The care plan is designed to be used in conjunction with CINS Guidelines for vascular devices.

Manufacturers’ specific recommendations should be noted and adhered to by individual practitioners.

Patient addressograph label/patient name

REASON FOR INSERTION...

DEVICE TYPE...

DATE OF INSERTION...

Named Nurse or Advisor details....

The Clinical Interventions Team at The Clatterbridge Cancer Centre. 0151 334 1155 ext 5737 bleep4095

These general guidelines have been provided to assist all health care professionals when handling Clatterbridge PICC lines.
| Type of device                          | Risks                                                                 | Actions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Variations / Comments                                                                 | SIGN |
|--------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Peripherally Inserted Central Catheter (PICC) | Infection due to loss of skin integrity Line infection potentially resulting in systemic bacteraemia | • Site clean and protected with sterile dressing as per CINS guidelines.  
• Minimum of 8 hourly inspection of exit site for signs of inflammation or infection. Do not remove dressing unless soiled  
• Take swab for culture and sensitivity if indicated  
• Check weekly or at each visit if in community setting  
• Use Biopatch if necessary at exit site  
**Visual Infusion Phlebitis scored (VIIAD) See chart**  
• Observe patient for signs of line infection (pyrexia/raised WCC)  
• If clinically unstable and patient has had rigors, first take blood cultures peripherally and then from line (every lumen). Administer antibiotic therapy as prescribed in an attempt to conserve the line. Assess medical condition prior to removal of line for continued need for line and for venous access  
• Send line tip for culture and sensitivity following removal if line cannot be salvaged, in community only send if line sepsis suspected  
• Ensure administration lines in place following local policy.  
• Replace any infusates with additives and their administration lines up to a max of 24hrs if constituted in ward environment.  
• Label infusion lines with date for renewal.  
• Change add-on devices at same time as administration sets or as soon as integrity is compromised. Use needle free systems and avoid 3 way taps |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |
| Air embolus                          |                                                                       | • Use Needle-free systems  
• Ensure air dispelled from medication/flushes/infusates prior to administration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                     |      |

**TROUBLE-SHOOTING GUIDE**

**Type of device**

**Risks**

**Actions**

**Variations / Comments**

**SIGN**
<table>
<thead>
<tr>
<th>Issue Date: 17\textsuperscript{th} October 2013</th>
<th>Page 3 of 23</th>
<th>Filename: FNUAPIPL1</th>
<th>Issue No: 2.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author: Carol McCormick</td>
<td>Authorised by: Judi Ebbrell</td>
<td>Copy No:</td>
<td></td>
</tr>
</tbody>
</table>

| Close the clamp when accessing the line or removing or change infusion bags |
| Occlusion of lumen. |
| Maintain patency via 0.9% Sodium Chloride for injection flushes using positive pressure as per CINS guidelines, Pre & post drug/ infusion administration. Use heparinised saline for open ended catheter if indicated by Clinical Interventions Team for sluggish flow rates |
| Heparinised saline is not needed if line is being used and flushed with 0.9% Sodium Chloride daily |
| Ensure compatibility of drugs/infusates to avoid precipitation. |
| Ensure weekly flushes when not in use. Use needle-free system according to CINS guidelines using positive pressure flush |

| Bleeding from site / line itself. |
| Observe for signs of bleeding from site. |
| Apply pressure above dressing |
| Ensure add-on devices/taps securely fastened. |
| Ensure clotting studies in acceptable range prior to removal of line. |

| Line migration / displacement |
| Check notes to ensure medical staff have documented line is in correct place and safe to use |
| If line disconnected for any reason then discard |
| Check the Securacath device is closed when redressing line |
| Check each time line accessed for signs of line migration |
| Anchor lines to avoid accidental displacement or stretching using fixation devices as in CINS guidelines. |
| If in doubt do not use line and ensure patient is aware of problems which may occur. |

| Line in situ when no longer required. |
| Ensure prompt removal when line no longer required. |
## Care and Maintenance of a Peripheral Inserted Central Catheter (PICC) (PL1)

### EXIT DRESSING CHANGE (Weekly)

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment required</strong></td>
<td></td>
</tr>
<tr>
<td>Dressing Pack containing sterile towel and Gloves</td>
<td></td>
</tr>
<tr>
<td>Gauze swabs x 3, Surgical tape</td>
<td></td>
</tr>
<tr>
<td>Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator/wipe</td>
<td></td>
</tr>
<tr>
<td>Semi-Permeable transparent IV dressing</td>
<td></td>
</tr>
<tr>
<td>Alcohol hand rub or gel</td>
<td></td>
</tr>
<tr>
<td>Skin fixation device (e.g. grip-lok) if a Securacath device has not be used</td>
<td></td>
</tr>
<tr>
<td>Small Melolite or non adhesive dressing</td>
<td></td>
</tr>
<tr>
<td>Plastic apron</td>
<td></td>
</tr>
<tr>
<td>Needleless connector</td>
<td></td>
</tr>
<tr>
<td>Biopatch if indicated</td>
<td></td>
</tr>
</tbody>
</table>

### Care of Exit site

- Dressing changes should be performed on a weekly basis or when dressing is dirty, wet or loose
- Before the procedure begins make sure that your hands are washed and dried thoroughly and that they continue to be decontaminated during the procedure. A plastic apron should be worn.
- Maintain aseptic technique at all times.
- Inspect the catheter exit site for signs of skin discolouration or signs of infection e.g. exudates from exit site. If you suspect infection please contact the hospital team who placed the catheter or the Triage service for advice. Refer to trouble-shooting guide.

- Explain the procedure to the patient. Ensure that valid consent is gained.
- Ensure working area is as clean as possible.
- Ensure all equipment is gathered before commencing the procedure and all packaging is intact and in date.
- Open sterile pack, allowing inner pack to fall onto the clean working area.

To prevent infection
Exit site dressings are important in preventing trauma and the extrinsic contamination of the site of entry (Jones 2004).
• Open out sterile pack to create a sterile field. Open remaining equipment ensuring no contamination of sterile field.
• Open 2% Chlorhexidine impregnated applicator
• Loosen exit site dressing. To loosen dressing lift lower end gently ease the dressing off, from the skin carefully **SCISSORS SHOULD NEVER BE USED**
• Dressings should be removed from the end of the PICC towards the exit site to prevent accidental catheter removal if a Securacath device has not been used. Be aware that the fixation device/strip may also come off with the dressing.

To allow for a sterile environment for accessing intravenous device.

Chlorhexidine based solutions are recommended (in alcohol) dependent on the availability and catheter manufacturers. Recommendations (DOH 2001).

To prevent accidental removal of the catheter and friction or trauma to the skin surface

• Aseptically remove the dressing and if concerned that the line will become dislodged keep the grip-lok in place at this time if needed.
• Decontaminate hands
• Put on sterile gloves
• Place sterile towel as near as possible to the PICC catheter.
• Clean around the catheter exit site with a 2% Chlorhexidine impregnated applicator, and if a Securacath device has been used ensure that the PICC catheter is lifted up and down to allow for cleaning all around the exit site where the Securacath sits.
• The solution should be applied with friction but should not be too vigorous or the skin's natural defence may be destroyed.
• Allow to dry.
• Fold the Melolite or non adhesive dressing into approx ¼ size so that it sits neatly beneath the Securacath device for comfort, place one of the securing tapes from the IV dressing across the wings of the line with the line being directed upwards on the outer aspect of the arm check that the Securacath is not twisted which will cause discomfort
• Apply new PICC suitable dressing over the exit site making sure the exit site is covered but visible and that the distal portion of the line is positioned through the ported section of the dressing.
• Clean the exposed section of the line with a clean 2% Chlorhexine wipe and allow to dry
• Remove the needleless connector and using a clean 2%chlorhexide wipe clean the end of the line using some friction several times and allow to dry. Attach a new sterile needleless connector being careful not to over tighten

Alcoholic Chlorhexidine combines the benefits of rapid action and excellent residual activity (DOH 2001)

To prevent the Securacath device from granulating into the tissues beneath the PICC

Semi-permeable transparent IV dressings are well tolerated by patients (Campbell et al 1999, Treston-Aurand et al 1997, Wille 1993) and are easy to apply and remove (Wille 1997).

To reduce friction from the body or movement at the Ante-cubital fossa

Needless connectors need to be changed every 7 days according to the licence of the product
- Remove the dressing towel
- Remove gloves.
- Clear away equipment. Dispose of waste as per organisational policy.
- Wash Hands
- Documents care in patient’s hand held records.

*Peripherally Inserted Central Catheter* – 0.9% Sodium Chloride for injection and Heparin 10 units/ml in 0.9% Sodium Chloride if indicated for injection. Lock (PL2) for weekly maintenance. Flush

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment Required</strong></td>
<td>10ml syringes should always be used, smaller syringe sizes may damage the catheter (Hadaway 1998)</td>
</tr>
<tr>
<td>Dressing Pack containing sterile towel and gloves</td>
<td></td>
</tr>
<tr>
<td>Gauze swabs x 3</td>
<td></td>
</tr>
<tr>
<td>10ml syringes x 2</td>
<td></td>
</tr>
<tr>
<td>Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator/wipe</td>
<td></td>
</tr>
<tr>
<td>10ml 0.9% Sodium chloride for injection or a pre-filled saline syringe</td>
<td></td>
</tr>
<tr>
<td>One/two blunt filtered drawing up needle. Sharps container</td>
<td></td>
</tr>
<tr>
<td>Suitable transparent semi-permeable IV dressing</td>
<td></td>
</tr>
<tr>
<td>Alcohol hand rub</td>
<td></td>
</tr>
<tr>
<td>Plastic apron</td>
<td></td>
</tr>
<tr>
<td>Needle free I/V access connector change weekly</td>
<td></td>
</tr>
</tbody>
</table>

**5ML HEPARIN 10 UNITS/ML in 0.9% SODIUM CHLORIDE FOR SOME OPEN ENDED CATHETER IF INDICATED BY CLINICAL INTERVENTIONS TEAM**

- Before the procedure begins make sure that your hands are washed and dried thoroughly and that they continue to be decontaminated during the procedure. A plastic apron should be worn.
- Maintain aseptic technique at all times.
- Explain the procedure to the patient. Ensure that valid consent is gained.
- Inspect the catheter exit site for signs of skin discolouration or signs of infection e.g. exudates from exit site. If you suspect infection please contact the hospital team who placed the catheter or the Triage service for advice. Refer to trouble-shooting guide.

Maintain asepsis.
Reduce risk of infection. To avoid contamination and to reduce risk of infection.
Reduce anxiety and improve patient compliance.
• Ensure working area is as clean as possible.
• Ensure all equipment is gathered before commencing the procedure and all packaging is intact and in date.
• Open sterile pack allowing inner pack to fall onto clean working area.
• Open out sterile pack to create a sterile field. Open remaining equipment ensuring no contamination of sterile field.
• Place 0.9% sodium chloride (saline) and if needed Heparinised Saline ampoule(s) near to the working area but not on the sterile field.
• Ensure easy access to the needle free system.
• Decontaminate hands.
• Put on sterile gloves. Connect blunt drawing up filter needle to the syringe.
• With a piece of sterile gauze pick up the 0.9% sodium chloride ampoule, draw up 10ml of solution if pre-filled saline syringes not available. Repeat this procedure using the Heparin 10units/ml in Sodium Chloride if required. Dispose of the needle directly into sharps container; place the filled syringe on the sterile field.
• Place sterile towel as near as possible to the catheter.
• Scrub the hub of the needle free system with 2% Chlorhexidine impregnated wipe, rubbing from the top of the needle free connector to the sides. Do this three times using different parts of the wipe, over a period of 30 seconds. Allow to dry. If needle free connector is due to be changed, remove the old connector wipe the end of the line using a 2% Chlorhexidine impregnated wipes several times and allow to dry, then re apply a sterile needlefree connector
• Attach syringe with 0.9% sodium chloride pull back to colour the saline with blood and then inject the flush using a push/ pause action, clamping as the last ml of solution is instilled into the catheter. If open ended PICC, repeat the flushing procedure using Heparinised saline lock.
• Remove the syringe and discard.
• NEVER FORCE THE SOLUTION INTO THE CATHETER, this can damage the catheter
• Ensure that the catheter is secured, comfortable with the distal portion of the line being covered with a transparent semi-permeable IV dressing.
• Remove dressing towel and discard. Remove gloves.
• Wash hands

Chlorhexidine based solutions are recommended (in alcohol) as per policy (DOH 2001).

There is no requirement to routinely withdraw blood and discard it prior to flushing (except prior to blood sampling although the first sample can be used for blood cultures (RCN 2010).

There is an increased risk of infection and occlusion when withdrawing blood via a central venous catheter (RCN 2010), therefore for routine flushing of a line withdrawal and waste of blood is not required, to confirm placement of line pullback only to colour the saline

The pulsated flush creates turbulence within the catheter lumen, removing debris from the internal catheter wall (Goodwin & Carlson 1993, Todd 1998).

Positive pressure within the lumen of
- Clear away equipment disposing of waste as per organisational policy.
- Document care in patient’s records.
- the catheter should be maintained to prevent reflux of blood (INS 2000).

**Peripherally Inserted Central Catheter – Blood Sampling (PL3)**

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment Required</strong></td>
<td></td>
</tr>
<tr>
<td>Dressing Pack containing sterile towel and gloves</td>
<td></td>
</tr>
<tr>
<td>Gauze swabs x 3</td>
<td></td>
</tr>
<tr>
<td>10ml syringes x 2</td>
<td></td>
</tr>
<tr>
<td>Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator/wipe</td>
<td></td>
</tr>
<tr>
<td>10ml 0.9% Sodium Chloride for injection</td>
<td></td>
</tr>
<tr>
<td>One blunt drawing up filter needle. Sharps container</td>
<td></td>
</tr>
<tr>
<td>Surgical tape</td>
<td></td>
</tr>
<tr>
<td>Alcohol hand rub</td>
<td></td>
</tr>
<tr>
<td>Needle free I/V access connector</td>
<td></td>
</tr>
<tr>
<td><strong>5ml Heparinised Saline 10 units/ml with open ended catheter if indicated</strong></td>
<td></td>
</tr>
</tbody>
</table>

- Before the procedure begins make sure that your hands are washed and dried thoroughly and that they continue to be decontaminated during the procedure. A plastic apron should be worn.
- Maintain aseptic technique at all times.
- Explain the procedure to the patient. Ensure that valid consent is gained.
- Inspect the catheter exit site for signs of skin discoloration or signs of infection e.g. exudates from exit site. If you suspect infection please contact the hospital team who placed the catheter for advice. Refer to trouble-shooting guide.
- Ensure working area is as clean as possible.
- Ensure all equipment is gathered before commencing the procedure and packaging is intact and in date.
- Open sterile pack allowing inner pack to fall onto clean working area.

Maintain asepsis.
Reduce risk of infection. To avoid contamination and to reduce risk of infection
Reduce anxiety and improve patient compliance
Open out sterile pack to create a sterile field. Open remaining equipment ensuring no contamination of sterile field.

Place 0.9% sodium chloride (saline) and if needed Heparinised Saline ampoule(s) near to the working area but not on the sterile field.

Ensure easy access to the needle free system.

Decontaminate hands.

Put on sterile gloves. Connect blunt drawing up filter needle to the syringe.

With a piece of sterile gauze pick up the 0.9% Sodium Chloride (saline) ampoule, draw up 10ml of solution if pre-filled saline syringes not available. Dispose of the needle directly into sharps container; place the filled syringe on the sterile field.

Place sterile towel as near as possible to the catheter.

Scrub the hub of the needle free system with 2% Chlorhexidine impregnated wipe, rubbing from the top of the needle free connector to the sides. Do this three times using different parts of the wipe, over a period of 30 seconds. Allow to dry if not due to change the connector.

Attach empty 10ml syringe into needle free system and aspirate at least 5-10mls of blood from the catheter. If unable to do so attach the syringe containing the saline solution to the needle free system gently flush with 1-2mls 0.9% Sodium Chloride (saline) (do not use force) then aspirate blood from catheter. Discard blood aspirated as per policy. Note if taking blood samples and TPN has been administered, following an IV infusion or for an INR sample at least 20mls of blood should be taken and disregarded before taking the sample.

If taking blood for cultures DO NOT WASTE the first drawn blood.

Attach an empty 10ml syringe and withdraw amount of blood required for analysis and immediately transfer into the relevant blood tubes using a transfer unit.

Attach syringe with 0.9% sodium chloride and inject the flush using a push/pause action, clamping as the last ml of solution is instilled into the catheter. If open ended PICC, repeat this procedure using Heparinised saline lock if indicated.

Remove the syringe and discard.

NEVER FORCE THE SOLUTION INTO THE CATHETER, this can damage the catheter.

Ensure that the catheter is secure and comfortable.

Remove dressing towel and discard. Remove gloves.

Chlorhexidine based solutions are recommended (in alcohol) as per policy (DOH 2001)

The pulsated flush creates turbulence within the catheter lumen, removing debris from the internal catheter wall (Goodwin & Carlson 1993, Todd 1998).

Positive pressure within the lumen of the catheter should be maintained to prevent reflux of blood (INS 2000).

To prevent the sample result being inaccurate due to saline or other solutions from the line.
• Wash hands
• Clear away equipment disposing of waste as per organisational policy.
• Document care in patient’s records.
Peripherally Inserted Central Catheter – Administration of antibiotics/additives/infusion (PL4)

Administer drugs or IV therapy as prescribed using correct diluent and rate of infusion.
Always use 10ml syringe, never use force to flush the catheter.

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment Required</strong></td>
<td></td>
</tr>
<tr>
<td>Dressing pack containing sterile towel and gloves</td>
<td></td>
</tr>
<tr>
<td>Gloves</td>
<td></td>
</tr>
<tr>
<td>Gauze swabs x 3, Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol or Chlorhexidine impregnated wipe</td>
<td></td>
</tr>
<tr>
<td>10ml syringes x 3</td>
<td></td>
</tr>
<tr>
<td>2 x 10ml 0.9% Sodium chloride (saline) or pre filled saline syringes</td>
<td></td>
</tr>
<tr>
<td>One blunt filter drawing up needle. Sharps container</td>
<td></td>
</tr>
<tr>
<td>Alcohol hand rub</td>
<td></td>
</tr>
<tr>
<td>Plastic apron</td>
<td></td>
</tr>
<tr>
<td>Antibiotics/additives/infusion as prescribed</td>
<td></td>
</tr>
<tr>
<td>5ML HEPARINISED SALINE 10UNITS/ML FOR OPEN ENDED CATHETER IF INDICATED</td>
<td></td>
</tr>
</tbody>
</table>

- Before the procedure begins make sure that your hands are washed and dried thoroughly and that they continue to be decontaminated during the procedure. A plastic apron should be worn.
- Maintain aseptic technique at all times.
- Explain the procedure to the patient. Ensure that valid consent is gained.
- Inspect the catheter exit site for signs of skin discolouration or signs of infection e.g. exudates from exit site. If you suspect infection please contact the hospital team or the Triage service who placed the catheter for advice. Refer to trouble-shooting guide.
- Ensure working area is as clean as possible.
- Ensure all equipment is gathered before commencing the procedure and packaging is intact and in date.
- Open sterile pack allowing inner pack to fall onto clean working area.
- Open out sterile pack to create a sterile field. Open remaining equipment ensuring no contamination of sterile field.
- Place 0.9% sodium chloride (saline) and if needed Heparinised saline ampoule (s) To minimise risks of infection and contamination.

Ensures patient compliance and reduces anxiety
Maintain asepsis.
near to the working area but not on the sterile field. Ensure easy access to the needle free system.

- Decontaminate hands.
- Put on sterile gloves. Connect blunt drawing up filter needle to the syringe.
- Pick up a piece of sterile gauze and with it pick up the 0.9% sodium chloride (saline) ampoule, then draw up 10ml of solution. Repeat for second 0.9% sodium chloride (saline) if pre-filled saline syringes are not available. Dispose of the needle directly into the sharps container.
- Place the filled syringe on the sterile field.
- Place sterile towel as near as possible to the catheter.
- Scrub the hub of the needle free system with Chlorhexidine impregnated wipe, rubbing from the top of the needle free connector to the sides. Do this three times using different parts of the wipe, over a 30 second period. Allow to dry. If not due to change the connector.
- Attach syringe with 0.9% Sodium Chloride (saline), aspirate enough blood to colour saline solution then inject the flush using a push pause action camping as the last ml of the solution is instilled into the catheter. Remove the syringe and discard.
- If unable to aspirate blood from the line refer to the algorithm for persistent withdrawal occlusion and if pain free or blood return is yielded continue to use the line, NEVER FORCE THE SOLUTION INTO THE CATHETER, this can easily damage the catheter.
- Administer IV antibiotics/additives/infusion as prescribed.
- Flush catheter again with 10ml 0.9% Sodium Chloride using a push/pause action, followed by Heparinised saline (5ml of 10units/ml) locks IF OPEN ENDED CATHETER. Ensure that the catheter is secure and comfortable. Remove dressing towel and discard. Remove gloves. Wash hands.
- Clear away equipment used. Dispose of contaminated waste as per policy.
- Document care in patient’s records.

Chlorhexidine based solutions are recommended (in alcohol) dependent on the availability and catheter manufacturers recommendations (DOH 2001).

To check catheter patency and to remove residual solution from catheter.

The RCN Standards for infusion Therapy state, “the nurse should aspirate the catheter and check for blood return to confirm patency prior to the administration of medications and/or solutions (INS 2000). On no account should a vesicant drug or vesicant infusion be administered through a vascular access device where difficulty is experienced in withdrawing blood or flushing the line (Masoorli 2003).

The pulsated flush creates turbulence within the catheter lumen, removing debris from the internal catheter wall (Goodwin & Carlson 1993, Todd 1998). Positive pressure within the lumen of the catheter should be maintained to prevent reflux of blood (INS 2000).
### Disconnection of Ambulatory Chemotherapy (Infusor/Infuser) from Central Venous Access Device (DST1)

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
</table>
| **Equipment Required**  
Dressing Pack containing sterile towel and gloves  
Gauze swabs x 3, 10ml syringes x 3  
Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator/wipe  
10ml 0.9% Sodium Chloride for injection or a 10ml pre filled saline syringe  
5ml Heparin10units/ml in 0.9% Sodium Chloride  
One or two blunt drawing up filter needles. Sharps container  
Alcohol hand rub,  
Needle-free system  
Plastic apron  
Plastic bag for empty cytotoxic chemotherapy infuser  
Luer lock stopper for Infuser | Ensures patient compliance and reduces anxiety  
Reduce the risk of infection, to avoid contamination  
To maintain asepsis  
Luer lock stopper will prevent leakage of chemotherapy from infusor this is now a sealed unit |
| **HEPARINISED SALINE WITH OPEN ENDED CATHETER IF INDICATED** | |
| - Explain procedure to the patient. Ensure that valid consent is gained.  
- Before the procedure begins make sure that your hands are washed and dried thoroughly and that they continue to be decontaminated during the procedure. A plastic apron should be worn.  
  - Maintain aseptic technique at all times  
  - Ensure that the working area is as clean as possible.  
  - Ensure that all equipment is gathered before commencing the procedure and all packaging is intact and in date.  
  - Open sterile pack allowing the inner pack to fall onto the clean working area.  
  - Open out sterile pack to create a sterile field. Open remaining equipment ensuring no contamination of the sterile field.  
  - Decontaminate hands  
  - Put on sterile gloves. Connect blunt drawing up filter needle to the syringe.  
  - Pick up a piece of sterile gauze and with it pick up the 0.9% sodium chloride (saline) ampoule, then draw up 10ml of solution, Repeat for second 0.9% sodium chloride (saline) |
if pre-filled saline syringes are not available Dispose of the needle directly into the sharps container.

- Place sterile towel as near as possible to the catheter
- Close catheter clamp. Using a 2% Chlorhexidine wipe to clean the catheter end, allow to dry.
- Hold the catheter with sterile gauze; disconnect Infuser from the access device. Apply leur lock stopper to the end of the Infuser tubing and seal it in a plastic bag clearly labelled cytotoxic waste.
- Scrub the hub of the needle free system with a Chlorhexidine impregnated wipe, rubbing from the top of the needle free connector to the sides. Do this three times using different parts of the wipe, over a period of 30 seconds. Allow to dry.
- Flush with push pause action, clamping as the last ml of 10ml of Sodium chloride 0.9% is instilled into the catheter. Repeat this action with 5 mls of 10units per ml Heparinised saline (if open ended catheter)
- Ensure that the catheter is secure and comfortable.
- Remove dressing towel and discard. Remove gloves. Wash hands
- Clear away equipment used. Dispose of contaminated waste as per organisational policy.
- Document care in patient’s records.
PICC Removal

<table>
<thead>
<tr>
<th>Equipment Required</th>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dressing Pack containing sterile towel, gauze and gloves</td>
<td></td>
<td>Maintain asepsis</td>
</tr>
<tr>
<td>Chlorhexidine Gluconate 2% in 70% Isopropyl alcohol impregnated applicator/wipe</td>
<td></td>
<td>To ensure the line is only removed when necessary</td>
</tr>
<tr>
<td>Suitable transparent semi-permeable IV dressing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterile scissors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol hand rub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic apron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirmation for line removal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Before the procedure begins make sure that your hands are washed and dried thoroughly and that they continue to be decontaminated during the procedure. A plastic apron should be worn.
- Maintain aseptic technique at all times.
- Explain the procedure to the patient. Ensure that valid consent is gained.
- Ensure working area is as clean as possible.
- Ensure all equipment is gathered before commencing the procedure and all packaging is intact and in date.
- Open sterile pack allowing inner pack to fall onto clean working area.
- Open out sterile pack to create a sterile field. Open remaining equipment ensuring no contamination of sterile field.
- Decontaminate hands.
- Put on non sterile gloves and remove the dressings, then remove gloves and decontaminate hands.
- Put on sterile gloves.
- Place sterile towel as near as possible to the catheter.
- Clean around the catheter exit site with a 2% Chlorhexidine impregnated applicator and allow to dry
- Remove the Securacath Device (follow directions)

Chlorhexidine based solutions are recommended (in alcohol) as per policy (DOH 2001).
Step 1 for removing a Securacath

- Remove cover by placing finger under the device to stabilise
- Grasp tab on cover with other hand

Step 2

- Lift tab to completely detach cover from anchor base

There is no requirement to routinely withdraw blood and discard it prior to flushing (except prior to blood sampling although the first sample can be used for blood cultures (RCN 2010).

There is an increased risk of infection and occlusion when withdrawing blood via a central venous catheter (RCN 2010), therefore for routine flushing of a line withdrawal and waste of blood is not required, to confirm placement of line pullback only to colour the saline

The pulsated flush creates turbulence within the catheter lumen, removing debris from the internal catheter wall (Goodwin & Carlson 1993, Todd 1998).

Positive pressure within the lumen of the catheter should be maintained to prevent reflux of blood (INS 2000).
Step 3

- Gently and steadily remove the catheter while covering the site with gauze to prevent splashes to the face of the practitioner with blood products

Option 1 - Fold Base

- Fold edges of anchor base downward
- Place third finger under back edge of device to help begin folding motion

- Place a piece of gauze near the insertion site to stabilize the tissue
- Hold folded anchor base horizontal to the skin, then simultaneously lift the anchor
out of the insertion site using a swift, deliberate upward tug to remove the anchor as downward pressure is put on the piece of gauze at the exit site to remove the anchor

**Option 2 - Cut Base**

- Use blunt sterile scissors to cut the anchor base in half lengthwise along the groove
- Place one hand near the insertion site to stabilise the tissue
• Then either gently remove each separate half from the skin maintaining the natural angle of each side out of the skin or 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 of trauma to the tissue
• Place a clean small occlusive dressing i.e., Opsite to cover the exit site

• Remove dressing towel and discard. Remove gloves.
• Wash hands
• Clear away equipment disposing of waste as per organisational policy.
• Document care in patient’s records.
Algorithm persistent withdrawal occlusion

Blood return is absent

Check equipment, Position, clamps, kinking, etc

Ask patient to cough, deep breathe, change position, stand up or lie with foot of the bed tipped up. Ascertain possible cause of PWO

Blood return obtained - use central venous catheter as usual

Blood return is still absent

Patient to receive highly irritant/vesicant drugs or chemotherapy

Dormant line
If unable to aspirate. Do not continue. Refer to Medic close line

Blood return is still absent

Consider

No

No

Yes

Proceed if happy to do as long as there are no other complications or pain

SECONDARY CARE ONLY

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

Step 1
Administer a 250ml normal saline "challenge" via an infusion pump over 15 minutes to test for patency – the infusion may not resolve the lack of blood return but will confirm that the line is safe to use in the absence of pain along the catheter route

If there have been no problems, therapy can be administered as normal. If the patient experiences ANY discomfort or there is any unexplained problems then stop and seek medical advice. It may be necessary to verify tip location by chest X Ray.

OR

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

If blood return is still absent, it may be necessary to verify tip location by chest X Ray.

Adapted from Standards for InfusionTherapy RCN (2010)
The Push–Lock Method: Reconstitute a 10,000IU vial of Urokinase using 3.5ml of 0.9% sodium chloride for each lumen.

Lock each lumen with priming volume of 2ml + 0.5ml overfill, i.e., 2.5ml

Push 0.5ml solution/lumen

Push 0.5ml solution/lumen

Aspirate lumen

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REFERENCES:


Guideline recommendations

The guidelines within this document should support the intravenous care and management of adults, for guidance on the care of children please refer to the CINs paediatric guidelines. For guidance on the care of infants consult with your local paediatric specialists.

When using Alcohol Chlorhexidine where available use 2% in 70% Isopropyl alcohol. Recommend Chloroprep one step (Chlorhexidine Gluconate 2% in Isopropyl alcohol 70%) for cleaning the skin prior to line insertion and for routine line maintenance.

The clinician must ascertain whether the Catheter tip is open or closed. A closed device does not require Heparinised saline.

Heparinised saline recommended concentration 10units in 1 ml

When Catheters are not in use they should be flushed with 10ml sodium chloride 0.9%. (Heparin 10 units/ml in 0.9% Sodium Chloride as well if the catheter is open ended). This should be performed on a weekly basis following the maintenance guidelines.

For needle-free connectors, manufacturers’ guidance should be followed re length of time to remain in situ. Recommend needle-free systems that are changed minimum of every seven days.

Alcohol gel should be added to FP10 prescription wherever possible

Reminder that hands must be washed and dried thoroughly before putting on disposable gloves and after removing sterile gloves.

If there is sensitivity to Chlorhexidine solution, Providone Iodine may be used as an alternative.

Ensure all interventions are recorded in the patient’s records as per organisational policy

Biopatch antimicrobial dressing with Chlorhexidine Gluconate (Johnson & Johnson) is recommend for use in patients with increased risk of line infection.

The securement the Securacath device is used to prevent migration and to improve the cleansing at the exit site. It is necessary to lift the line up and down each dressing change to prevent granulation of tissue into the clip so that removal will be trouble free.