will alter results.

Discard amounts are generally 3-5mls. There may be instances where larger amounts of discard need to be taken and this must be discussed medical staff. Consideration must be taken into account regarding the child/young person's clinical condition, age and previous blood results.

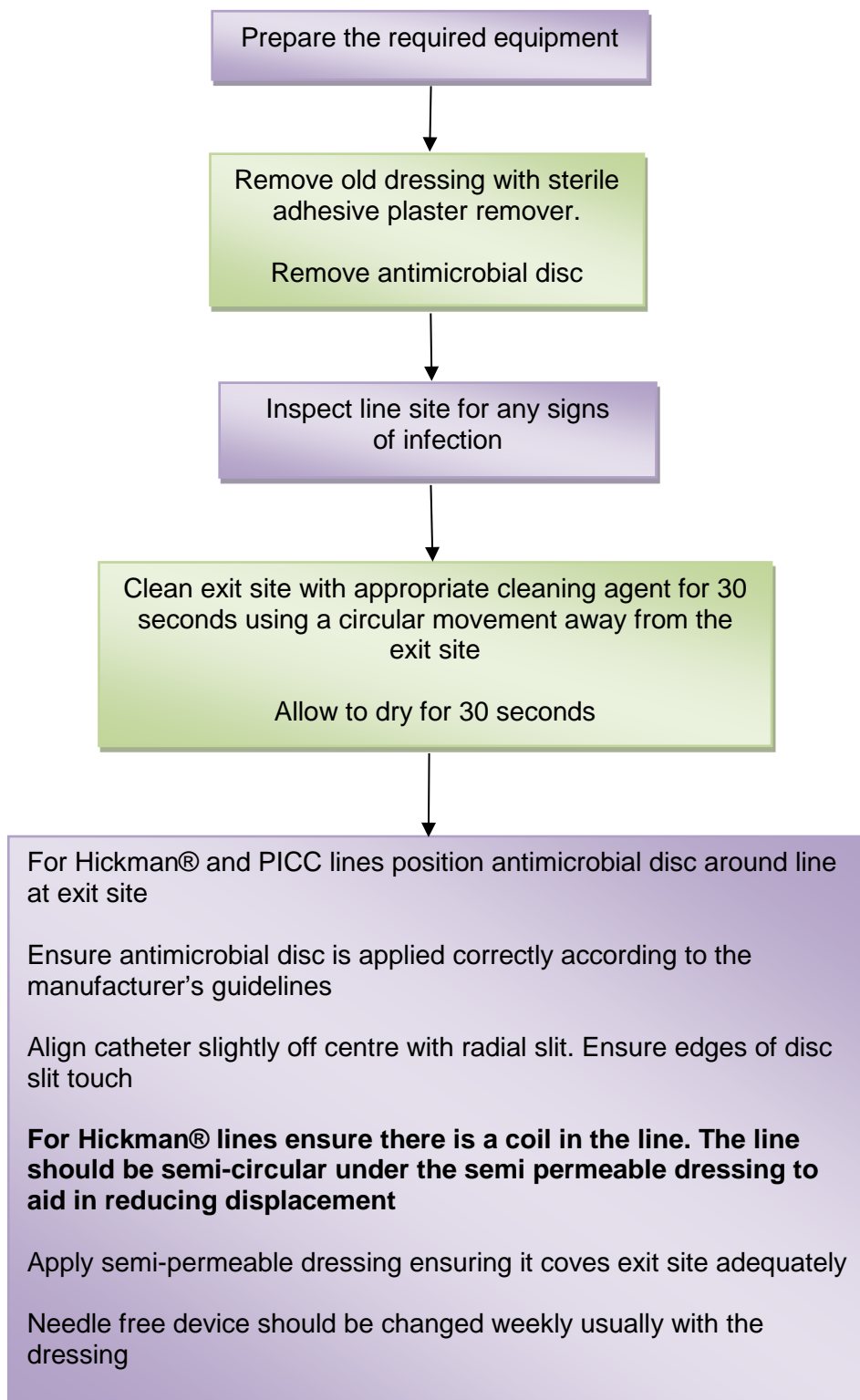
If you need to take a clotting sample from a CVAD ensure that you have taken enough discard of blood. Heparinised lines can alter clotting results.

Ensure that you have taken enough discard when taking blood from a CVAD line that has IV fluids containing Potassium running through it. The presence of Potassium in the sample could alter the blood results.

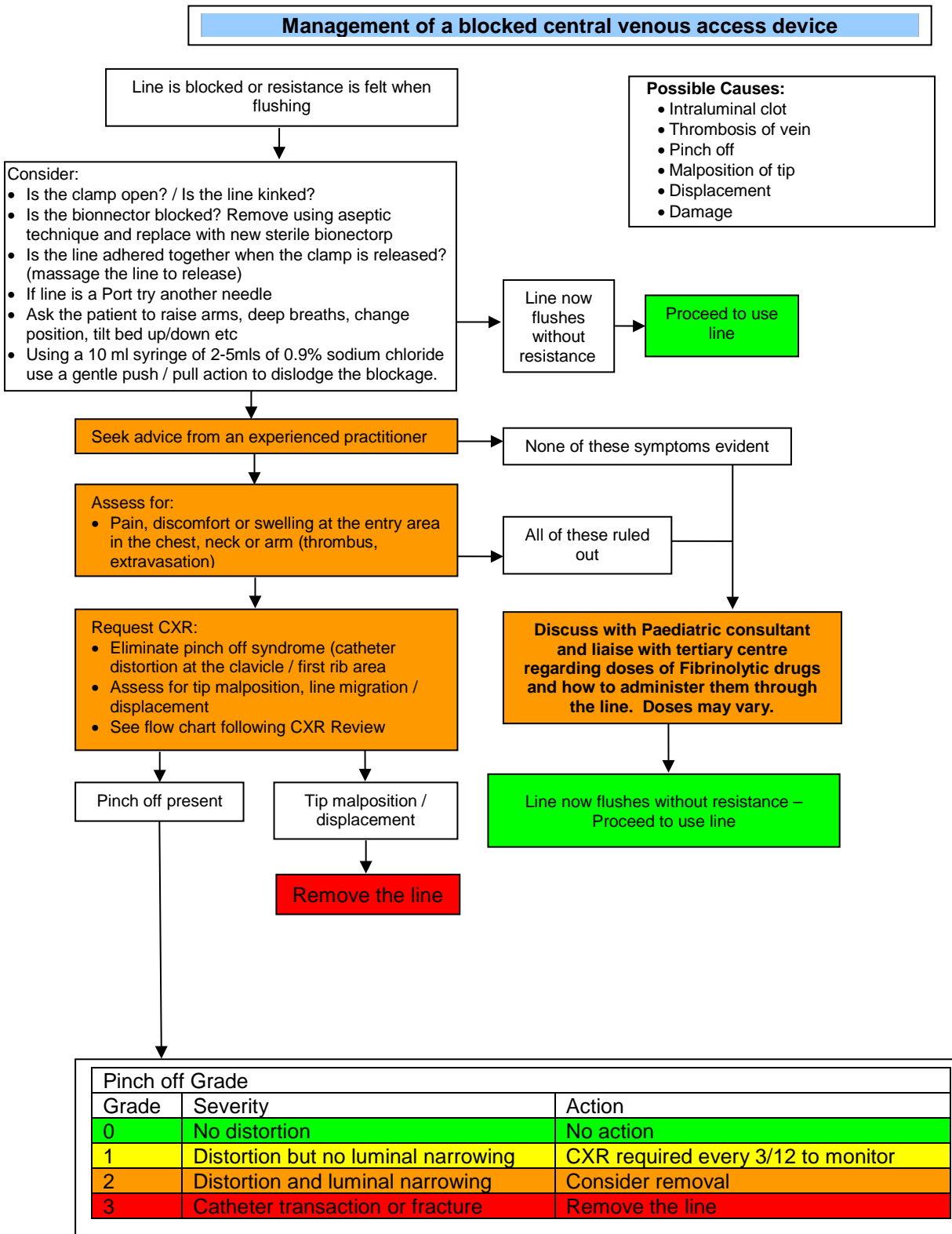
## **Important!**

**If you are requiring blood cultures you must ensure that peripheral blood cultures are taken BEFORE central cultures.**

# Central line dressing change



## Management of Blocked CVADs



**Note: NHS Ayrshire & Arran it is the synerkinase brand of urokinase that is used. They do however stock urokinase as well. This should be reconstituted with 2 mls of 0.9% sodium chloride.**

## Three way tap technique for Urokinase (synerkinase) administration.

NHS Ayrshire & Arran use the synerkinase brand of urokinase. It is reconstituted with 2 mls of 0.9% sodium chloride.

**(a) Attach 3-way-tap & syringes**  
see right.

**(b) Open clamp** (if there is one).

**(c) Open stopcock** to the empty syringe and the blocked catheter.

**(d) Pull back on the plunger of the empty syringe to create a vacuum in the catheter.**

You will need to pull quite forcibly.

**(e) Maintain suction with one hand and with the other hand turn stopcock** so it is

closed to the empty syringe and open to the syringe containing thrombolytic, which will be sucked into the catheter. Do not worry if it seems that very little thrombolytic is sucked in: even a tiny volume will reach several cm into the catheter.

**(f) Leave for up to 4 hours. DO NOT**

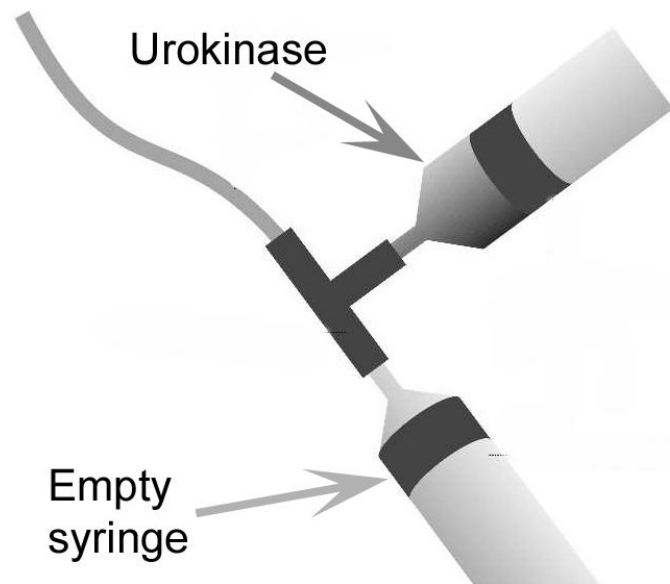
CLAMP CATHETER as this will prevent the thrombolytic from penetrating into the line.

**(g) After this time, attempt withdrawal of blood.** If this is not possible, attempt to flush the catheter using 0.9% Sodium chloride in a 10ml syringe. Do not use excessive force.

**(h) This procedure often needs to be repeated several times before it works:** sometimes leaving the thrombolytic in overnight seems to help.

**(i) If the procedure fails** despite repeated attempts discuss with patients consultant / oncologist.

Diagram 1. Three-way Tap Technique



### ADDITIONAL INFORMATION

Urokinase is contraindicated in recent (<1 month) GI Bleed, CVA, trauma, surgery, coagulation defects.

**NB** If precipitate is indicated rather than a thrombus (e.g. if TPN being given). Use a precipitate clearing agent according to manufacturer's guideline

### REFERENCES:

Hamilton H, Boderham AR, 2009, Central Venous Catheters Wiley-Blackwell

Hamilton H, 2006, Complications associated with venous access devices, Nursing Standard, 20, 12, 59-65

Hull and East Yorkshire Hospitals, 2007, Guidelines for the management of persistent withdrawal occlusion in central venous catheters

Leeds Teaching Hospitals, 2007, Guidelines for the management of CVADs that display persistent withdrawal occlusion.

Royal College of Nursing, 2003, Standards for infusion therapy, London RCN

Syner-KINASE (urokinase) Summary of Product Characteristics, 2011

## Complications and Troubleshooting for Hickman® Lines

Infection		Catheter Occlusion		Catheter Damage	Catheter Migration	Air Embolism
<b>Systemic Infection</b>	<b>Local infection</b> (at or around insertion site)	<b>Partial</b>	<b>Total</b>	Rare		Can occur from insertion to post removal
<b>Signs / Symptoms</b>	<b>Signs / Symptoms</b>	<b>Signs / Symptoms</b>	<b>Signs / Symptoms</b>	<b>Signs / Symptoms</b>	<b>Signs / Symptoms</b>	<b>Signs / Symptoms</b>
Pyrexia Rigors Hypotension Tachycardia	Erythema Swelling Discharge from insertion site	Able to flush but not withdraw blood	Unable to flush or withdraw blood	May occur if force used when clamp closed	Noted if line appears longer Cuff may be visible Blood noted at exit site Completely dislodged	Agitation hypotension Dizziness Tachycardia
<b>Treatment</b>	<b>Treatment</b>	<b>Treatment</b>	<b>Treatment</b>	<b>Treatment</b>	<b>Treatment</b>	<b>Treatment</b>
Take blood cultures – <b>line &amp; peripheral</b> Each child/young person will have an individual management plan for line sepsis Consult with tertiary centre responsible for child/young person's management plan.	Take swab Clean & redress site Consider antibiotics	Remove the needle free device using an aseptic technique and replace with a new needle free device. Change patients position (Valsalva motion)	Remove the needle free device using an aseptic technique and replace with a new needle free device. Inform APNP Nurse in charge Doctor Do not attempt to force flush	Stop any infusions Clamp catheter between exit and damage Seal damaged area with sterile occlusive dressing Inform APNP/ Nurse in Charge/ medical staff	Stop all infusions Confirm position by x-ray Apply pressure to bleeding area Inform APNP/Nurse in charge/medical staff	Check connectors Check for punctures (clamp above puncture site) Head tilt 10-30 degrees (left side) Oxygen 100%
	<b>Action</b> Liaise with medical staff	<b>Action</b> Liaise tertiary centre responsible for child/young person's management plan for advice		<b>Action</b> Refer to tertiary centre responsible for child/young person's management plan.	<b>Action</b> Refer to tertiary centre responsible for child/young person's management plan.	

## Troubleshooting Guide for PICC Lines

Infection		Thrombosis	Migration of Line	Blockage of line
Systemic Infection	Local infection (at or around insertion site)	Rare  More likely if tip has moved out of Supra vena cava (SVC)	PICC appears to be longer Check Chest X ray is required to check tip still in SVC	Can occur easily as lumen very fine.  Flush immediately after each use.
<b>Signs / Symptoms</b>  Tachycardia hypotension, rigor, pyrexia  Must be confirmed by culturing specific organism from blood and / or line	<b>Signs / Symptoms</b>  Redness soreness just around PICC exit site  May be some oozing at the exit site  Usually apyrexial	<b>Signs / Symptoms</b>  Signs of SVC obstruction Swollen neck / arm, distended veins  Requires to be confirmed by ultrasound/ piccogram	<b>Signs</b> Line appears to be longer. Always check external length of PICC and document	<b>If Blocked</b>  <b>Inform Advanced Paediatric Nurse Practitioner/Nurse in Charge/Medical personnel</b>
<b>Treatment</b> Treat with appropriate systemic antibiotic via the line Always liaise with microbiology staff	<b>Treatment</b> May be treated with oral antibiotics. Swab any exudate. Always liaise with microbiology staff	<b>Treatment or Action</b> Consideration must be given for the immediate removal of the line	<b>Action or Treatment</b> Remove dressing from bottom up taking care not to remove the line	<b>Action</b> Occlusions can be dealt with but are very time consuming <b>Never use less than a 10ml luer lock syringe to access the line.</b>
			Refer to medical staff	

**NB. The final decision to remove the line will be made by the Consultant in charge of the patient.**



## Appendix 3 Troubleshooting Guidance for PORTACATH®

### 1. Aspiration or flushing difficulties:

Possible causes	Possible solutions
Failure to flush or aspirate adequately, resulting in lumen obstruction	If no resistance is felt. Ask child and young person to sit upright and cough/deep breathe and attempt to flush with sterile 0.9% sodium chloride, and then proceed with aspiration. Seek advice from Radiology
Catheter tip drawn by suction to vein wall with aspiration	As above
Blood clot, fibrin sheath or other matter obstructing the lumen when the catheter is aspirated.	If resistance is felt, check for signs of extravasations. If present notify the medical team. Do not use & see algorithm below
Pinch off syndrome	If aspiration can only be accomplished with the child or young person in a certain position then the patient should be examined to check if the catheter has been placed in the pinch off area. Possible replacement of catheter
Kinked catheter	Ask the patient to move their arm, shoulder and head to check if a change in position will allow aspiration.
Mal position of the catheter tip	Check with chest x-ray
Improper catheter length selection for patient size	As above

### 2. Infection:

Possible causes	Possible solutions
<b>Systemic infections</b>  Signs/symptoms Rigor,,pyrexia and vomiting and tachycardia	For suspected Portacath® infections you: <ul style="list-style-type: none"> <li>• Take peripheral BEFORE central blood culture</li> <li>• Discussion about giving central line antibiotics should be made by the Paediatric Consultant in conjunction with the tertiary centre dealing with the patients care</li> </ul>
<b>Inflammation at the incision site and /or fever</b>	<ul style="list-style-type: none"> <li>• Blood Cultures must be taken <b>both peripherally and from the port and</b> labelled as such</li> <li>• Obtain swab for Culture &amp; Sensitivity (if insertion site inflamed)</li> <li>• Ensure Paediatric medical staff, radiologist and microbiologist are informed to promptly assess the patient and prescribe treatment. Treatment should be discussed with the lead pharmacist unless there is a sepsis protocol in place prior to administration via the port.</li> </ul>

### 3. Insufficient flow

Possible causes	Possible solutions
Lumen will not flush	Excessive force must not be used to flush an obstructed lumen. Insufficient blood flow maybe caused by the catheter contacting the wall of the vein or an occluding clot. Medical staff may attempt to dissolve the clot with a fibrinolytic agent. It is advised that Radiology / Pharmacology colleagues are contacted to discuss treatment prior to any attempt.

# Intentionally Blank for Note Taking