Totally Implantable Venous Access Device (TIVAD) or Port-a-Cath ™ Management Policy and Procedures.
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1. INTRODUCTION

A Totally Implantable Venous Access Device (TIVAD) or Port-a-Cath™ is used for patients who need repeated long term intravenous drug therapy. In many cases other forms of venous access may have become difficult or impossible (Janes, Royle, Davies and Gannon 2008). TIVADs are widely used in people with cystic fibrosis to provide intermittent venous access for therapeutic infusions. Reports of their use in people with CF suggest that they are safe and effective (Cochrane Library 2010).

2. PURPOSE

The Policy is based on national guidelines for the management of a Port-a-Cath™ utilising sound infection prevention and control principles.

The purpose of this guidance is to promote the appropriate and safe use of Port-a-Caths™ throughout the Trust and provide guidance for staff to:

1. Safely access line when required.
2. Choose a relevant dressing and renew when appropriate.
3. Document the intervention.

2.1 Definitions/Explanation of Terms Used

2.1.1. TIVAD / Port-a-Cath™

A Port-a-Cath™ is a Totally Implantable Venous Access Device (TIVAD) that consists of a portal - a small metal (usually titanium) or plastic chamber - that is sealed at the top with a silicone septum and a thin flexible catheter, made from either polyurethane or silicone. The silicone septum will withstand 1000 – 3600 punctures with a 20 or 22 gauge Huber point needle (Hadaway 2010; Hayden and Goodman 2005; Perucca 2001). Needle gauge is selected dependent on type and rate of infusate as well as the location of the port (Weinstein 2000). Titanium and plastic ports are compatible with MRI imaging techniques (Perucca 2001).
2.1.2 Valsava Manoeuvre

The Valsalva manoeuvre is performed by moderately forceful attempted exhalation against a closed airway, usually done by the patient closing the mouth, pinching the nose shut while pressing out as if blowing up a balloon. The manoeuvre is indicated when the Port-a-Cath line tip is blocked (See 5.5).

3. SCOPE

The policy applies to all clinical staff within Doncaster Community Integrated Services whose duties will include delivering care to patients with a Port-a-Cath™ in the community setting.

In appropriate circumstances patients or their carers can be trained, under instruction from appropriately trained staff, to use the system for administering antibiotics in the home (Cochrane Library 2010).

4. RESPONSIBILITIES, ACCOUNTABILITIES AND DUTIES

4.1 Board of Directors

It is the responsibility of the Board of Directors to have policies in place that meet any legislation, national and local requirements and promote best practice.

4.2 Assistant Directors

Assistant Directors are responsible for the implementation of the policy within their specific areas.

4.3 Clinical Leads / Matrons and Ward Department Managers

It is the responsibility of the Clinical Leads / Matrons to facilitate:

- All new staff whose role will involve TIVAD management should attend the Clinical skills simulation training session and complete clinical skills training package.

- Permanent staff whose duties include TIVAD management must attend the clinical skills training day and attend up-dates annually.

- All clinical staff whose duties involve TIVAD management care can demonstrate compliance and competence in relation to the policy.
4.4 Clinical staff

The individual nurse practitioner is accountable for their practice under the guidance of the Nursing and Midwifery Council Code of Professional Conduct (2008). Therefore, under no circumstances should a nurse undertake the management or care of TIVAD’s unless s/he has the appropriate knowledge, attended the Study Day and have completed the TIVAD Clinical Skills Training Package.

At all times, staff must adhere to their codes of professional conduct (Nursing and Midwifery Council (NMC) 2008).

NOTE - It is the responsibility of the individual nurse to inform his or her manager if they do not have the appropriate training.

All staff are required to ensure accurate records are maintained at all times in accordance with the Trust’s Record Keeping Policy.

5. PROCEDURE/IMPLEMENTATION

5.1 IMPLANTATION AND IMMEDIATE CARE POST PROCEDURE

5.1.1 Implantation

Originally these devices were all sited subcutaneously on the anterior chest wall e.g. Port-a-Cath™. They are inserted under local anaesthetic and sedation by a radiologist under X-ray guidance, or by General Anaesthetic if appropriate. The Port-a-Cath™ can be accessed immediately if required. More recently, implantation sites are selected by joint collaboration with the patient, taking into consideration lifestyle and activities undertaken. Patient preference for insertion site is important as they can remain in place for several years. (Goodwin and Carlson 1993).

Port-a-Cath™ Venous System in situ

The most common veins used are subclavian, internal or external jugular veins, cephalic or femoral vein. Ports can also be inserted in the antecubital
area of the arm (Hadaway 2010; Hayden and Goodman 2005; Perucca 2001).

5.1.2 Complications and care immediately post insertion (Hospital setting).

Post-procedure complications attributed to Port-a-Cath’s™ should be minimal. However, the patient should be observed for complications associated with any invasive procedure, such as infection, haematoma, surgical emphysema or accumulation of serous fluid at the implant site (Smiths Medical 2011). Following Port-a-Cath™ implantation it is advisable to monitor the patient in hospital for as long as clinically indicated and a chest X-ray should be performed if a pneumothorax is suspected. If the patient’s condition remains satisfactory following a Port-a-Cath™ insertion, and there are no signs of pneumothorax or other complication, discharge home can be the following day.

5.2 CONTINUING CARE OF A PATIENT WITH A PORT-A-CATH™

5.2.1 Complications

Long term Port-a-Cath™ related complications can also occur. These include extravasation, catheter blockage due to thrombosis, local and systemic infection associated with the insertion and maintenance of Central Venous Catheters (CVC) and breakdown of skin integrity over the portal (Department of Health (DoH) 2010). If a patient has pyrexia or complains of any symptoms such as pain, swelling or discoloration of the skin, a doctor or person expert in port-a-cath complications e.g., specialist nurses, should be informed immediately so that the problem can be investigated.

5.2.2 Needles

Only Huber point (non-coring) ‘Gripper’ needles should be used to access a Port-a-Cath™ to prevent coring of the silicone septum. Needle length needs to be verified correct for portal/patient; if too long, needle and/or portal may be damaged at insertion; if too short, needle may not completely pierce portal septum, and medication may be delivered into surrounding tissue and/or needle may be blocked. (Smiths Medical 2011). Selection of needle length according to patient BMI and depth of insertion needs consideration.
5.2.3 Patency

Port-a-Cath’s™ need to be flushed every 4 weeks to maintain patency. (Weinstein 2007; Camp Sorrell 2004). The purpose of flushing procedure is to ensure that patency of the lumen is maintained.

10ml normal saline 0.9% followed by Heparin Sodium as prescribed (see procedure). The concentration of heparin should be the lowest possible that will maintain patency; usually 10iu heparin in 1 ml 0.9% sodium chloride except with implanted ports which may require 100iu/ml heparin (Royal College of Nursing (RCN) 2010).

It is important to use a positive pressure flushing technique. This is thought to minimise reflux of blood into the tip of the catheter and thus prevent clotting. (RCN 2010).

A positive pressure flush can be best accomplished by applying positive pressure on the syringe plunger throughout the flush and clamping the extension line just prior to the syringe being completely empty.

5.2.4 Syringes

A vital consideration is that syringe size directly impacts the amount of pressure (psi) generated by the syringe. Excessive pressure may result in catheter rupture and embolisation. It is important to use syringes of 10ml or greater size when administering flushes or drugs creating a pressure of less than 40 psi. (Smiths Medical 2011; Baranowski 1995).

5.2.5 Devices

It is recommended that peripheral devices, eg: bungs, bionectors used to access points, should be re-sited as per local Trust policy. (RCN 2010).
5.3 PROCEDURE FOR ACCESSING AND MAINTENANCE FLUSHING OF A PORT-A-CATH™.

NOTE. This procedure is for maintenance flushing of Port-a-Caths™. If the needle is to remain in for on-going treatment please refer to the procedure to allow access for intravenous therapy below.

5.3.1 EQUIPMENT

Sterile Dressing pack
Sterile surgeons gloves of appropriate size
Chloraprep™ 2% - 3ml sponge applicator
Luer lock syringe – 10ml x 2
1 Blunt Fill needle with Filter
1 Green hypodermic needle
10ml Sodium chloride 0.9% for injection
Heparin Sodium as prescribed (Weinstein 2007)
Huber non-coring ‘Gripper’ needle 20/22 gauge (appropriate length)
Plaster
Sharps box

This is an aseptic non-touch technique (ANTT).

<table>
<thead>
<tr>
<th>PRINCIPLE</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Explain and discuss the procedure to the patient and gain verbal consent. To ensure the patient understands the procedure and gives their valid consent.</td>
<td></td>
</tr>
<tr>
<td>2 Assist patient into a suitable position, supine or sitting in chair. Ensure patient understands procedure. For patient comfort and ease of access.</td>
<td></td>
</tr>
<tr>
<td>3 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. Pain may indicate infection or dislodgement of the port-a-cath. Referral for line-a-gram may be required.</td>
<td></td>
</tr>
<tr>
<td>4 Check with patient where Port-a-Cath™ is sited and locate port by palpation. Port-a-Caths™ may be sited in various sites eg chest wall, mid-axillary line, arms.</td>
<td></td>
</tr>
<tr>
<td>5 Wash hands, open packs onto appropriate dressing area/trolley, place equipment on sterile field decontaminate hands with alcohol gel and put on sterile gloves. To minimise the risk of infection</td>
<td></td>
</tr>
<tr>
<td>Step</td>
<td>Instruction</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>6</td>
<td>Clean skin with chloraprep™ 3ml applicator, starting at the portal and working outwards in a spiral motion to at least 8cm over 30 seconds. Allow to dry.</td>
</tr>
</tbody>
</table>
| 7    | Prime the huber needle and extension tubing with 0.9% sodium chloride. Leave the syringe attached. Close the clamp on the extension tube. | To prevent air entry.  
To ensure needle is patent.  
To prevent backflow of blood when Port-a-Cath™ is accessed. |
| 8    | Locate the dressing field close to the Port-a-Cath™. Relocate and stabilise the portal by placing first and middle fingers of non-dominant hand either side of the Port-a-Cath™. | To provide a sterile area to rest the attached syringe.  
To prevent the Port-a-Cath™ from moving when the needle is inserted. |
| 9    | Push the Huber non-coring needle at a 90 degree angle to the Port-a-Cath™ firmly through the skin and the silicone septum until the needle touches the metal at the back of the Port-a-Cath™, as illustrated below. NB This can often be felt as a Tap. | To gain access to the Port-a-Cath™. |
| 10   | Open clamp and after checking for flashback of blood to confirm patency, slowly inject sodium chloride, adopting a pulsating motion to create turbulence within the line. | To flush Port-a-Cath™ and maintain patency.  
There is no requirement to routinely withdraw blood and discard it prior to flushing (RCN 2010). |
<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask the patient if they experience any pain on flushing. Observe the site for any swelling.</td>
<td>Correct flushing technique contributes significantly to the preservation of line patency. Pain and/or swelling could indicate a misplaced needle or other complication.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Assess patency of Port-a-Cath™ whilst injecting sodium Chloride.</td>
<td>If the needle is correctly placed and the Port-a-Cath™ is patent, there should be little resistance.</td>
</tr>
<tr>
<td>11a</td>
<td>If resistance is felt check that the needle is located correctly and is touching the back of the Port-a-Cath™ and you have released the clamp.</td>
<td>If the needle is not touching the back of the Port-a-Cath™ the silicone septum will block the hole in the side of the needle.</td>
</tr>
<tr>
<td>11b</td>
<td>If the needle is thought to be correctly located and resistance is still felt, seek expert advice.</td>
<td>Port-a-Cath™ will need further investigation so that appropriate treatment can be commenced.</td>
</tr>
<tr>
<td>11c</td>
<td>If there is any doubt that the needle is incorrectly sited, it may be necessary to remove the needle and site a new one.</td>
<td>A misplaced needle will result in pain and resistance when flushing.</td>
</tr>
<tr>
<td>12</td>
<td>Apply positive pressure on the syringe plunger before closing the clamp. Close clamp and remove syringe.</td>
<td>To prevent backflow of blood and air entry to the line.</td>
</tr>
<tr>
<td>13</td>
<td>Attach syringe containing prescribed heparin sodium, open clamp, inject heparinised sodium and close clamp using positive pressure prior to clamping.</td>
<td>To prevent flow of blood into the line which may result in line blockage.</td>
</tr>
<tr>
<td>14</td>
<td>Relocate and stabilise the Port-a-Cath™ by placing first and middle fingers of non-dominant hand either side of it and gently but firmly pull the needle out.</td>
<td>To prevent the movement of the Port-a-Cath™ on withdrawal of the needle.</td>
</tr>
<tr>
<td>15</td>
<td>Repeat flushing of Port-a-Cath™ every 4 – 6 weeks. (RCN 2010; Weinstein 2007).</td>
<td>Flushing procedure is to ensure patency of the Port-a-Cath lumen is maintained.</td>
</tr>
</tbody>
</table>

**END**
### 5.4 PROCEDURE TO ALLOW ACCESS TO A PORT-A-CATH™ FOR INTRAVENOUS THERAPY

#### EQUIPMENT

5.4.1 Sterile Dressing pack  
Sterile surgeons gloves of appropriate size  
Chloraprep™ 2% - 3ml sponge applicator  
Luer lock syringe – 10ml x 2  
1 Blunt Fill needle with filter  
1 green needle  
10ml Sodium chloride 0.9% for injection  
Heparin Sodium as prescribed  
Huber non-coring ‘Gripper’ needle of appropriate gauge and length  
Bionector, or suitable needle-less bung  
Sterile scissors  
Transparent semi-permeable dressing- check for allergies to different brands  
Sharps box

**NOTE:** if allergic to ALL brands for transparent dressing, Softpore™ may be used as an alternative, although patient will need to ensure dressing is changed after bathing as this dressing is not waterproof.

This is an Aseptic non-Touch Technique (ANTT).

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Follow procedure for flushing numbers 1 – 13.</td>
</tr>
<tr>
<td>2</td>
<td>Attach bionector bung.</td>
</tr>
<tr>
<td>3</td>
<td>Remove the white plastic gripper top from the Huber needle.</td>
</tr>
<tr>
<td>4</td>
<td>Apply a 3cm x 3cm square of gauze over the needle area and the transparent semipermeable dressing over the top ensuring the whole area is sealed and the extension line is not causing pressure on patient’s skin. (DoH 2010).</td>
</tr>
<tr>
<td>5</td>
<td>Discard used equipment</td>
</tr>
</tbody>
</table>
To prolong the life span of a Port-a-Cath™ it should ideally never be accessed purely for blood sampling. Routine blood sampling should be planned when the Port-a-Cath™ is accessed for flushing or IV Therapy.

If a patient has had problems with a blocked or partially blocked Port-a-Cath™ it is advisable to take blood samples via an alternative route.

Difficulty may be encountered when taking blood samples. One of the causes is that the tip of the soft catheter lies against the wall of the vessel and the suction required to draw blood brings this into close contact, leading to temporary occlusion. There could also be a collapse of the catheter walls when using the vacuum system which may necessitate the use of syringes to obtain the blood. Measures to dislodge the tip include asking the patient to:

1. Cough and breath deeply
2. Lie patient down
3. Roll from side to side
4. Raise his/her arms
5. Perform the Valsalva manoeuvre, if possible
6. Increase general activity, e.g. walk up and down stairs.

(Gorski, Perucca and Hunter 2010; Moureau 1999)

Obtaining blood samples from a Port-a-Cath™ can lead to inaccurate results, especially coagulation and antibiotic assays (Frey 2003). The discard method is the standard accepted method (Homes 1998). This ensures removal of any heparin or saline solution. (See following procedure).

**This procedure needs to be undertaken in a timely fashion. If blood does not flow freely the procedure must be abandoned as delay may risk blood clotting in the Port-a-Cath™ necessitating its removal.**

This is an Aseptic Non-Touch Technique (ANTT).
5.5.1 EQUIPMENT

Alcohol gel – hand wash solution
Sterile Dressing pack
Sterile gloves of appropriate size
1 x Sani-Cloth CHG 2% - for disinfection of hubs and connection ports
Luer lock syringe – 10ml x 2
1 Blunt Fill needle with Filter
2 green hypodermic needles
2 x 10ml Sodium chloride 0.9% for injection
Blue vacutainer system adaptor for blood sampling
Vacutainer system container holder (shell)
Heparin Sodium as prescribed
Huber non-coring ‘Gripper’™ needle of correct gauge and length
Bionector or suitable needleless bung

Vacuum system Blood specimen bottles correctly labelled as per Trust policy ensuring expiry dates checked.

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Perform procedure using aseptic technique. Wash hands with bacterial soap and water or alcohol gel as per Trust policy.</td>
<td>To reduce risk of infection and contamination of blood samples obtained.</td>
</tr>
<tr>
<td>2 Prepare tray or trolley and take to patient. Clean hands as above and open sterile pack and equipment.</td>
<td>To reduce risk of contamination of contents.</td>
</tr>
<tr>
<td>3 Clean hands with alcohol hand rub. Put on sterile gloves and, using gauze from dressing pack, remove bung. Clean end of catheter line with alcohol wipe (in individual packaging) and allow drying.</td>
<td>To minimize risk of introducing infection. To prevent contamination of practitioner’s hands with blood.</td>
</tr>
<tr>
<td>4 Attach syringe containing 10ml sodium chloride, open clamp and inject 10ml sodium chloride immediately withdrawing 10ml blood. Close clamp and discard syringe.</td>
<td>To enable disinfection process to be completed. To prevent contamination of blood sample.</td>
</tr>
<tr>
<td>5 Attach the vacutainer system to the line, release the clamp, attach the required vacutainer</td>
<td>To obtain required volume of blood for sampling. Order of samples:</td>
</tr>
</tbody>
</table>
| Blood specimen bottles (one after the other, in order stated in Clinical Pathology Handbook (2009) to obtain the required amount of blood under vacuum, close the clamp and disconnect the vacutainer in a timely fashion. | 1. Cultures 5ml each bottle (if needed).  
2. Clotting screens (Blue).  
3. (Yellow/Gold) – LFT/U&E/CRP/TFT/ (Vit ADEK photosensitive).  
4. EDTA (Purple) FBC/ESR/HbA1c  
5. Fluoride Oxalate (Grey) Glucose.  
It is important to complete this task as soon as possible to prevent blood clotting in the line. |
<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Ask assistant to invert all blood tubes for recommended times</td>
<td>6. Attach 10ml luer lock syringe, open the clamp and inject 10ml 0.9% sodium chloride adopting a pulsating motion to create turbulence within the line. Close the clamp and discard syringe. To flush blood from line To regain line patency.</td>
</tr>
<tr>
<td>7. Attach the heparin sodium syringe, open the clamp and inject, adopting a pulsating motion to create turbulence within the line, clamp line whilst using positive pressure technique, and discard the syringe.</td>
<td>To maintain patency and positive pressure in the line, needle and extension set.</td>
</tr>
<tr>
<td>8. Fit new /sterile bionector.</td>
<td>To prevent air entry, infection and allow needleless access.</td>
</tr>
</tbody>
</table>

**5.6 PROCEDURE TO ADMINISTER INTRAVENOUS MEDICATIONS VIA AN ACCESSED PORT-A-CATH**

The administration of medications and solutions shall be initiated upon the order of a doctor or an authorised nurse prescriber or as part of a Patient Group Direction (NMC 2008a).

Flushing with 0.9% sodium chloride solution to ensure and maintain patency.
shall be performed before, between and after the administration of incompatible medications and/or solutions. (RCN 2010; NICE 2003) the volume of the flush solution should be equal to at least twice the volume of the catheter and add-on devices – usually 5 – 10ml Heparin sodium as prescribed should be administered to ‘hep-lock’ the line on completion of administering medications and when not in use.

All flush solutions should only be administered following a prescription (National Patient Safety Agency 2008).

5.6.1 Equipment

Long Extension line with filter.
1 x Sani-Cloth CHG 2% - for disinfection of Hubs and connection ports.
Omnifuse pump or graseby 500 pump if needed.

This is an Aseptic Non-touch Technique (ANTT).

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identify correct patient as per Trust policy</td>
</tr>
<tr>
<td>2</td>
<td>Check prescription chart according to the local drug administration policy to ascertain type of medication and correct dosage needed. Check drug and expiry date.</td>
</tr>
<tr>
<td>3</td>
<td>Prepare drugs as per local intravenous therapy guidelines.</td>
</tr>
<tr>
<td>4</td>
<td>Take prepared drugs to Patient.</td>
</tr>
<tr>
<td>5</td>
<td>Wash hands or use alcohol gel hand rub as per hospital policy.</td>
</tr>
<tr>
<td>6</td>
<td>Clean bionector using an alcohol wipe (in individual packaging). Allow to dry.</td>
</tr>
<tr>
<td>7</td>
<td>Attach syringe containing 10ml 0.9% sodium chloride to bionector using clockwise ¼ turn to lock syringe in place. Open clamp, inject using</td>
</tr>
</tbody>
</table>
positive pressure technique, observe for any swelling around Port-a-Cath™ site. Ask patient if they feel any pain.

<table>
<thead>
<tr>
<th>Step</th>
<th>Instruction</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Clamp catheter, remove empty syringe and connect syringe containing 1st intravenous medication to bionector – via extension line, secure syringe in Omnifuse pump and commence infusion. <strong>To provide positive pressure during infusion time.</strong></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>On completion of infusion, clamp extension line above and below bionector, remove empty syringe and attach syringe containing 10ml 0.9%, to extension line ensuring ANTT is adopted, unclamp both clamps, inject using positive pressure technique. <strong>To flush catheter, to remove residual medication and prevent problems from incompatibility.</strong> To minimise risk of bacterial contamination.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Clamp both clamps, remove empty syringe, discard and attach 2nd medication syringe, unclamp both clamps and recommence infusion. <strong>To prevent reflux of blood into line.</strong></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Clamp both clamps, remove and discard empty medication syringe. <strong>To prevent reflux of blood into line.</strong></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Attach final syringe containing 10ml 0.9% sodium chloride, unclamp both clamps, inject using positive pressure technique, clamp. <strong>To prevent reflux of blood into line.</strong></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Remove empty syringe and discard.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Attach syringe containing heparin sodium as prescribed and give as bolus injection using positive pressure technique whilst clamping. Remove empty syringe and discard. <strong>To ‘hep-lock’ line, preventing reflux of blood and clotting.</strong></td>
<td></td>
</tr>
</tbody>
</table>

END
### 5.6.2 Troubleshooting

Immediate action is necessary to successfully restore patency. A Port-a-Cath™ may become blocked for several reasons:

1. Incorrect or infrequent flushing technique, infusion being switched off or running too slowly or precipitation formation due to inadequate flushing between solutions/drugs.

2. Build-up of crystallised drug or ‘sludge’ in the Port-a-Cath™ chamber. Often characterised by gradual build-up of resistance when flushing. May be improved by more frequent flushes (e.g. every 2 weeks).

3. Formation of blood clot at the catheter tip. Often characterised by sudden catheter occlusion when previous flushes have shown no resistance.

4. Catheter rupture—usually there is sudden occlusion and this may be associated with pain or swelling.

5. Patient complaining of swelling in hands/neck/face. Catheter tip has moved.

### 5.6.3 Points to check:

1. Check that all clamps are open when attempting flush.
2. Ensure that the needle is sited correctly. Is the needle pushed down far enough into the Port-a-Cath™? Re-needle if necessary.
3. Is there any inflammation at the needle insertion site?
4. Does the patient have any pain?
5. Seek expert/medical advice.

Immediate referral to registered nurse or doctor with advanced knowledge in management of Port-a-Cath™ devices is appropriate if you still have concerns.

### 5.7 Procedure Guideline to Unblock an Occlusion

Catheters may become occluded for a number of reasons, e.g. not being flushed adequately or using the incorrect flushing technique, infusion being switch off or running too slowly or precipitation formation due to inadequate flushing between solutions/drugs. Clearance of a catheter occlusion is best
performed using a negative pressure approach. The establishment of
negative pressure within a catheter means creating a vacuum by aspiration of
the air or ‘dead space’ within a catheter (Moureau 1999; Dougherty 2006;
Gabriel 2008). Unblocking a catheter is not a quick procedure and can take
up to 30 minutes to achieve success. Seek specialist nurse / medical advice
if the line is patency is not easily achieved.

5.7.1 Equipment

Sterile dressing pack
Alcohol hand gel
Cloraprep™2% 2-3ml sponge applicator
Bionector (or needless injector cap)
10ml syringe
0.9% sodium chloride as prescribed
Heparin Sodium as prescribed

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Explain and discuss the procedure with the patient.</td>
<td>To ensure the patient understands the procedure and gives his/her consent (NMC 2008b).</td>
</tr>
<tr>
<td>2 Perform the procedure using ANTT.</td>
<td>To minimise the risk of infection (DOH 2010).</td>
</tr>
<tr>
<td>3 Wash hands with soap and water or alcohol hand gel as per Trust policy.</td>
<td>To minimise the risk of cross infection (DOH 2010).</td>
</tr>
<tr>
<td>4 Open sterile dressing pack and empty equipment onto it.</td>
<td>To create a clean working area (DOH 2010).</td>
</tr>
<tr>
<td>5 Clean hands using alcohol hand gel.</td>
<td>As hands may have become contaminated opening outer packs (DOH 2010).</td>
</tr>
<tr>
<td>6 Clean connections using Chloraprep sponge applicator before disconnection.</td>
<td>To minimize infection risk at connection site (DOH 2010).</td>
</tr>
<tr>
<td>7 Remove any extension sets or injection caps.</td>
<td>Occlusion may be in the extension set/cap and not in catheter.</td>
</tr>
<tr>
<td>8 Attempt to flush with 0.9% sodium chloride using a 10ml syringe.</td>
<td>Smaller syringes create excessive pressure which could result in catheter rupture (Conn 1993).</td>
</tr>
</tbody>
</table>
9. If there is pressure within the catheter lumen, attempt to gently instil the 0.9% sodium chloride using a ‘to and fro’ motion (push-pull) over a few minutes. To attempt to clear the catheter (Gabriel 2008).

10. If nothing can be aspirated seek specialist advice. To commence negative pressure technique.

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11. **THE FOLLOWING DRUGS ARE ONLY TO BE ADMINISTERED BY A DOCTOR AND IS FOR INFORMATION ONLY**

If still unable to aspirate, then determine the cause of the occlusion:

- **a) Blood**: discuss with doctors who may prescribe and administer a fibrinolytic agent, e.g. urokinase (5000 IU/ml), alteplase
- **b) Precipitation**: discuss with pharmacy for best antidote, e.g. ethyl alcohol or hydrochloric acid.

12. Draw up prescribed solution in a 10ml syringe. To prepare appropriate treatment.

13. Put on clean gloves and attempt to flush line with solution. To minimise the risk of introducing infection.

14. Cap off catheter and leave for allotted time, e.g., 2-4 hours or overnight. To allow the drug to destroy fibrin (Gabriel 2008).

15. Attach an empty syringe to catheter and attempt to aspirate any clots and solution. To unblock catheter and ensure no clots are administered into the patient (Gabriel 2008). To break down fibrin (BNF 2011; RCN 2010).
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>If blood returns, withdraw at least 10ml and discard.</td>
<td>To ensure no fibrinolytic agent or clots are flushed into the patient (Gabriel 2008).</td>
</tr>
<tr>
<td>17</td>
<td>Flush catheter with 10ml 0.9% sodium chloride using a pulsatile flush and flush with heparin sodium as prescribed. Consider increasing the frequency of prescribed flushes once patency is re-establish.</td>
<td>To ensure the catheter is flushed and patent.</td>
</tr>
<tr>
<td>18</td>
<td>Dispose of waste.</td>
<td>To prevent contamination of others (BNF 2011; DH 2010).</td>
</tr>
<tr>
<td>19</td>
<td>If still unable to aspirate, discuss the use of a 2nd instillation of fibrinolytic agent. It may be necessary arrange removal of the port.</td>
<td>If occlusion cannot be removed the catheter is no longer patent.</td>
</tr>
</tbody>
</table>

END
6. TRAINING IMPLICATIONS

<table>
<thead>
<tr>
<th>Staff groups requiring training</th>
<th>How often should this be undertaken</th>
<th>Length of training</th>
<th>Delivery method</th>
<th>Training delivered by whom</th>
<th>Where are the records of attendance held?</th>
</tr>
</thead>
<tbody>
<tr>
<td>New starters and permanent staff – relevant to role</td>
<td>On employment and yearly update assessment as per Clinical skills training package</td>
<td>Half day</td>
<td>Simulation E-learning Demonstration Observation Assessment</td>
<td>RED CENTRE Community Practice Educators Clinical Educators Competent confident trained staff up to date with relevant assessments</td>
<td>Electronic Staff Record system (ESR)</td>
</tr>
</tbody>
</table>

Staff will receive instruction and direction regarding CVAD procedures and information from a number of sources:
- Policies and Procedure Manuals
- Line Manager/ CPE’S
- Clinical Skills workshops – dates available on the RdaSH Learning and Development site via RED Centre.

- Clinical Skills Training Package
- RdaSH extranet and Doncaster & Bassetlaw Hospitals NHS Foundation Trust Intranet

The Training Needs Analysis (TNA) for this policy can be found in the Training Needs Analysis document which is part of the Trust’s Mandatory Risk Management Training Policy located under policy section of the Trust website.
### 7. MONITORING ARRANGEMENTS

<table>
<thead>
<tr>
<th>Area for Monitoring</th>
<th>How</th>
<th>Who by</th>
<th>Reported to</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training compliance and following up on those who fail to attend</td>
<td>Follow up in writing with relevant trainers/managers</td>
<td>Line Mangers</td>
<td>Community Practice Educator Managers</td>
<td>Yearly</td>
</tr>
<tr>
<td>Any Service User feedback, Complaints or Your Opinion Counts which relate to none compliance with the standards in this policy</td>
<td>Investigation Feedback Review</td>
<td>Matrons/Manager</td>
<td>Business Divisions Leadership and Quality Groups</td>
<td>On-going as the need arises</td>
</tr>
</tbody>
</table>
8. EQUALITY IMPACT ASSESSMENT SCREENING.

The completed Equality Impact Assessment for this Policy has been published on the Equality and Diversity webpage of the RdaSH website click here

8.1 Privacy, Dignity and Respect

| The NHS Constitution states that all patients should feel that their privacy and dignity are respected while they are in hospital. High Quality Care for All (2008), Lord Darzi’s review of the NHS, identifies the need to organise care around the individual, ‘not just clinically but in terms of dignity and respect’. |
| Indicate how this will be met |
| Care delivered within the scope of this policy will be within a community setting, in Community hospital setting and in patients own homes. Care will be organised taken the patients’ and families’ views and beliefs into consideration and all care will be delivered with consideration of the patients’ requirement of privacy. |

As a consequence the Trust is required to articulate its intent to deliver care with privacy and dignity that treats all service users with respect. Therefore, all procedural documents will be considered, if relevant, to reflect the requirement to treat everyone with privacy, dignity and respect, (when appropriate this should also include how same sex accommodation is provided).

8.2 Mental Capacity Act

| Central to any aspect of care delivered to adults and young people aged 16 years or over will be the consideration of the individuals capacity to participate in the decision making process. Consequently, no intervention should be carried out without either the individuals informed consent, or the powers included in a legal framework, or by order of the Court |
| Indicate How This Will Be Achieved. |
| All individuals involved in the implementation of this policy should do so in accordance with the Guiding Principles of the Mental Capacity Act 2005. (Section 1) Patients capacity to make decisions will be considered within the assessment of delivering care within the scope of this policy. Where possible, patients will be afforded the time and attention to make decisions for themselves wherever possible. |

Therefore, the Trust is required to make sure that all staff working with individuals who use our service are familiar with the provisions within the Mental Capacity Act. For this reason all procedural documents will be considered, if relevant to reflect the provisions of the Mental Capacity Act 2005 to ensure that the interests of an individual whose capacity is in question can continue to make as many decisions for themselves as possible.
9. LINKS TO ANY ASSOCIATED DOCUMENTS

Policy for consent to examination or treatment
(follow link below or search on the RdaSH intranet, clinical policies)
http://www.rdash.nhs.uk/wp-content/uploads/2014/04/Policy-for-Consent-to-
examination-or-treatment-approved-CASG-27.4.2011-amended-Appendix-C.pdf

Aseptic technique and aseptic non-touch technique – (follow link below or search on the RdaSH intranet, clinical policies)
http://www.rdash.nhs.uk/wp-content/uploads/2014/03/Aseptic-Technique-Policy-

Hand hygiene Policy and procedure – (follow link below or search on the RdaSH intranet, clinical policies)
http://www.rdash.nhs.uk/wp-content/uploads/2014/03/Hand-Hygiene-Policy-approved-

Standard infection prevention and control precautions policy – (follow link below or search on the RdaSH intranet, clinical policies)
http://www.rdash.nhs.uk/wp-content/uploads/2014/05/Standard-IPC-precautions-
policy-approved-CASG-29.11.2011-V7.pdf

Policy for the management of sharps/inoculation injuries and other blood or body fluid exposure incidents – (follow link below or search on the RdaSH intranet, clinical policies)
http://www.rdash.nhs.uk/wp-content/uploads/2014/05/Sharps-Policy-approved-CEC-

Policy for the management of blood and body fluid spillages – (follow link below or search on the RdaSH intranet, clinical policies)
http://www.rdash.nhs.uk/wp-content/uploads/2014/03/Spillages-of-blood-body-fluids-

Minimum standards for the physical assessment and examination of inpatient service users – (follow link below or search on the RdaSH intranet, clinical policies)
policy-CEC-6-12-2012-amended-4.6.2013-V7.1.pdf

Waste Policy – (follow link below or search on the RdaSH intranet, clinical policies)

PGD – Administration of Heparin Sodium to Line Lock a Vascular Access Device
http://www.rdash.nhs.uk/29744/pgd-administration-of-heparin-sodium-to-line-lock-a-
vascular-access-device/

NICE Clinical Guideline 139 Prevention and Control of healthcare-associated infection in primary and community care – last accessed 16-7-14
http://publications.nice.org.uk/infection-cg139
REFERENCES


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