Office of the Nursing & Midwifery Services Director

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Guideline for the Care and Management of a Central Venous Access Device for a Child in the Community

Is this document a:

[ ] Policy [ ] Procedure [ ] Protocol [x] Guideline

Office of the Nursing & Midwifery Services Director,
Clinical Design & Innovation, Office of the Chief Clinical Officer, HSE

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1.0 Glossary of terms and Abbreviations Used in the Document

1.1 Glossary of Terms

Accountability	'Accountability is understood as being able to give an account on one's nursing and midwifery judgments', actions and omissions. Accountability is about maintaining competency and safeguarding quality patient care outcomes and standards of the profession, while being answerable to those who are affected by one's nursing or midwifery practice. Accountability means being answerable for the decisions made in the course of one's professional practice' (Scope of Nursing and Midwifery Practice Framework NMBI 2015 p.17).
Aseptic field	**Aseptic field** is a designated aseptic working space that contains and protects the equipment used in the procedure from direct and indirect environmental contamination by micro-organisms. In Aseptic Non Touch Technique (ANTT®), aseptic fields are termed Critical or General Aseptic Fields. **General aseptic field** is the main aseptic field used for standard ANTT® that promotes asepsis during procedures by providing basic protection for the care environment. Because of the small number and small size of Key-Parts, general aseptic fields do not require critical management, because Key-Parts can be easily protected by Micro Critical Aseptic Fields (caps and covers) and non-touch technique.
Aseptic Non Touch Technique (ANTT®)	An International standard for Aseptic Technique originated by Stephen Rowley in the mid-1990s provides a practice framework for Aseptic Technique to standardise practice language processes used during all invasive clinical procedures and the insertion, maintenance and removal of invasive medical devices (Rowley et al. 2010). ANTT® is based on the novel concept of Key-Part and Key-Site protection. Intravenous catheter related bloodstream infections (CRBSI) have become a leading cause of healthcare associated bloodstream infections (HCA-BSI) (HPSC 2009). The main aim of ANTT® is to minimise cross contamination through the transfer of microorganism during invasive clinical procedures. *Refer to 'ANTT® Aseptic Non Touch Technique' education programme on www.hseland.ie*
Asepsis	**Asepsis or Aseptic technique** describes the infection prevention aim and method utilised by health care professionals when undertaking invasive clinical procures. Regardless of setting, or patient diagnosis, the aim is always to prevent the transfer of pathogenic microorganisms in sufficient numbers

	to cause infection, from the healthcare worker, procedure equipment or the immediate working environment into and onto the patient. In ANTT®, it is achieved by ensuring Key-Parts and Key-Sites remain **aseptic** by a concept termed **Key-Part and Key-Site-Protection** (Rowley et al. 2010).
Bionector TKO®	Bionector TKO® is a patented "To Keep Open" valve, with 100% bi-directional fluid control and a straight fluid pathway. Bionector TKO has been specifically designed to reduce catheter occlusion, and works by controlling the bi-directional flow of fluid, infusate and catheter tip blood reflux. Occlusions can be commonplace in patients with vascular access lines. The most common are: thrombotic occlusion when blood or clotting agents accumulate inside the catheter and persistent withdrawal occlusion when fibrin is aspirated into the catheter. *http://www.vygonhomecare.co.uk/product-bionectortko/*
Central Venous Access Device (CVAD)	A central venous access device (CVAD) is a catheter which is inserted into the central venous system with the tip sitting within the superior vena cava (RCN 2010, Dougherty & Lister 2015).
Child	Under the Child Care Act 1991 a child is defined as "a person under the age of 18 years, excluding a person who is or has been married."
Competence	The attainment of knowledge, intellectual capacities, practice skills, integrity and professional and ethical values required for safe, accountable and effective practice as a registered nurse or registered midwife (Scope of Nursing and Midwifery Practice Framework NMBI 2015 p.15).
Flush Volume	Routine flushing of a CVAD is performed at established intervals to promote and maintain patency and to prevent mixing of incompatible medication and solutions (RCN 2010).
Guideline	A guideline is defined as a principle or criterion that guides or directs action. Guideline development emphasises using clear evidence from the existing literature, rather than expert opinion alone (HSE, 2011).
Hand Hygiene	Hand hygiene. A general term referring to any action of hand cleansing (WHO Guideline on Hand Hygiene in Health Care - First Global Patient Safety Challenge Clean Care is Safer Care (2009). *Refer to 'Hand Hygiene for HSE Clinical Staff' education programme on www.hseland.ie*
Healthcare Professional	In this guideline the term healthcare professional refers to any medical practitioner or registered nurse employed by the HSE or who provides care on behalf of the HSE.
Medication Management	Refer to the 'Guidance to Nurses and Midwives on Medication Management NMBI 2007.'

Medicinal Product	Any substance or combination of substances presented for treating or preventing disease in human beings (Directive 2001/83/EC).
Peripherally Inserted Central Catheter (PICC)	A Peripherally Inserted Central Catheter (PICC) is a thin flexible single or double lumen catheter that is inserted via a peripheral vein into a central vein, the tip of which terminates centrally in the superior vena cava (SVC) (Dougherty and Lister 2015).
Positive Pressure	Is constant, even force within the lumen of a catheter that prevents blood reflux; achieved by clamping while injecting (RCN 2010).
Priming Volume	The amount of fluid required to fill the entire length of the CVAD. The discharging facility will inform community service of the child's individual priming volume (Dougherty and Lister 2015).
Responsibility	Responsibility is explained as the obligation to perform duties, tasks or roles using sound professional judgment and being answerable for the decisions made in doing this (Scope of Nursing and Midwifery Practice Framework NMBI 2015 p.17).
Scrub the Hub technique	Vigorously applying mechanical friction to catheter hubs, needle free connectors or injection ports using 70% v/v Isopropyl alcohol and 2% w/v Chlorhexidine gluconate individually wrapped disinfectant wipe for 30 seconds before accessing the catheter for optimal asepsis (Loveday et al. 2014).
Sepsis	Sepsis is life threatening organ dysfunction cause by a deregulated host response to infection. National Clinical Guideline No.6 Department of Health (2020).
Standard Aseptic Non Touch Technique (ANTT®)	Standard-ANTT® is the technique of choice when procedures meet all of the following criteria: They involve minimal Key-Parts and small Key-Parts, are not significantly invasive, are technically uncomplicated to achieve asepsis and are short in duration (approximately <20 minutes) (Rowley et al. 2010).
Surgical Aseptic Non Touch Technique (ANTT®)	Surgical-ANTT® is demanded when procedures meet one or more of the following criteria: They involve large or numerous Key-Parts, are significantly invasive, (e.g. Large Key-Sites(s) or central venous access), are technically complex to achieve asepsis or involve extended procedure time (approximately >20 minutes) (Rowley et al. 2010).
Syringe Driver	The syringe driver is a small, portable, battery-driven infusion pump, which allows medication to be infused via subcutaneous or central venous access route over a 24 hour period (Dickman et al. 2011).

1.2 Abbreviations

ABA	An Bord Altranais
ANTT	Aseptic Non Touch Technique
CHI	Children's Health Ireland
CNS	Clinical Nurse Specialist
CNC-CLLC	Clinical Nurse Co-Ordinator for Children with Life Limiting Conditions
CRGN	Community Registered General Nurse
CVAD	Central Venous Access Device
DoH	Department of Health
DPHN	Director of Public Health Nursing
FBC	Full Blood Count
Fr	French (Catheter Measurement)
GP	General Practitioner
HCP	Health Care Professional
HSE	Health Service Executive
IV	Intravenous
MDT	Multidisciplinary Team
mL	Millilitres
NHS	National Health Service
NMBI	Nursing and Midwifery Board of Ireland
NMPDU	Nursing and Midwifery Planning and Development Unit
OLCHC	Our Lady's Children's Hospital Crumlin
PCT	Primary Care Team
PICC	Peripherally Inserted Central Catheter
Psi	Pounds per Square Inch
RCN	Royal College of Nursing

RN	Registered Nurse
RPHN	Registered Public Health Nurse
SPCT	Specialist Palliative Care Team
SVC	Superior Vena Cava
TPN	Total Parenteral Nutrition
U & E	Urea and Electrolytes
VASD	Vascular Access Stabilisation Device
w/v	Weight in volume

2.0 The Care and Management of a Central Venous Access Device (CVAD) for a Child in the Community; Hickman™/ Broviac™ Catheter, Portacath™ and Peripherally Inserted Central Catheters (PICC)

In this guideline CVAD refers to Skin Tunnelled Catheters (Hickman™/ Broviac™), Tunnelled Implanted Ports (Portacath™) and Peripherally Inserted Central Catheters (PICC).

The care and management of a Hickman™/ Broviac™ Catheter and Portacath™ is outlined in section (2.1 to 2.2).

The care and management of a Peripherally Inserted Central Catheters (PICC) is outlined in section (2.3).

2.1 Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™

- **Environment:**
  Prior to the commencement of the care intervention the healthcare professional should consider the general suitability of the environment including the provision of appropriate hand hygiene facilities.

- **Hand hygiene:**
  Hand hygiene must be performed at the point-of-care and must follow the "My 5 Moments for Hand Hygiene" approach to care delivery as outlined by the World Health Organization (HPSC 2014, WHO 2009)
  Refer to 'Hand Hygiene for HSE Clinical Staff' education programme on www.hseland.ie

- **Allergy status**:
  The child's allergy status should be checked and documented clearly in the child's record.

- **Professional Standards:**
  Registered nurses must adhere to the following guideline documents; Guidance to Nurses and Midwives on Medication Management 2007, Recording Clinical Practice Professional Guidance 2015 and HSE National Consent Policy 2019 when caring for a child with a Hickman™/ Broviac™ Catheter and Portacath™ in the community.

- **Infection prevention and control:**
  Before every clinical procedure staff must review the whole procedure to ensure that the principles of ANTT® will be followed throughout the whole procedure (Rowley et al. 2010). Wearing appropriate and well-fitting gloves are another important component of ANTT®. Gloves should neither be too small thereby increasing potential for ripping nor so large as to impede manual dexterity (Loveday 2014). The use of sterile gloves is unnecessary when administering bolus medication, attaching and detaching intravenous infusions (Rowley and

Clare 2011). Some medications may require the person administering to wear gloves because of the nature of the medication e.g. chemotherapy, teratogenic medication.

- **Flushing and Maintaining Patency**

  It is essential to follow the following guidance prior to flushing and maintaining the patency of a Hickman™/ Broviac™ Catheter and Portacath™.

  - **Syringe Size:** It is recommended that a 10 mL syringe is used at all times for withdrawing blood samples or injecting into any Hickman™/ Broviac™ Catheter and Portacath™ as infusion pressure must not exceed 25 psi (a catheter will rupture at pressures in excess of 25 psi). Small syringes may generate very high internal pressures with very little force (Bard 2010).

  - **Flush Volumes:** Sodium Chloride 0.9% w/v is used before and after medication administration and when checking patency of the line. It is used after blood sampling and after disconnecting lines. Heparin Sodium 10 units per mL is then instilled to maintain patency (Dougherty and Lister 2015). The volume varies depending on the age, weight of the child and length of the line. Please refer to instructions from the discharging facility. Care needs to be taken to prime syringes and infusion sets prior to attaching to any Hickman™/ Broviac™ Catheter and Portacath™ to minimise the risk of air embolism.

  - **Push-Pause Method:** It is important to use a push-pause method when flushing the Hickman™/ Broviac™ Catheter and Portacath™ as this creates turbulence within the lumen and helps prevent the formation of fibrin clots or medication deposits on the internal catheter wall. Administer 1mL of prescribed solution, pause for one second, and repeat until the appropriate volume has been administered. The procedure is completed using a positive pressure technique (Dougherty and Lister 2015).

  - **Positive Pressure Technique:** A positive pressure technique is accomplished by clamping the Hickman™/ Broviac™ Catheter and Portacath™ as the last 0.5 mL of Heparin Sodium 10 units per mL is being instilled. Maintaining positive pressure within the catheter prevents backflow of blood into the catheter (Dougherty and Lister 2015).

  - **Blood Return and Patency:** When not in use all lumens of the catheter must remain clamped and be flushed using Heparin Sodium 10 units per mL once per week at regular intervals to maintain patency (Dougherty and Lister 2015). Patency of the Hickman™/ Broviac™ Catheter and Portacath™ is confirmed by obtaining a blood return. It must always be checked prior to instillation of any medication or infusion. If there is a suspicion that the line has dislodged i.e. Hickman™/ Broviac™ cuff is visible, no blood return on aspiration, do not use it. Contact the discharging facility for advice if the line has dislodged.

  - **Blood Discard Volume Chart:** Prior to taking blood samples, the catheter must be aspirated using a 10mL syringe. The first sample may contain Heparin Sodium 10 units per mL, a small amount of blood, bacteria or clots and must be discarded unless being

used for blood cultures. The discard volume will vary according to the age of the child. Please note that this may vary depending on the discharging facility. Refer to Appendix VI for an example of a blood discard volume chart) Hickman™/ Broviac™ catheter.

- **Aseptic Non Touch Technique (ANTT®):** Aseptic non touch technique provides a framework to standardise practical language and processes used during invasive clinical procedures and the insertion, maintenance and removal of invasive medical devices (Rowley et al. 2010). Intravenous catheter-related bloodstream infections (CRBSI) have become a leading cause of healthcare associated bloodstream infections (HCA-BSI) (HPSC 2016). The main aim of ANTT® is to minimise cross contamination through the transfer of microorganisms during invasive clinical procedures. The ANTT® Clinical Practice Framework concentrates on promoting the concept of protecting Key-Parts and Key-Sites supported by basic infection prevention and control principles, staff and patient safety issues such as appropriate hand hygiene, as well as equipment decontamination and Aseptic Field Management (Rowley et. al. 2010). There are two types of ANTT®, Standard ANTT® and Surgical ANTT®. Most common IV procedures are performed using Standard ANTT®.

  Refer to 'ANTT® Aseptic Non Touch Technique' education programme on www.hseland.ie

- **Standard ANTT®:** Standard-ANTT® is the technique of choice when procedures meet all of the following criteria: They involve minimal Key-Parts and small Key-Parts, are not significantly invasive, are technically un-complex to achieve asepsis and are short in duration (approximately <20 minutes).

- **Surgical ANTT®:** Surgical-ANTT® is demanded when procedures meet one or more of the following criteria: They involve large or numerous Key-Parts, are significantly invasive, (e.g. Large Key-Sites(s) or central venous access), are technically complex to achieve asepsis or involve extended procedure time (approximately >20 minutes).

The choice of surgical or standard ANTT® is based on ANTT® risk assessment according to the technical difficulty of ensuring Key-parts and Key-sites asepsis.

- **Blood Sampling (Appendix VII)**
  When obtaining a blood sample from a multi-lumen catheter use the free lumen where possible. Ensure that the other lumens are clamped to avoid contamination of the blood sample. Bloods samples withdrawn must never be returned to the child via the catheter or other device.

- **Needle Free Devices/Clamps**
  There are many needle free device products currently in use. The hub of the catheter must always be protected with a needle free device which must be changed weekly (Bard 2010) using surgical aseptic non touch technique and documented accordingly. The clamp must be kept closed while disconnecting an IV line, changing a needle free device and when the

catheter is not in use. The clamp must always be closed over the reinforced catheter sleeve to prevent damage to the catheter.

- **IV Administration Sets/Medication Administration**
  IV administration sets connected to the Hickman™/ Broviac™ Catheter and Portacath™ must be changed every 48 hours unless the closed system is broken, in which case the set should be changed as soon as possible. IV giving sets or infusion sets are single use when a bolus or small volume infusions are being administered e.g. antibiotics. However, children who are neutropenic or on TPN must have administration sets changed every 24 hours (Dougherty and Lister 2015). Frequency of set changes may vary depending on patient specific needs. Attach a label to the administration set with the date and time of change and signature of the clinician. The use of three-way taps is not recommended.
  Where possible use a free lumen to administer bolus medications and check for blood return. Flush with Sodium Chloride 0.9% w/v before and after the administration of the bolus medication (Dougherty and Lister 2015). Proceed to flush with Heparin Sodium 10 units per mL after the administration of Sodium Chloride 0.9% w/v. The volume is dependent on the age and weight of the child. Please note that this may vary depending on the discharging facility and the compatibility of the medication.

- **External Catheter Dressings**
  Exit site dressing must be changed weekly using surgical ANTT or if wet or loose (Dougherty and Lister 2015). A sterile semi-permeable polyurethane transparent dressing is preferred as it allows the site to be observed. If the child becomes sensitive to this dressing, a sterile self-adhesive absorbent type dressing can be used. The frequency of dressing changes will be governed by the condition of the underlying exit site. Advice can be sought from the discharging facility if there are concerns about the condition of the exit site.

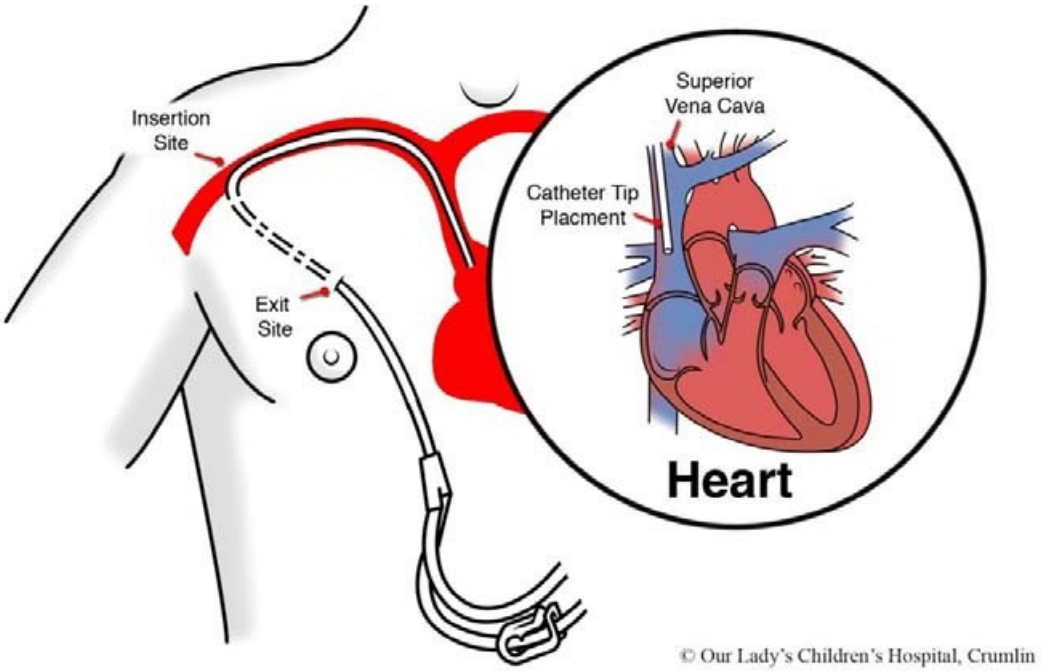
- **Securing a Catheter**
  The Hickman™/ Broviac™ Catheter and Portacath™ must be looped under the dressing for additional security to reduce the effect of pulling on the catheter. Care is needed to prevent the lumens of the catheter being caught or pulled particularly in the case of babies and young children. Use of vests with sewn-in pockets; commonly referred to as “Freddy-vests” or fabric bags; are recommended to safely store catheter lumens when not in use. These give added security and also help prevent infection. They should be changed frequently and when soiled.

2.1.1 Introduction to the Hickman™/ Broviac™ Catheter

The Hickman™/ Broviac™ Catheter is a central venous access device inserted under general anaesthetic in an operating theatre. It is made of silicone and is approximately 90cms long. It is cut to the appropriate size for each individual child in theatre and the catheter volume is measured and recorded in the child’s medical record at the time of its insertion. It is tunnelled under the skin of the chest wall and inserted via the internal or external jugular vein with the tip sitting within the superior vena cava (RCN 2010, Dougherty and Lister 2015). The external end exits from the chest wall usually

lateral to the right breast (see Figure 1). The Hickman™/ Broviac™ catheter has a short Dacron cuff on its outer surface, situated under the skin, above the point of exit from the chest. This is designed to act as a barrier to infection and to anchor the line in the subcutaneous tissue. These catheters may have single, double or triple lumens, which allows multiple, and concurrent venous access. These catheter types are commonly used in children.

Figure 1: Position of Hickman™ Catheter



2.1.2 Procedures to Guide the Care and Management of a Hickman™/ Broviac™ Catheter; Dressing, Flushing and Needle Free Device Changes

Equipment for single lumen:

- Clean plastic tray
- Valid prescription and medications; expiry dates checked
- Sterile gloves
- Heparin Sodium 10 units per mL* or pre-filled syringe
- 10mL syringe x 1*
- Withdrawal/blunt fill needle x 1*
- Needle free device x 1
- Sterile semi-permeable polyurethane transparent dressing x 1
- Individually wrapped disinfectant wipes X 8
- Medication labels
- Sharps bin

Not required if using pre-filled syringes

For each additional lumen you will need:

- 10 mL syringe x 1*
- Withdrawal needle/blunt fill needle x 1*
- Needle free device x 1
- Heparin Sodium 10 units per mL* or pre-filled syringe
- Individually wrapped disinfectant wipes X 4

Not required if using pre-filled syringes

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

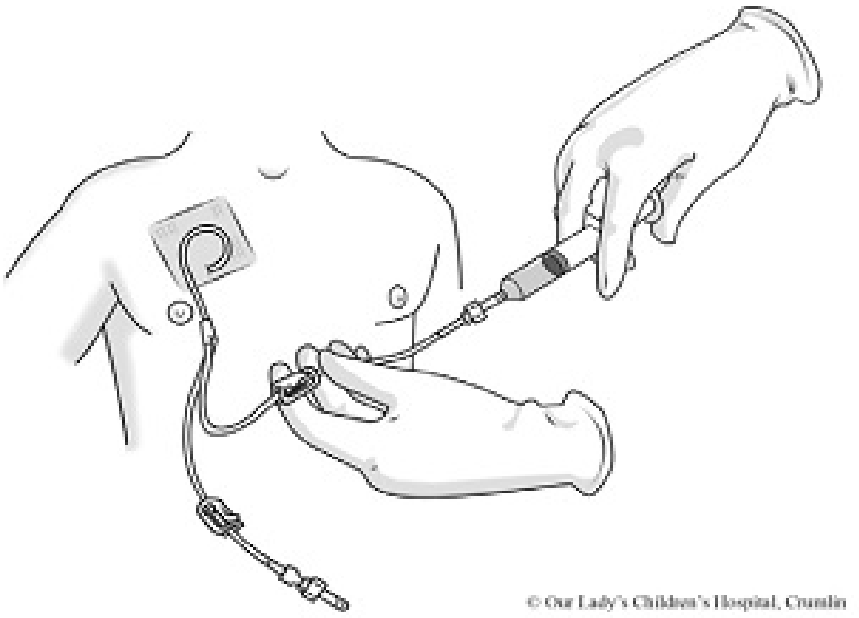
1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Open the Heparin Sodium 10 units per mL or pre-filled syringe, and leave it beside the tray
5. Wipe the surface of the clean tray with a disinfectant wipe and allow it to dry
6. Open the sterile glove packet onto the tray. The inside of this packet is now your 'general aseptic field'
7. Open withdrawal needle/blunt fill needle, syringe, and needle free device, pre-filled syringe if used and dressing onto the aseptic field
8. Open the disinfectant wipes onto the aseptic field
9. Remove the child's old dressing and discard outside the tray. Take care not to dislodge the line (the second person or the child can remove the old dressing, having first performed hand hygiene, and taking care not to pull on the line)
10. Perform hand hygiene again and put on the sterile gloves (RCPI/HSE 2015)
11. Attach withdrawal needle/blunt fill needle onto syringe and draw up the Heparin Sodium 10 units per mL unless using pre-filled syringe
12. Remove the withdrawal needle/blunt fill needle and discard outside of the tray. Expel the air by slowly pushing up the plunger. Place the syringe on the tray
13. Unfold three disinfectant wipes
14. With the non-aseptic hand pick up the Hickman™/ Broviac™ Catheter. This hand now becomes the non-aseptic hand and must not touch the aseptic field. Pick up an unfolded disinfectant wipe in the aseptic hand and remove the needle free device by rotating it to the left
15. Discard both the disinfectant wipe and the needle free device outside of the tray. Pick up another disinfectant wipe (using aseptic hand) and clean the open end of the Hickman™/

Broviac™ catheter (scrub the hub technique). Discard the disinfectant wipe outside of the tray

16. **Attach (using aseptic hand) the new needle free device to the Hickman™/ Broviac™ Catheter by rotating it to the right for a secure fit**
17. **Attach (using aseptic hand) the 10mL syringe containing the Heparin Sodium 10 units per mL by pushing it firmly into the centre of the needle free device and rotating it to the right for a secure fit. Open (non-aseptic hand) the clamp and slowly inject the Heparin Sodium 10 units per mL into the line using push – pause method. Close (using non- aseptic hand) the clamp as the last 0.5mL is being injected (Dougherty and Lister 2015). Remove (using aseptic hand) the syringe and discard it outside of the tray**
18. **Clean (using aseptic hand) the top of the needle free device with a disinfectant wipe (scrub the hub technique). Discard disinfectant wipe outside of the tray**
19. **Repeat same procedure for change of needle free devices in double and triple lumen catheters**
20. **Pick up (using non-aseptic hand) the Hickman™/ Broviac™ Catheter, taking care not to pull on it. Pick up (using aseptic hand) a disinfectant wipe and carefully clean the skin around the exit site in a circular movement. Start at the catheter exit site. Discard the disinfectant wipe outside of the tray**
21. **Repeat the cleaning procedure with two other disinfectant wipes moving a little further out from the exit site each time**
22. **With the remaining unfolded disinfectant wipe (using aseptic hand), gently clean catheter from the exit site to end of the catheter, taking care not to pull on it, and discard outside of the tray**
23. **For a double or triple lumen Hickman™/ Broviac™ Catheter, use a separate disinfectant wipe for each lumen, to clean to the end of the catheter**
24. **Loop the Hickman™/ Broviac™ Catheter on to the chest wall as illustrated in Figure 2. The child or a second person (having performed hand hygiene) may hold the loop in place. Place the sterile semi-permeable polyurethane transparent dressing over the exit site securely and press out any air under the dressing. Secure the Hickman™/ Broviac™ Catheter (Dougherty and Lister 2015)**
25. **Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy**
26. **Perform hand hygiene (RCPI/HSE 2015)**

27. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

Figure 2: Securing and Flushing the Hickman™/ Broviac™ Catheter



2.1.3 Procedure for Connecting an Infusion Set to a Hickman™/ Broviac™ Catheter

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Sodium Chloride 0.9% w/v * or pre-filled syringe
- 10 mL syringe x 1*
- Withdrawal needle/blunt fill needle x 1*
- Non-injectable bung x 1
- Infusion set
- IV fluid for infusion
- Individually wrapped disinfectant wipes x1.
- Medication labels
- Sharps bin

Not required if using pre-filled syringes

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Perform hand hygiene (RCPI/HSE 2015)
3. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
4. Prepare the infusion set, maintaining the sterility of the end of the line which will be connected to the Hickman™/ Broviac™ Catheter
5. Open the preparation towel and cover the tray. Using a filter withdrawal needle/blunt fill needle, draw up the Sodium Chloride 0.9% w/v into the syringe. Remove the blunt-fill needle and prime the line. Attach a sterile non-injectable bung to the syringe and place it on the tray. Open the disinfectant wipes onto the aseptic field
6. Explain the procedure to the child and the parent/guardian
7. Perform hand hygiene (RCPI/HSE 2015)
8. Clean the centre of the needle free device with a disinfectant wipe (scrub the hub technique)
9. Remove the non-injectable bung from the syringe and attach the syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit. Open clamp
10. Confirm blood return by gently withdrawing blood into the syringe and slowly inject 1- 2mL of Sodium Chloride 0.9% w/v using a push–pause method. Close the clamp
11. Remove cap from the IV infusion set and connect it to the needle free device by pushing it in firmly and rotating it to the right for a secure fit
12. Do not open the Hickman™/ Broviac™ clamp until ready to commence infusion
13. Ensure the correct administration rate is set
14. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy.
15. Perform hand hygiene (RCPI/HSE 2015)
16. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.1.4 Procedure for Disconnecting an Infusion Set from a Hickman™/ Broviac™ Catheter

Equipment

- Clean plastic tray
- Sterile gloves
- Sterile preparation towel
- Valid prescription and medications; expiry dates checked
- 10mL syringe x 2*
- Withdrawal needle /blunt fill needle x 2*
- Non-injectable bung x 2
- Sodium Chloride 0.9% w/v * or pre-filled syringe
- Heparin Sodium 10 units per mL * or pre-filled syringe
- Individually wrapped disinfectant wipes x 3
- Medication labels
- Sharps bin

Not required if using pre-filled syringes

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Open the preparation towel and cover the tray. Using a withdrawal needle/blunt fill needle, draw up the Sodium Chloride 0.9% w/v and Heparin Sodium 10 units per mL into two separate syringes. Remove the withdrawal needle/blunt fill needle and discard outside of the tray, prime the syringes and attach a non-injectable bung to each syringe tip. Place the syringes on the tray
6. Turn off the pump, close infusion line clamp and clamp the Hickman™/ Broviac™ Catheter
7. Perform hand hygiene (RCPI/HSE 2015)
8. Holding the Hickman™/ Broviac™ catheter in the non-aseptic hand, pick up a disinfection wipe and clean the connection (scrub the hub technique) between the IV infusion set and the needle free device, allow it to dry
9. Rotate the infusion set connection to the left, and detach it from the needle free device
10. Clean the centre of the needle free device with a disinfectant wipe (scrub the hub technique)

2.1.5 Procedure for Administration of Bolus Medication via a Hickman™/ Broviac™ Catheter

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Heparin sodium 10 units per mL
- Sodium Chloride 0.9% w/v * or pre-filled syringe
- 10mL syringes*
- Green needles (21g)*
- Non-injectable bungs
- Withdrawal needle/blunt fill needles*
- Individually wrapped disinfectant wipes x 3
- Medication labels
- Sharps bin

Not required if using pre-filled syringes

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. **Gather all equipment, prepare equipment and environment**
2. **Explain the procedure to the child and parent/guardian**
3. **Perform hand hygiene (RCPI/HSE 2015)**
4. **Wipe the surface of the clean tray with a disinfectant wipe and allow to dry**
5. **Open preparation towel and cover the tray. Using a withdrawal needle/blunt fill needles draw up Sodium Chloride 0.9% w/v in separate 10mL syringes; one to check the patency of the catheter at the start of the procedure, one to flush the catheter after each medication is administered. Draw up Heparin Sodium 10 units per mL into a separate syringe as recommended by the discharging facility. Remove the withdrawal needle/blunt fill needle and discard outside of the tray, expel air bubbles and attach a non-injectable bung to each syringe tip. Place the syringes on the tray**
6. **Prepare the medications to be administered**
7. **Perform hand hygiene (RCPI/HSE 2015)**
8. **Holding the Hickman™/ Broviac™ catheter in the non-aseptic hand using the disinfectant wipe scrub the hub of the needle (scrub the hub technique)**
9. **Remove non-injectable bung from the syringe containing Sodium Chloride 0.9% w/v. Push the syringe firmly into the centre of the needle free device and rotate to the right for a secure fit. Open clamp. Confirm blood return by gently withdrawing blood into the syringe and slowly inject 1-2mL of Sodium Chloride 0.9% w/v using a push–pause method. Close the clamp**
10. **Remove the non-injectable bung from the syringe containing bolus medication. Attach the syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit. Open the clamp and slowly inject the bolus medication as per instructions from discharging facility. Close clamp and remove syringe by rotating to the left and discard**
11. **Remove non-injectable bung from the syringe containing Sodium Chloride 0.9% w/v. Push the syringe firmly into the centre of the needle free device and rotate to the right for a secure fit. Open clamp and slowly inject as per instructions from discharging facility using a push-pause method**
Note: If giving more than one medication at a time, flush the line with Sodium Chloride 0.9% w/v or

as per instructions from the discharging facility using a push-pause method (Dougherty & Lister 2015).
12. Remove non-injectable bung from the syringe containing Heparin Sodium 10 units per mL as per instructions from discharging facility, attach the syringe to the needle free device and inject the Heparin Sodium 10 units per mL as above. Close the clamp as the last 0.5mL is being injected. Remove the syringe by rotating to the left and discard outside the tray
13. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
14. Perform hand hygiene (RCPI/HSE 2015)
15. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.1.6 Principles for Safe Practice for the Procedure for Connecting a Syringe Driver to a Hickman™/ Broviac™ Catheter

This section has been devised to support community Specialist Palliative Care Teams (SPCTs) along with other healthcare professionals, in the management of children's symptoms and at end of life.

Hickman™/ Broviac™ catheters may have one or more lumens, any of which can be used with the syringe driver. The priming volume (or dead space within the line) depends on the final length of the catheter when inserted in theatre. It is the responsibility of the discharging facility in the discharge process to notify the relevant health care professional of the child's individual priming volumes. In the event of families not having the required supplies, they can be organised by the RPHN/CRGN/RN.

2.1.6.1 Principles for Safe Practice when Connecting a Syringe Driver to a Hickman™ Broviac™/ Catheter

- The syringe driver infusion pump must comply with safety criteria outlined in (Appendix VIII) and NMBI Guidance to Nurses and Midwives on Medication Management 2007.
- When connecting a syringe driver to a Hickman™ Catheter / Broviac™ for the first time, check the selected lumen for blood return to confirm the position of the catheter. The lumen can be flushed with Sodium Chloride 0.9% w/v and the infusion line attached in the usual way.
- It is recommended that when connecting an infusion for the first time to the Hickman™ / Broviac™ Catheter that a second 10mL/20mL luer-lock syringe containing the same medication to be administered, is drawn up. The syringe used to prime the line is then replaced with the second syringe so that the infusion will not need to be changed several hours later or early the next day. The first syringe is then discarded.
- There is a time delay as medication travels the length of the Hickman™/ Broviac™ catheter and before reaching the child. The duration of this delay depends on the actual length of the catheter (lumen) and it's (the child's) priming volume. Some children will have their individual priming volumes calculated and documented on discharge to the community. In the case of children whose priming volume is not calculated and documented, the health care professional must contact the discharging facility.
- Once the priming volume is calculated, the length of time it will take for the medication to reach the child will depend on the type of syringe driver used. A stat dose of medication may be given via another route, e.g. oral, buccal, rectal or subcutaneous to achieve symptom control quickly while waiting for the medication to enter the child's blood stream.
- The needle free device and the infusion line from the syringe driver need to be changed once a week. However, if changes in a dosage of medication are made or new medications added, the infusion line from the syringe driver must be changed. The length of the Hickman™/ Broviac™ catheter and must be taken into account, as a delay will occur before the new dose enters the

child's blood stream.

- In the event that the medication in the catheter needs to be withdrawn, aspirate and withdraw blood equivalent to its priming volume. It is then safe to flush the lumen with Sodium Chloride 0.9% w/v. If reconnecting the line to that lumen please remember that the medication will take some time to reach therapeutic levels as what will infuse initially is the Sodium Chloride 0.9% w/v within the lumen. A stat dose of medication may need to be given for symptom control in the intervening period. The other lumen can still be used. It must be checked for blood return and flushed prior to initial use as per procedure.

- If during a syringe driver infusion the catheter (lumen) appears to have blocked it must not be flushed with Sodium Chloride 0.9% w/v as the medication within that lumen will be flushed into the circulation and could represent several hours' worth of dosage. In this instance the line must be clearly labelled "Do not use, lumen blocked" and the parent/guardian made aware not to flush it during routine Hickman™/ Broviac™ catheter and care. This must be documented and the child's GP and discharging facility notified. If an alternative lumen is available, set up infusion as per Section 2.1.3

- A syringe and infusion line that was previously connected to a blocked lumen cannot be re-used. It must be discarded and a new syringe and infusion line commenced on an alternate lumen to prevent cross infection.

2.1.7 Procedures for Connecting a Syringe Driver to a Hickman™/ Broviac™ Catheter (including syringe and line changes)

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Individually wrapped disinfectant wipes x 1
- 10mL syringe x 1*
- Withdrawal needle/blunt fill needle x 2*
- Luer-lock syringe 10mL/20mL/30mL for infusion
- Non-injectable bung X 1
- Diluent
- Sodium Chloride 0.9% w/v*
- Infusion line for use with syringe driver
- 1mL, 2mL, 5mL, 10mL syringes to draw up medication
- Gloves
- Syringe driver infusion pump (The syringe driver infusion pump must comply with safety criteria outlined in (Appendix VIII)
- New syringe driver batteries
- Medication labels
- Sharps bin

Not required if using pre-filled syringes

2.1.7.1 Procedure for Connecting Syringe Driver to a Hickman™/ Broviac™ Catheter

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Draw up Sodium Chloride 0.9% w/v using a 10mL syringe
6. Attach a non-injectable bung to the tip of the syringe to maintain asepsis
7. Label the syringe and place on the tray
8. Select syringe type for syringe driver and size 10 mL/20 mL/30mL as appropriate for prescribed medication. Use syringe with luer-lock tip
9. Fill the syringe with the medication and diluent
10. The syringe must be labelled with the following as a minimum: child's name, date of birth, volume and strength of medication being delivered, date and time infusion commenced, signature of health care professional. Attach label to the blank side of the syringe
11. Load syringe on pump. Once syringe brand and size are confirmed the pump calculates and displays the volume in the syringe to be delivered in mL/hr. Press YES to confirm the calculated rate. Pump prompts 'START INFUSION'. Select NO and remove syringe from pump. DO NOT TURN OFF PUMP. Connect the infusion line to the luer-lock of the syringe and prime the line with the medication leaving the cover on the end
12. Reload syringe on pump as per manufacturers' instructions, local guidelines/policies/protocols. The pump will identify the type and size of syringe and display on this screen again. Press YES to resume. Pump will then display summary of volume, duration and rate
Note: Duration and volume will have decreased during priming process
13. Perform hand hygiene (RCPI/HSE 2015)
14. Support the needle free device on the extension set with the non-aseptic hand and clean the

centre of the needle free device with disinfectant wipe (scrub the hub) and discard outside of the tray.
15. Remove the non-injectable bung from the syringe containing the Sodium Chloride 0.9% w/v
16. Support the needle free device. Attach the Sodium Chloride 0.9% w/v by pushing the syringe firmly into the centre of the needle free device rotating to the right for a secure fit
17. Open the clamps on the Hickman™/ Broviac™ catheter and draw back gently to assess for blood return to confirm correct position. Inject 1-2 mL Sodium Chloride 0.9% w/v using a push-pause method
18. Close the clamp, remove syringe from the needle free device by gently turning it to the left
19. Remove the cover on the end of the primed infusion line
20. Attach the infusion line to the end of the Hickman™/ Broviac™ catheter by pushing it firmly into the centre of the needle free device, rotating it to the right for a secure fit
21. Open the clamp on the Hickman™/ Broviac™ catheter, open the clamp on the connecting infusion line and commence the infusion by pressing start on syringe driver
22. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
23. Perform hand hygiene (RCPI/HSE 2015)
24. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.1.8 Procedure for Daily or Alternate Day Change of Syringe

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
4. Perform hand hygiene (RCPI/HSE 2015)
5. Draw up medications for infusion into appropriate luer lock syringe and attach non-injectable bung
6. The syringe must be labelled with the following as a minimum; child's name, date of birth, volume and strength of medication been delivered, date and time infusion commenced and signature of health care professional. Attach label to the blank side of the syringe
7. Close clamp on the Hickman™/ Broviac™ catheter and on the infusion line and disconnect used syringe
8. Pause the pump and remove syringe from the syringe driver. Dispose of the syringe in accordance with local policy
9. Clean the area where the infusion line and syringe meet with the disinfectant wipe, (scrub the hub technique)
10. Securely attach the new syringe on to the infusion line
11. Load the syringe into the syringe driver as per manufacturers' instructions as per local guideline
12. Open the Hickman™/ Broviac™ catheter clamp, open the clamp on the connecting infusion line and commence the infusion by pressing start on syringe driver
13. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
14. Perform hand hygiene (RCPI/HSE 2015)
15. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.1.9 Procedure for Weekly Change of Needle Free Device and Infusion Line

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
4. Perform hand hygiene (RCPI/HSE 2015)
5. Close clamp on the Hickman™/ Broviac™ catheter and on infusion line
6. Pause the pump and remove syringe
7. Draw up medications for infusion into appropriate luer lock syringe and attach non-injectable bung
8. The syringe must be labelled with the following as a minimum: child's name, date of birth, the volume and strength of medication being delivered, date and time infusion commenced, signature of health care professional. Attach label to the blank side of the syringe
9. Load syringe on pump. Once syringe brand and size are confirmed the pump calculates and displays the volume in the syringe to be delivered in mL/hr. Press YES to confirm the calculated rate. Pump prompts 'START INFUSION'. Select NO and remove syringe from pump. DO NOT TURN OFF PUMP. Connect the infusion line to the luer-lock of the syringe and prime the line with the medication leaving the cover on the end
10. Reload syringe on pump as per manufacturers' instructions and local guideline. The pump will identify the type and size of syringe and display on this screen again. Press YES to resume. Pump will then display summary of volume, duration and rate
Note: Duration and volume will have decreased during priming process.
11. Perform hand hygiene (RCPI/HSE 2015)
12. Open sterile glove packet onto tray. The inside of this packet is now the aseptic field
13. Open needle free device onto the aseptic field
14. Open the disinfectant wipes onto the aseptic field

15. **Perform hand hygiene again and put on sterile gloves (RCPI/HSE 2015)**
16. **Unfold the disinfectant wipes**
17. **With the non-aseptic hand pick up the Hickman™/ Broviac™ catheter. This hand now becomes the non-aseptic hand and must not touch the aseptic field. Pick up the unfolded disinfectant wipe in the aseptic hand and remove the needle free device by rotating it to the left**
18. **Discard both the disinfectant wipe and the needle free device outside of the tray. Pick up another disinfectant wipe (using aseptic hand) and clean the open end of the Hickman™/ Broviac™ catheter (scrub the hub technique)**
19. **Attach the new needle free device to the Hickman™/ Broviac™ catheter by rotating it to the right for a secure fit**
20. **Attach the infusion line to the end of the Hickman™/ Broviac™ catheter by pushing it firmly into the centre of the needle free device, rotating it to the right for a secure fit**
21. **Open the clamp on the Hickman™/ Broviac™ catheter, open the clamp on the connecting infusion line and commence the infusion by pressing start on the syringe driver**
22. **Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy**
23. **Perform hand hygiene (RCPI/HSE 2015)**
24. **Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)**

2.2 Introduction to Tunnelled Implanted Port (Portacath™)

A Portacath™ is an implanted venous access device which is implanted subcutaneously in an inconspicuous location on the body, usually on the chest wall or forearm.

There are two basic parts to the system:

- The reservoir – a small plastic chamber sealed at the top by a rubber disc (septum) designed to withstand multiple punctures.
- A thin catheter – one end is placed into a vein inside the body and the other end is firmly attached to the reservoir.

A Portacath™ is normally inserted under general anaesthetic. A subcutaneous pocket is surgically created to hold the reservoir and a separate incision, usually in the neck, is made to locate the vein into which the catheter will be placed. The catheter is tunnelled under the skin from the reservoir and inserted via the internal or external jugular vein with the tip sitting within the superior vena cava. The Portacath™ may be used immediately following insertion once the position is confirmed on an x-ray and the system is flushed to ensure it is working properly.

Implanted ports require minimal site care as there is an intact skin layer over the Portacath™. Portacath™ are easy to access when the non-coring needle has been removed for IV fluids, administration of medications and blood sampling.

2.2.1 Principles for safe practice for the Care of a Tunnelled Implantable Port (Portacath™)

- The need for topical anaesthetic agents prior to the procedure should be considered on an individual basis and must be prescribed and used in accordance with the manufacturer's instructions, especially for those individuals who have had previous bad experience or suffer from needle phobia, both of which may induce 'anticipatory' feelings of increased distress and anxiety before venepuncture is carried out (Weinstein & Plumer 2007)

- An aseptic non-touch technique must be observed when accessing the Portacath™ (ANTT) ®

- The skin over the Portacath™ site must be cleaned with a individually wrapped disinfectant wipe prior to accessing the Portacath™ as recommended by the discharging facility (Loveday et al. 2014)

- To access the Portacath™ use a non-coring needle i.e. a needle that does not damage the port by coring the silicone on insertion (Dougherty and Lister 2011). Use a non-coring needle of a length that allows the needle to sit flush with the skin and securely within the port reservoir. Position the bevel of the needle in the opposite direction to the outflow channel. Non-coring needles are available in various gauges and lengths. Choose the appropriate size for the individual child as advised by the discharging facility

- A non-coring needle may stay in place for up to two weeks depending on the child's condition. In the neutropenic child a non-coring needle may remain in place for seven days (Dougherty and Lister 2015)

- Use only 10mL syringes or larger when accessing or flushing the Portacath™ (Dougherty and Lister 2015)

- Correct needle placement must be confirmed with blood return (Dougherty and Lister 2011). In the event of no blood return, contact the discharging facility for advice

2.2.2 Procedure for Insertion of a Non Coring Needle & Flushing of Implantable Port

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Local anaesthetic cream
- Sterile semi-permeable polyurethane transparent dressing
- Sterile gloves
- Heparin Sodium 10 units per mL * or prefilled syringe
- 10 mL syringe x 3*
- Sodium Chloride 0.9% w/v
- Withdrawal needle/blunt fill needle x 2*
- Sharps bin
- Needle free device x 1
- Non-coring needle x 1
- Individually wrapped disinfectant wipes x 5
- Medication labels

Not required if using pre-filled syringes

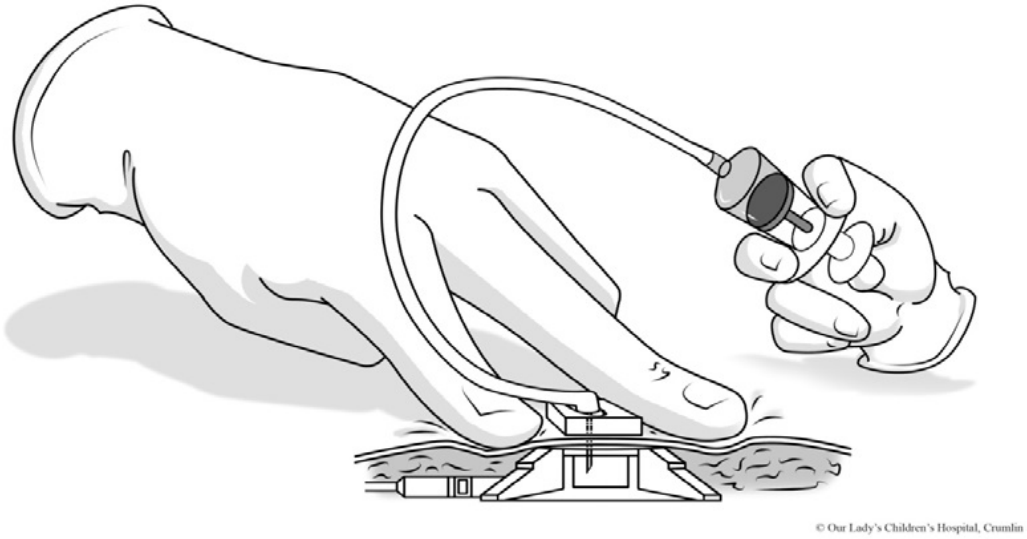
Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather equipment, prepare equipment and the environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Clean the skin with soap and water to remove the ointment based anaesthetic cream and dry
5. Assist the patient into a comfortable position
6. Wipe the surface of the clean tray with a disinfectant wipe and allow it to dry
7. Open the glove packet onto the tray. The inside of this packet is now your aseptic field (Dougherty and Lister 2015)
8. Carefully open syringes, withdrawal needle/blunt fill needles, needle free device, non-coring needle and dressing onto the glove packet using ANTT ®
9. Open the disinfectant wipes onto the packet using ANNT®
10. Open the vials of Heparin Sodium 10 units per mL and Sodium Chloride 0.9% w/v and place them beside the tray (outside the sterile field)
11. Perform hand hygiene and put on sterile gloves (RCPI/HSE 2015)
12. Attach withdrawal needle/blunt fill needle to the syringe and draw up Heparin Sodium 10 units per mL as recommended by the discharging facility. Remove the withdrawal needle/blunt fill needle and discard outside the tray. Prime the syringe by slowly pushing up the plunger. Place the syringe on the tray (Dougherty and Lister 2015)
13. Attach new withdrawal needle/blunt fill needle to the second syringe and draw up Sodium Chloride 0.9 w/v as recommended by the discharging facility. Remove the withdrawal needle/blunt fill needle and discard outside the tray. Attach the needle free device to the end of the non-coring needle and extension set. Prime the infusion line with the Sodium Chloride 0.9% w/v until fluid exits. Clamp the line. Do not remove the syringe (Dougherty and Lister 2011)
14. Clean the raised access site of Portacath™ and surrounding skin using disinfectant wipe, working in clockwise direction from the raised centre outwards. Repeat three times, using each wipe once only and allow the site to dry (Dougherty and Lister 2015)

15. **Pick up both the non-coring needle with the attached Sodium Chloride 0.9% w/v syringe in one hand**
16. **Hold the syringe of Sodium Chloride 0.9% w/v in the palm of the aseptic hand and the non-coring needle with two fingers**
17. **Remove the protective cover from the non-coring needle with the other hand**
18. **Palpate the edges of the Portacath™, holding the outer edges through the skin with two fingers of the non-aseptic hand, to stabilize the port (ensure the Portacath™ is secure and non-mobile) (Dougherty and Lister 2015)**
19. **Insert the non-coring needle firmly through the skin and port at a 90 degree angle until it hits the back of the port chamber**
20. **Check for blood return. If there is no blood return, stop the procedure, close clamp and contact the discharging facility. If there is blood return, flush the line with Sodium Chloride 0.9% w/v (Dougherty and Lister 2015)**
21. **Attach syringe containing Heparin Sodium 10 units per mL to needle free device**
22. **Open clamp and inject the Heparin Sodium 10 units per mL, closing the clamp using a push pause method (Dougherty and Lister 2015)**
23. **If removing the non-coring needle, press down on the Portacath™ with two fingers to stabilize the port. Withdraw the non-coring needle. It may be necessary to apply a plaster if site is oozing with the other hand**
24. **If on-going care dictates the non-coring needle can remain in situ. It may be necessary to place a small piece of gauze under the non-coring needle to secure its position. Cover with a sterile semi-permeable polyurethane transparent dressing (Loveday et al. 2014)**
25. **The non-coring needle may remain in place for up to two weeks unless the child is neutropenic. Use a sterile semi-permeable polyurethane transparent dressing to secure the needle and avoid dislodgement. Dispose of all equipment appropriately**
26. **Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy**
27. **Perform hand hygiene (RCPI/HSE 2015)**
28. **Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)**

Figure 3: Inserting the Non-Coring Needle into the Portacath™ Chamber



2.2.3 Procedure for Connecting an Infusion Set to a Portacath™ (with a non-coring needle in situ)

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Sodium Chloride 0.9 w/v 10mL * or pre-filled syringe
- 10 m syringe x 1*
- Filter withdrawal needle/blunt-fill needle x 1*
- Non-injectable bung x 1
- Infusion set
- IV fluid for infusion
- Individually wrapped disinfectants wipe x 1
- Medication labels
- Sharps bin

Not required if using pre-filled syringes

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather equipment, prepare equipment and the environment
2. Explain the procedure to the child and the parent
3. Wipe the surface of the clean tray with a disinfectant wipe and allow it to dry
4. Perform hand hygiene (RCPI/HSE 2015)
5. Prepare the infusion set, maintaining the asepsis of the end of the line which will be connected to the non-coring needle extension set
6. Open preparation towel and cover the tray. Draw up Sodium Chloride 0.9% w/v and using a blunt-fill needle into syringe (volume to be advised by discharging facility). Remove the blunt-fill needle and prime the syringe. Attach a sterile non-injectable bung to the syringe and place it on the tray
7. Using a disinfectant wipe (scrub the hub technique) clean the hub of the needle free device. Ensure to scrub the centre of the needle free device not just the sides
8. Remove the non-injectable bung from the syringe and attach the syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit. Open the clamp. Confirm blood return by gently withdrawing blood into the syringe and slowly inject 1-2mL of Sodium Chloride 0.9% w/v using a push–pause method. Close the clamp
9. Remove cap from the IV infusion set and connect it to the needle free device by pushing it in firmly and rotating it to the right for a secure fit
10. Do not open the non-coring needle extension set clamp until ready to commence infusion. Ensure the correct administration rate is set
11. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
12. Perform hand hygiene (RCPI/HSE 2015)
13. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.2.4 Procedure for Disconnecting an Infusion Set from a Portacath™

Equipment

- Clean plastic tray
- Valid prescription and medications; expiry dates checked
- Sterile preparation towel
- Sodium Chloride 0.9% w/v * or pre-filled syringe
- Heparin Sodium 10 units per mL * or pre-filled syringe
- 10m syringe x 2*
- Withdrawal needle/blunt fill needle x 1*
- Non – injectable bung x 2
- Individually wrapped disinfectant wipes x 3
- Medication labels
- Sharps bin

**** Not required if used pre-filled syringes***

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather equipment, prepare equipment and the environment
2. Explain the procedure to the child and the parent
3. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
4. Perform hand hygiene (RCPI/HSE 2015)
5. Open the preparation towel and cover the tray. Using blunt-fill needle draw up 3mL of Sodium Chloride 0.9% w/v using withdrawal needle draw up 2.5 mL of Heparin Sodium 10 units per mL into two separate syringes. Remove the blunt-fill needle/withdrawal needle, prime the syringe and attach a non-injectable bung to each syringe tip. Place the syringes on the tray
6. Perform hand hygiene (RCPI/HSE 2015)
7. Turn off the pump, close line clamp and close clamp on non-coring needle
8. Holding the catheter in non-aseptic hand, pick up a disinfection wipe with the aseptic hand and clean the connection between the IV infusion set and the needle free device (scrub the hub technique)
9. Rotate the infusion set connection to the left, and detach it from the needle free device
10. Using the disinfectant wipe clean the hub of the needle free device (scrub the hub technique)
11. Remove non injectable bung and attach the syringe containing Sodium Chloride 0.9% w/v by pushing firmly into the centre of the needle free device and rotating to the right for a secure fit. Open the clamp and slowly inject (volume as instructed by discharging facility), using a push-pause method. Close clamp and remove syringe by rotating to the left and discard
12. Remove non-injectable bung from the syringe containing Heparin Sodium 10 units per mL, attach the syringe to the needle free device and inject the solution as above. Close the clamp as the last 0.5mL is being injected. Remove the syringe by rotating to left and discard
13. Using the disinfectant wipe clean the hub of the needle free device (scrub the hub technique)
14. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy

15. **Perform hand hygiene (RCPI/HSE 2015)**

16. **Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)**

2.2.5 Procedure for Administration of Bolus Medication via Portacath™ (with a non-coring needle in situ)

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Heparin Sodium 10 units per mL
- Diluent
- Sodium Chloride 0.9% w/v * or pre-filled syringes
- 10mL syringes (number as required)
- Withdrawal needle/blunt fill needles x 3
- Non-injectable bungs (1 per syringe)
- Individually wrapped disinfectant wipes x 3
- Medication labels
- Sharps bin

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Open the preparation towel and cover the tray
6. Using the withdrawal needles/blunt fill needles attached to the sterile 10mL syringes draw up Sodium Chloride 0.9% w/v. Separate flushes will be required to check patency of the Portacath™ and following each medication administration. Label syringes
7. Draw up Heparin Sodium 10 units per mL into separate syringe as recommended by the discharging facility and label syringe
8. Prepare the medication to be administered
9. Remove the non-injectable bung from the syringe containing bolus medication(s). Attach the syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit. Open clamp and slowly inject the bolus medication as per instructions from discharging facility using a push-pause method. Close clamp and remove syringe by rotating to the left and discard outside the tray
10. If more than one medication is prescribed, ensure a separate Sodium Chloride 0.9% w/v (1-2mLs) is delivered between medications and after final medication has been administered
11. Remove non-injectable bung from the syringe containing Heparin Sodium 10 units per mL as per instructions from discharging facility. Attach the syringe to the needle free device and inject the solution as above. Close the clamp as the last 0.5mL is being injected. Remove the syringe by rotating to the left and discard
12. Using a disinfectant wipe clean the hub of the needle (scrub the hub technique)
13. If on-going care dictates the non-coring needle can remain in situ. It may be necessary to place a small piece of gauze under the non-coring needle to secure its position. Cover with a sterile semi-permeable polyurethane transparent dressing (Loveday et al. 2014)

14. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
15. Perform hand hygiene (RCPI/HSE 2015)
16. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.2.6 Principles for Safe Practice when Connecting a Syringe Driver to a Portacath™

- The syringe driver infusion pump must comply with safety criteria outlined in Appendix VIII.

- It is recommended when connecting an infusion for the first time to the Portacath™, to draw up two leur lock syringes (10mL/20mL/30mL) containing the same medication to be administered. The first syringe is used to prime the line and is then discarded. The second syringe is attached for infusion. The infusion will therefore not need to be changed several hours earlier due to the priming procedure.

- There is a time delay as medication travels the length of the Portacath™, before reaching the child. The clinician must contact the discharging hospital for advice regarding total priming volume. This is important as there can be significant variation in priming volumes depending on the final catheter length. Please note that this may vary depending on the discharging facility. Additional consideration needs to be given to include the priming volume of the non-coring needle and extension set.

- A stat dose of medication may be given via another route, e.g. orally, rectally, or subcutaneously to achieve symptom control quickly while waiting for the medication to reach the child.

- When connecting a syringe driver to a Portacath™ for the first time it is necessary to check for blood return to confirm the position of the Portacath™ catheter tip. Once confirmed the Portacath™ can be flushed with Sodium Chloride 0.9% w/v (refer to the discharging facility for flush volumes) and the infusion line attached in the usual way. In an event of no blood return, please contact the discharging facility for advice.

- The needle free device and the infusion line from the syringe driver needs to be changed once

a week. However, if changes are made to a drug dosage or new drugs are added, the infusion line from the syringe driver to the patient's Portacath™ must be changed.

- The Portacath™ does not need to be flushed routinely when a continuous infusion is running. Care must be taken at all times not to inject any drugs remaining within the catheter if the infusion is discontinued. Contact the Children's Palliative Care (CNS) for advice regarding most appropriate action to be taken.

- If during a syringe driver infusion the Portacath™ appears to have blocked, it must not be flushed with Sodium Chloride 0.9% w/v as the medication within the Portacath™ will be flushed into the circulation and could represent several hours' worth of dosage. In this instance contact the discharging facility for advice. The infusion line must be clearly labelled "Do not use" and the parent/guardian made aware not to flush it during routine Portacath™ care. This must be documented and the child's GP and other relevant stakeholders notified.

2.2.7 Equipment and Requirements for Connecting Syringe Driver to a Portacath™ (with a non-coring needle in situ)

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Non-Coring needle
- Individually wrapped disinfectant wipes x 1
- 10mL syringe x 1*
- Withdrawal needle/blunt fill needle x 2*
- Luer-lock syringe 10mL/20mL/30mL for infusion
- Non-injectable bung X 1
- Diluent
- Sodium Chloride 0.9% w/v *
- Infusion line for use with syringe driver
- 1mL, 2mL, 5mL, 10mL syringes to draw up medication
- Syringe driver infusion pump (The syringe driver infusion pump must comply with safety criteria outlined in Appendix VIII)
- New syringe driver batteries
- Sterile gloves
- Medication labels
- Sharps bin

**** Not required if using pre-filled syringes.***

Procedure

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
4. Perform hand hygiene (RCPI/HSE 2015)
5. Insert non-coring needle
6. Perform hand hygiene (RCPI/HSE 2015)
7. Draw up Sodium Chloride 0.9% w/v as per the discharging facility in a 10mL syringe
8. Attach a non-injectable bung to the tip of the syringe to maintain asepsis
9. Label the syringe and place on the tray
10. Select syringe type for syringe driver and size 10 mL/20 mL/30m as appropriate for dispensed medication. Use syringe with luer-lock
11. Fill the syringe with the prescribed medication and diluents
12. The syringe must be labelled with the following as a minimum: child's name, date of birth, volume and strength of medication being delivered, date and time infusion commenced, signature of clinician. Attach label to the blank side of the syringe
13. Load syringe on pump. Once syringe brand and size are confirmed the pump calculates and displays the volume in the syringe to be delivered in mL/hr. Press YES to confirm the calculated rate. Pump prompts 'START INFUSION'. Select NO and remove syringe from pump. DO NOT TURN OFF PUMP. Connect the infusion line to the luer-lock of the syringe and prime the line with the medication leaving the cover on the end
14. Reload syringe on pump as per manufacturers' instructions, local guidelines /policies /protocols. The pump will identify the type and size of syringe and display on this screen again. Press YES to resume. Pump will then display summary of volume, duration and rate
Note: Duration and volume will have decreased during priming process

15. Perform hand hygiene (RCPI/HSE 2015)
16. Support the needle free device on the extension set with the non-aseptic hand and, clean the centre of the needle free device with disinfectant wipe (scrub the hub technique)
17. Remove the non-injectable bung from the Sodium Chloride 0.9% w/v syringe
18. Support the needle free device. Attach the of Sodium Chloride 0.9% w/v pushing the syringe firmly into the centre of the needle free device rotating to the right for a secure fit
19. Open the clamps on the extension set and draw back gently to assess for blood return to confirm correct position. Inject Sodium Chloride 0.9% w/v using a push-pause method (Dougherty and Lister 2015)
20. Close the clamp, remove syringe from the needle free device by gently turning it to the left
21. Remove the cover on the end of the primed infusion line
22. Attach the infusion line to the end of the extension set by pushing it firmly into the centre of the needle free device, rotating it to the right to secure the fit
23. Open the clamp on the extension set, open the clamp on the connecting infusion line and commence the infusion by pressing start on syringe driver
24. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
25. Perform hand hygiene (RCPI/HSE 2015)
26. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.2.8 Procedure for Daily or Alternate Day Change of a Syringe in a Syringe Driver connected to a Portacath™ (with a non-coring needle in situ)

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
4. Perform hand hygiene (RCPI/HSE 2015)
5. Draw up prescribed medications for infusion into appropriate size luer lock syringe and attach non-injectable bung
6. The syringe must be labelled with the following as a minimum: child's name, date of birth, volume and strength of medication been delivered, date and time infusion commenced and signature of clinician. Attach label to the blank side of the syringe as per local medication/documentation guidelines
7. Close clamp on the non-coring needle extension set and on the infusion line and disconnect used syringe. Pause the pump and remove syringe from the syringe driver. Dispose of the syringe in accordance with local policy
8. Pause the pump and remove syringe from the syringe driver
9. Clean the area where the infusion line and syringe meet with the disinfectant wipe (scrub the hub technique)
10. Securely attach the new syringe on to the infusion line
11. Load the syringe into the syringe driver as per manufacturers' instructions, local guidelines/policies/protocols
12. Open the clamp on the non-coring needle extension set, open the clamp on the connecting infusion line and commence the infusion by pressing start on syringe driver
13. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
14. Perform hand hygiene (RCPI/HSE 2015)
15. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

2.2.9 Procedure for Weekly Change of Needle Free Device and Infusion Line to a Syringe Driver connected to a Portacath™ (with a non-coring needle in situ)

Refer to Principles for Safe Practice for the Care and Management of a Hickman™/ Broviac™ Catheter and Portacath™ section 2.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry.
4. Perform hand hygiene (RCPI/HSE 2015)
5. Close clamp on the non-coring needle extension set and on infusion line
6. Pause the pump and remove syringe
7. Draw up medication for infusion into appropriate (selected) luer lock syringe and attach non-injectable bung
8. The new syringe must be labelled with the following as a minimum: child's name, date of birth, volume and strength of medication being delivered, date and time infusion commenced, signature of clinician. Attach label to the blank side of the syringe
9. Load syringe on pump. Once syringe brand and size are confirmed the pump calculates and displays the volume in the syringe to be delivered in mL/hr. Press YES to confirm the calculated rate. Pump prompts 'START INFUSION'. Select NO and remove syringe from pump. DO NOT TURN OFF PUMP. Connect the infusion line to the luer-lock of the syringe and prime the line with the medication leaving the cover on the end
10. Reload syringe on pump. The pump will identify the type and size of syringe and display this on screen again. Press YES to resume. Pump will then display summary of volume, duration and rate
NOTE: Duration and volume will have decreased during priming process.
11. Perform hand hygiene (RCPI/HSE 2015)
12. Open sterile glove packet onto tray. The inside of this packet is now your 'aseptic field'
13. Open the needle free device onto the glove packet using an aseptic non-touch technique
14. Open the disinfectant wipes onto the glove packet

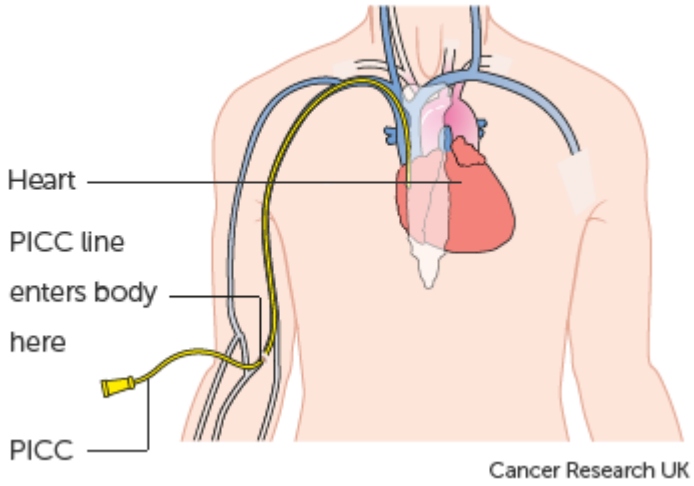
15. **Perform hand hygiene again and put on the sterile gloves (RCPI/HSE 2015)**
16. **Unfold the disinfectant wipes**
17. **With the non-aseptic hand pick up the non-coring needle extension set with needle free device attached. This hand now becomes the non-aseptic hand and must not touch the sterile field. Pick up the unfolded disinfectant wipe in the aseptic hand and remove the needle free device by rotating it to the left**
18. **Discard both the disinfectant wipe and the needle free device outside of the tray. Pick up another disinfectant wipe (aseptic hand), clean the open end of the non-coring needle extension set (scrub the hub technique)**
19. **Attach the new needle free device to the non-coring needle extension set by rotating it to the right for a secure fit**
20. **Remove the cover on the end of the primed infusion line**
21. **Attach the infusion line to the end of the non-coring needle extension set with new needle free device attached, by pushing it firmly into the centre of the needle free device and rotating it to the right**
22. **Open the clamp on the extension set, open the clamp on the connecting infusion line and commence the infusion by pressing start on the syringe driver**
23. **Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy**
24. **Perform hand hygiene (RCPI/HSE 2015)**
25. **Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)**

2.3 Introduction to a Peripherally Inserted Central Catheter (PICC)

Peripherally Inserted Central Catheter (PICC) is a single or double lumen catheter that is inserted via a peripheral vein into a central vein, the tip of which terminates centrally in the superior vena cava (SVC) (Dougherty and Lister 2015). PICC lines can be used for administering long and short term medications. Vesicant medications require extra care as their leakage out of a vein into the tissue around it can cause blistering and other tissue injury that may be severe and can lead to tissue necrosis (tissue death).

Figure 4: Position of the Peripherally Inserted Central Catheter (PICC)

Peripherally Inserted Central Catheter



2.3.1 Principles for safe practice for the Care and Management of a Peripherally Inserted Central Catheter (PICC)

- **Environment:**
  Prior to the commencement of the care intervention the healthcare professional should consider the general suitability of the environment including the provision of appropriate hand hygiene facilities.

- **Hand Hygiene:**
  Hand hygiene must be performed at the point-of-care and must follow the "My 5 Moments for Hand Hygiene" approach to care delivery as outlined by the World Health Organization (HPSC 2014, WHO2009)
  Refer to 'Hand Hygiene for HSE Clinical Staff' education programme on www.hseland.ie

- **Allergy status:**
  The child's allergy status should be checked and documented clearly in the child's record.

- **Professional Standards:**
  Registered nurses must adhere to the following guideline documents: Guidance to Nurses and Midwives on Medication Management 2007, Recording Clinical Practice Professional Guidance 2015 and HSE National Consent Policy 2019 when caring for a child with a Peripherally Inserted Central Catheter (PICC) in the community.

- **Infection prevention and control:**
  Before every clinical procedure staff must review the whole procedure to ensure that the principles of ANTT® will be followed throughout the whole procedure. Wearing appropriate and well-fitting gloves are another important component of ANTT®. Gloves should neither be too small thereby increasing potential for ripping nor so large as to impede manual dexterity (Loveday 2014).

- **Identify Type of PICC:** (valved/unvalved), size, tip position, date of insertion, length of PICC line from insertion site and type of needle free device (valved/unvalved).

- **Flushing and maintaining Patency**
  Most PICC's will not have an internal valve. Non-valved lines would benefit from a valved needle free device also known as a **(Bionector TKO®)**. Clamps should be closed when not in use. Some newer PICC's available may have an internal valve at distal end of the line.

  - **Syringe size:** It is recommended that a 10 mL syringe is used at all times for withdrawing blood samples or injecting into a PICC line as infusion pressure must not exceed 25 psi (a catheter will rupture at pressures in excess of 25 psi). Small syringes may generate very high internal pressures with very little force (Bard 2010).
  - **Flush volumes:** Flush Volume for PICC's will be advised by the discharging facility based on the age, weight and condition of the child. The valve opens when instilling or withdrawing fluid. These lines do not have a clamp attached and do not require heparin sodium 10 units per mL. Some HCP report a slight increase in pressure when flushing these lines
  - **Push-Pause Method:** It is important to use a push-pause method when flushing the PICC line as this creates turbulence within the lumen and helps prevent the formation of fibrin clots or medication deposits on internal catheter wall. Administer 1ml of prescribed solution, pause for one second, and repeat until the appropriate volume has been administered. The procedure is completed using a positive pressure technique (Dougherty and Lister 2015).
  - **Positive Pressure Technique:** A positive pressure technique is accomplished by clamping the PICC line as the last 0.5 ml of Heparin Sodium 10 units per mL is being instilled. Maintaining positive pressure within the catheter prevents backflow of blood into the catheter (Dougherty and Lister 2015).

- **Blood sampling**
  Blood can be taken from a PICC size ≥ 3Fr. Do not take blood from a small PICC ≤ 2 Fr. (Gorski et al, 2016).

- **Needle Free Devices**
  The hub of the PICC catheter must always be protected with a needle free device and should be changed weekly using surgical ANTT®.

- **External Catheter Dressings**
  Dressings are changed weekly using surgical ANTT® and should also be changed if the dressing becomes wet, loose or dirty. Dressing should be sterile, clear semi-permeable with a clear window to observe exit site. A catheter specific dressing is preferable.

- **Vascular Access Stabilisation Device (VASD)**
  A Vascular Access Stabilisation Device (VASD) secures the PICC insitu. There are several types. Careful consideration should be given to the frequency of changing stabilization devices in children. They can be fearful and likely to move during the change increasing the likelihood of catheter dislodgment. A second person may be required to secure the line safely.

  The device is changed if loose, soiled, and wet or if device position needs to be changed to monitor skin integrity. Assess skin underneath dressing and anticipate potential risk for skin injury due to age, joint movement and presence of oedema. Document and report skin rashes or skin breakdown to the child's primary team.

  Be aware of the risk of medical adhesive related skin injury associated with the use of adhesive based securement devices.

  When applying or replacing a statlock™ stabilisation device clean the skin thoroughly beforehand with an individually wrapped disinfectant wipe and allow to dry. Once dry use the skin prep pad that is packaged with the statlock as this provides an acrylic layer that protects the skin and enhances adherence to the anchor pad of the device. When using the skin prep allow the skin to dry (10-15 seconds). It should feel smooth to touch, not tacky, for optimal results (Bard, 2018; Gorski et al., 2016).

2.3.2 Procedures to Guide the Care and Management of Changing the Needle Free Device, the Dressing and the Vascular Access Stabilisation Device (VASD) of a Peripherally Inserted Central Catheter (PICC)

Equipment

- Clean plastic tray
- Valid prescription and medications; expiry dates checked
- Sterile preparation towel
- Sterile gloves x 3 pair (if second person needed to secure line)

- Sodium Chloride 0.9% w/v 10mL * or prefilled syringe
- Catheter specific dressing as per discharging facility
- Needle free device
- Adhesive removal wipes x10
- Individually wrapped disinfectant wipes x 8.
- Catheter stabilisation device (if required)
- Skin protector if prescribed e.g. cavilon
- Non-toothed steel forceps

Procedure

Refer to Principles for Safe Practice for the Care and Management of a (PICC) section 2.3.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Open sterile preparation towel and cover the tray
6. Open equipment outlined above onto a aseptic field
7. Remove protective sleeve/clothing from PICC and check exit site

Change the needle free device first

1. Perform hand hygiene (RCPI/HSE 2015)
2. Using a disinfectant wipe clean the hub of the needle free device (scrub the hub technique)
3. Attach Sodium Chloride 0.9% w/v syringe to needle free device ensuring syringe is secure
4. Remove the needle free device and discard outside of sterile field
5. With a disinfectant wipe clean the open end of PICC (scrub the hub technique)
6. Attach needle free device rotate to the right to secure fit

Changing the dressing

1. With the adhesive removal wipes start to slowly remove dressing from distal end and peel upwards to prevent the line and stabilisation device from dislodging
2. Perform hand hygiene (RCPI/HSE 2015)
3. With a disinfectant wipe clean the area of skin covered by dressing starting at exit site and moving outward
4. With a disinfectant wipe clean remainder of line down to the needle free device

Changing the stabilisation device

1. **The second person performs hand hygiene (RCPI/HSE 2015), applies sterile gloves and with their fingers secures the line at the exit site**
2. **With an adhesive removal wipe carefully remove the stabilisation device**
3. **With a individually wrapped disinfectant wipe clean the skin and check skin integrity**
4. **Apply skin protector preparation e.g. cavilon if skin is excoriated and let to dry**
5. **Consider changing position of stabilisation device if necessary. A non-toothed steel forceps is used to support the insertion of the prongs of the stabilisation device into the PICC**
6. **When stabilisation device is in position, secure the PICC in the device**
7. **Glue may have been applied to the exit site when first inserted. Care must be taken to ensure gloves do not adhere to and dislodge line**
8. **Place the dressing without stretching it on to the PICC catheter ensuring exit site is visible and secure dressing**

2.3.3 Procedure for Administration of Medications and flushing of a Peripherally Inserted Central Catheter (PICC)

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- 10 mL syringe
- Sodium Chloride 0.9% w/v *or prefilled syringe
- Heparin Sodium 10 units per mL * or prefilled syringe
- Withdrawal needle/blunt fill needle x 2*
- Individually wrapped disinfectant wipes
- Non sterile gloves
- Medication labels
- Sharps bin

  * ***Not required if using pre-filled syringes***

Procedure

Refer to Principles of safe practice for the Care and Management of a (PICC) section 2.3.1

1. Gather all equipment, prepare equipment and environment
2. Explain procedure to child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow it to dry
5. Open sterile preparation towel and cover the tray
6. Open the equipment onto the aseptic field
7. Using a disinfectant wipe clean the needle free device (scrub the hub technique)
8. Attach Sodium Chloride 0.9% w/v syringe to needle free device ensuring syringe is secured
9. Open PICC clamp if insitu
10. Flush line with a push-pause method and positive pressure
11. Close the PICC clamp if insitu
12. If Heparin Sodium 10units per mL is prescribed attach Heparin Sodium 10units per mL syringe to needle free device ensuring syringe is secured and flush 1-2 mLs with positive pressure technique
13. Close the PICC clamp if insitu
14. Check exit site and replace protective sleeve/clothing
15. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
16. Perform hand hygiene (RCPI/HSE 2015)
17. Document procedure as per local guidelines and HSE Standards and recommended Practices for Healthcare Records Management (2011)

2.3.4 Procedure for Connecting an Infusion set to a PICC

Equipment

- Clean plastic tray
- Valid prescription and medications; expiry dates checked
- Sterile preparation towel
- Sterile gloves
- Sodium Chloride 0.9% w/v * or prefilled syringe
- Heparin Sodium 10 units per mL * or prefilled syringe
- Withdrawal needle/blunt fill needle x 2*
- Syringes 5 mL and 10 mL
- Individually wrapped disinfectant wipes
- Fluids for infusion set
- Medication labels
- Sharps bin

**** Not required if using pre-filled syringes***

Procedure

Refer to Principles of safe practice for the Care and Management of a (PICC) section 2.3.1

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Prepare the infusion set, maintaining the asepsis of the end of the line which will be connected to the catheter
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Perform hand hygiene (RCPI/HSE 2015)
6. Open sterile preparation towel and cover the tray
7. Open equipment outlined above onto the aseptic field
Note: Where sterile pre-filled syringes not available:
8. Draw up Sodium Chloride 0.9% w/v and Heparin Sodium 10 units per mL if prescribed
9. Perform hand hygiene (RCPI/HSE 2015)
10. Apply sterile gloves, open disinfectant wipe and pick up with non-aseptic hand, pick up second wipe with aseptic hand and clean the hub of the needle free device (scrub the bub technique)
11. Attach Sodium Chloride 0.9% w/v syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit
12. Attach Sodium Chloride 0.9% w/v syringe to needle free device ensuring syringe is secured
13. Open catheter clamp and confirm blood return by gently withdrawing blood into the syringe
14. Slowly flush catheter with 5-10mLs of Sodium Chloride 0.9% w/v using a push–pause method
15. Close catheter clamp
16. Remove cap from the IV infusion set and connect it to the needle free device by pushing it in firmly and rotating it to the right for a secure fit. Open clamps

17. When medication is infused close clamp, disconnect the infusion set from the PICC
18. Perform hand hygiene (RCPI/HSE 2015)
19. Apply sterile gloves
20. Using a disinfectant wipe clean the needle free device (scrub the hub technique)
21. Attach Sodium Chloride 0.9% w/v syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit
22. Open catheter clamp
23. Slowly flush catheter with the Sodium Chloride 0.9% w/v, using a push–pause method and positive pressure. Close the catheter clamp
24. If prescribed attach Heparin Sodium 10units per mL syringe to the needle free device. Open clamp. Flush prescribed volume using Positive Pressure Technique
25. Check exit site for any redness, swelling or wetness around the site post flush and replace protective sleeve (correctly sized tubigrip)
26. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
27. Perform hand hygiene (RCPI/HSE 2015)
28. Document, procedure as per local guidelines and HSE Standards and recommended Practices for Healthcare Records Management (2011)

2.3.5 Procedure to disconnect an infusion set from a PICC

Refer to Principles of safe practice for the Care and Management of a (PICC) section 2.3.1

1. Gather all equipment, prepare equipment and environment
2. Explain procedure to child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Open sterile preparation towel and cover the tray
6. Open equipment outlined above onto the aseptic field
7. Apply sterile gloves
8. Using a disinfectant wipe clean the hub of the needle free device (scrub the hub technique)
9. Attach Sodium Chloride 0.9% w/v syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit
10. Open catheter clamp
11. Slowly flush catheter with 5-10mLs of Sodium Chloride 0.9% w/v using a push–pause method and Positive Pressure Technique
12. If prescribed attach Heparin Sodium 10units per mL syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit
13. Open catheter clamp and slowly inject 1- 2mLs using a push–pause method. Close the clamp
14. Check exit site for any redness, swelling or wetness around the site post flush and replace protective sleeve (correctly sized tubigrip)
15. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
16. Perform hand hygiene (RCPI/HSE 2015)
17. Document, procedure as per local guidelines and HSE Standards and recommended Practices for Healthcare Records Management (2011)

3.0 Documentation and Liaison with Key Stakeholders

Integrated discharge planning must commence as soon as possible following the child's admission to hospital. Health care professionals, where possible, require a minimum notice of three working days in advance of the discharge of a child with a CVAD to the community (see Section 1.1 Part B and 1.2 Part B).

In order to facilitate preparation of staff, it is recommended that discharging facility MDT contact the RPHN/CRGN/RN once a CVAD has been inserted. The RPHN/CRGN/RN is then aware from an early stage that a child from his/her area is in hospital and will be coming home with a CVAD, giving the RPHN/CRGN/RN time to access any support/education required to up skill. It is also recommended the discharging facility pharmacy contact the community pharmacist and provide them with a prescription for the child and a contact list if they have any queries regarding the items on the prescription (medications and equipment if required).

All registered nurses must adhere to the following guideline documents: Guidance to Nurses and Midwives on Medication Management 2007 and Recording Clinical Practice Professional Guidance 2015 when caring for a child with a CVAD in the community.

3.1 Criteria for Discharge Planning

When discharging a child with a CVAD the following points require attention with consideration for local Policies/Procedures/Protocols and Guidelines (PPPGs):

- The CNS/designated nurse co-ordinating discharge from the discharging facility will provide education for whoever is responsible for the care of the child's CVAD including the parent / guardian. The RPHN/CRGN/RN may be required to review and reinforce the education at home. In situations where the RPHN/CRGN/RN is required to administer medication via the CVAD, the CNS/designated nurse co-ordinating discharge will provide education.

- Written parent/guardian information for the care and management of a CVAD for a child in the community will be provided. The relevant community services are contacted regarding the child's discharge by the CNS/designated nurse co-ordinating discharge.

- The pharmacy is contacted prior to discharge and the relevant medications prescribed ordered by the CNS/designated nurse co-ordinating discharge.

- The parent/guardian receives a medical prescription from the CNS/designated nurse co-ordinating discharge for medications required.

- The parent/guardian will be provided with contact details of the person/people to contact if they have any concerns after discharge or for further information or advice.
- The GP will receive details of the child's condition, medical history and requirements for care from the discharging facility.
- Referral will be made to the DPHN/RPHN/CRGN/RN by the CNS/designated nurse co-ordinating discharge prior to the child's discharge to include a discharge summary related to all aspects of the child's care. This will include a list of required equipment/appliances.
- If required, referral will be made to the Specialist Palliative Care Team.
- The DPHN/RPHN/CRGN/RN will assist with the discharge plan for care at home. A care plan developed collaboratively between the discharging facility and the PHN team will also assist in the delivery of care to the child.
- If appropriate, referral is made to the Clinical Nurse Co-Ordinator for Children with Life Limiting Conditions (CNC – CLLC).

A sample of services that may need to be contacted on child's discharge is contained in Appendix II.

PART B:

1.0 Initiation

1.1 Purpose

The purpose of this guideline is to:

- support a needle free experience for the child where possible
- provide guidance for all healthcare professionals who care for, manage and maintain a CVAD (Hickman™/ Broviac™ Catheter and Portacath™) and Peripherally Inserted Central Catheters (PICC) for children in the community in a manner that optimises effective and safe care
- encourage best evidence based practice and support the standardisation of care by healthcare professionals who are caring for and managing a CVAD(Hickman™/ Broviac™ Catheter and Portacath™) and Peripherally Inserted Central Catheters (PICC) for a child in the community
- minimise the risk of infection associated with the care and management of long term use of CVAD (Hickman™/ Broviac™ Catheter and Portacath™) and Peripherally Inserted Central Catheters (PICC) for a child in the community
- support standardised documentation practices

In line with the HSE Code of Practice for Integrated Discharge Planning (HSE 2014), the transition of care from hospital to community must be proactively and collaboratively planned to ensure appropriate services are in place (see Section 3.1 Part B) In anticipation of the child's discharge, if required, education may be accessed by healthcare professionals who will be providing care to the child.

Once an integrated discharge plan has commenced healthcare professionals, where possible, require a minimum notice of three working days in advance of the discharge of a child with a CVAD (Hickman™/ Broviac™ Catheter, Portacath™) and Peripherally Inserted Central Catheters (PICC) to the community. However, it is acknowledged that a longer period of notice may be necessary if skills training is required. It is recognised that healthcare personnel in the community are required on an infrequent basis to provide care for a child with a CVAD (Hickman™/ Broviac™ Catheter, Portacath™) and Peripherally Inserted Central Catheters (PICC) and consequently will need to prepare themselves to a level of competence that supports optimum provision of care. However, it is acknowledged that due to the rapidly deteriorating condition of some children with palliative care needs this is not always possible.

1.2 Scope

The scope of this guideline applies to all Health Service Executive (HSE) involved in the care and management of a CVAD when used for a child in the community must utilise this document as guidance to their practice.

This guideline focuses on the use and management of a CVAD when utilised for a child being cared for in the community. It does not provide guidance on the psychological care which is integral to the holistic assessment at each community visit/assessment. Appendix I contains an overview of some psychological, pharmacological and non-pharmacological pain relief and distraction techniques for the child (HSE 2010a).

Target Users:

This guideline applies to all healthcare professionals defined as any medical practitioner or registered nurse employed by the HSE or who provides care on behalf of the HSE for a child with a CVAD (Hickman™/ Broviac™ Catheter, Portacath™) and Peripherally Inserted Central Catheters (PICC) in the community.

Healthcare professionals in hospital and community settings will work within the requirements of their professional regulatory body when involved in the care and management of a CVAD when used for a child in the community.

Population to whom this guideline serves:

Children who require the care and management of a CVAD in the community.

1.2.1 Exclusion Criteria

The guideline does NOT provide for the care of a CVAD for a child in the following circumstances.

i. Care and management of a CVAD in any setting other than the community.

ii. Care and management of a CVAD in a person over than 18 years of age.

1.3 Objective

The objective of this guideline is to provide guidance for the management of a CVAD for a child in the community. Patient specific advice will be provided by the discharging facility, e.g. for patients with Home Parental Nutrition needs.

It is the policy of the Health Service Executive (HSE) that healthcare professionals involved in the care and management of a CVAD when used for a child in the community must utilise this document as guidance to their practice.

1.4 Outcome

This guideline enables the provision of safe evidence based standardised care and management of a child who has a CVAD in the community.

1.5 PPPG Development Group

See Appendix IX for Membership of the National PPPG Development Group.

See Appendix XI for PPPG Conflict of Interest Declaration Form.

1.6 PPG Advisory Group

See Appendix X for the National Consultation Trail.

1.7 Supporting Evidence

1.7.1 Relevant legislation/PPPGs

This guideline should be read in conjunction with local relevant policies / procedures / protocols / guidelines (PPPGs) that include the administration of medications, reporting of adverse incidents in the community, infection control and any other relevant documents.

Regulatory and Professional Documents

Department of Health (2016) Sláintecare Care Report. Dublin: Department of Health.

Health Service Executive (2009) Quality and Risk Taxonomy Governance Group Report on Glossary of Quality and Risk Terms and Definitions. Dublin: Health Service Executive.

Health Service Executive (2010) Medical Devices/Equipment Management Policy (Incorporating the Medical Devices and Equipment Management Standard. Dublin: Health Service Executive.

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Health Service Executive (2011) HSE Standards & Recommended Practices for Healthcare Records Management. Dublin: Health Service Executive.

Health Service Executive (2011) Risk Management in the HSE: An Information Handbook. Dublin: Health Service Executive.

Health Service Executive (2014) Integrated Care Guidance: A practical guide to discharge and transfer from hospital. Dublin: Health Service Executive.

Health Service Executive (2014) Palliative Care Competence Framework. Dublin: Health Service Executive.

Health Service Executive (2016) National Rapid Discharge Guidance For Patients Who Wish To Die At Home. Dublin: Health Service Executive.

Health Service Executive (2017) HSE Integrated Risk Management Policy: Incorporating an Overview of the Risk Management Process. Dublin: Health Service Executive.

Health Service Executive (2019) National Consent Policy. Dublin: Health Service Executive.

Health Service Executive (2019) Open Disclosure Policy Communication with Patients Following Patient Safety Incidents Reference Number NATOD-POL-001.

Nursing & Midwifery Board of Ireland (2007) Guidance to Nurses and Midwives on Medication Management Dublin: Nursing & Midwifery Board of Ireland.

Nursing & Midwifery Board of Ireland (2014) Code of Professional Conduct and Ethics for Registered Nurses and Registered Midwives. Dublin: Nursing & Midwifery Board of Ireland.

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Nursing & Midwifery Board of Ireland (2015) Scope of Nursing and Midwifery Practice Framework. Dublin: Nursing & Midwifery Board of Ireland.

Our Lady's Children's Hospital Crumlin (2007) Intravenous Guidelines for Nursing Staff. Dublin: Our Lady's Children Hospital.

Our Lady's Children's Hospital Crumlin (2013a) Supportive Care Guidelines, Paediatric, Haematology and Oncology. Version 3 Dublin: Our Lady's Children Hospital.

Our Lady's Children Hospital Crumlin (2013b) Guideline on the Care of CVAD for Clinical Staff. Dublin: Our Lady's Children Hospital.

Our Lady's Children's Hospital Crumlin (2016) Guideline for Clinical Staff on the Care of: Implantable Ports. Our Lady's Children's Hospital Crumlin, Dublin.

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Our Lady's Children's Hospital Crumlin (2018) Guideline for Setting up and Changing the McKinley34 Syringe Driver for Children Receiving Palliative Care. Our Lady's Children's Hospital Crumlin, Dublin.

Royal College of Physicians in Ireland/Health Service Executive (2014) Prevention of Intravascular Catheter-Related Infection in Ireland. Dublin: HSE Health Protection Surveillance Centre.

Royal College of Physicians in Ireland/Health Service Executive (2015) Guidelines for Hand Hygiene in Irish Healthcare Settings: Update of 2005 guidelines. Dublin: HSE Health Protection Surveillance Centre.

Legislative Documents

- Mandated Persons Children First 1st Act (2019).
- Protection of Persons Reporting Child Abuse Act (1998).
- HIQA National Standards (2013).
- Nurses & Midwives Act (2011).
- Freedom of Information Act 2014, Government of Ireland.
- Health Act 2007 to (Revised updated 2016).
- Irish Medicines Board Act (Miscellaneous Provisions) Act, 2006 (no.3 of 2006).
- Misuse of Drugs Act (1977 to 2016).
- Misuse of Drugs Regulations (1988 to 2017).
- Misuse of Drugs (Amendment) Regulations (2007 to 2014).
- Safety Health and Welfare at Work Act (2005). Government of Ireland, Stationery Office, Dublin.
- Safety Health and Welfare at Work Act (General Application) Regulations (2007) Dublin: Government of Ireland, Stationery Office, Dublin.
- Pharmacy Act (2007).
- Medicinal Products (Control of Advertising) Regulations 2007.
- Medicinal Products (Control of Placing on the Market) Regulations 2007 as amended to 2019.
- Medicinal Products (Licensing and Sale) (Amendment) Regulations 2001 (S.I. No. 512/2001).
- Medicinal Products (Prescription and Control of Supply) (Amendment) (No.2) Regulations 2003 to 2018 (S.I. No. 504/2014).

1.7.2 List PPPGs that are being replaced by this PPPG

This guideline replaces the Guideline for the Care and Management of a Central Venous Access Device for a Child in the Community, Version 3, 2017.

2.0 Development of PPPG

2.1 Literature Review

The National Guideline Development Group undertook an extensive literature review. This literature review sets out objectives and methodology. It includes definitions and outlines examples for current best practice in a national and international context. The objective of the literature review was to establish current evidence and best practice, and seek new and emerging evidence, in relation to the care and management of a Central Venous Access Device for a Child in the Community both nationally and internationally. The literature review was supported and assisted by Mr Brendan Leen, Regional Librarian HSE South.

2.2 Literature search strategy

A literature search was undertaken by the Guideline Development Group in 2019. The search words used were “care and management of a central venous device for a child,” “central venous access devices,” “skin tunnelled catheters,” “tunnelled implanted ports (Portacath™)” and “peripherally inserted central catheters (PICC)”. The search words used were used interchangeably within the search strategy. This search was from 2016 to 2019, European and International. Resources searched were CINAHL and MEDLINE.

2.3 Method of Appraising Evidence

As there was a dearth of research based literature the literature was reviewed and categorised by definition and by country of origin. The results were deemed applicable to the population within the Guideline for the Care and Management of a Central Venous Access Device for a Child in the Community.
AGREE II appraisal tool was utilised to appraise the evidence:
http://www.agreetrust.org/wp-content/uploads/2013/10/AGREE-II-Users-Manual-and-23-item-Instrument_2009_UPDATE_2013.pdf

2.4 Recommendations

Recommendations are outlined in Part A.

https://www.hse.ie/eng/about/who/qid/use-of-improvement-methods/nationalframeworkdevelopingpolicies/national-framework-for-developing-policies-procedures-protocols-and-guidelines-pppg-.htmL

3.0 Governance and Approval

3.1 Formal Governance Arrangements

The Development Group worked to an agreed scope and terms of reference. Roles and responsibilities of the Development Group members and the process of meeting were agreed. The project plan and work of the National Development Group was directed by the Chairperson. The final draft of the Guideline for the Care and Management of a Central Venous Access Device for a Child in the Community was sent for national consultation. Refer to Appendix IX for Membership of the Development Group and Appendix X for the National Consultation Trail. Conflict of Interest Declaration forms were signed by members of the group.

3.2 Guideline Development Standards

The guideline was developed within the template of the HSE National Framework for Developing PPPGs (2016) and the checklist was used to adhere to compliance with the standards as set out in the framework.

4.0 Communication and Dissemination

This guideline applies to HSE healthcare professionals and healthcare professionals providing care on behalf of the HSE for a child with a Central Venous Access Device (CVAD) in the community. The guideline will be disseminated by the Office of the Nursing and Midwifery Director to Directors of Public Health Nursing, Directors of Nursing of Children's Hospitals and Directors of Nursing in acute hospitals with a Children's Unit and Directors of Nursing Specialist Palliative Care Services. It is the responsibility of Directors of Public Health Nursing to ensure that this guideline has been disseminated to all RPHN/ CRGN/RNs. The guideline is also available to download from: https://healthservice.hse.ie/about-us/onmsd/

It is the responsibility of each healthcare professional required to care for a child with a Central Venous Access Device to read this guideline in advance of providing care.

5.0 Implementation

5.1 Implementation Guidance

This guideline should be adopted from the date of publication. This guideline does not replace the clinical judgement of a qualified healthcare professional. Where there are concerns regarding a child, the health care professional should refer to the GP and the discharging facility.

An education programme including an eLearning component will support the implementation of this guideline: https://www.olchc.ie/Education-Training/Centre-of-Children-s-Nurse-Education/

Access HSELanD for learning resources: http://www.hseland.ie/

- *'Hand Hygiene for HSE Clinical Staff' education programme on www.hseland.ie*
- *'ANTT® Aseptic Non Touch Technique' education programme on www.hseland.ie*

5.2 Specific Roles and Responsibilities

It is the responsibility of each healthcare professional using or managing a CVAD for a child cared for in the community to have read and to comply with this guideline. An integrated discharge planning process is essential to enable healthcare professionals in the community to provide optimum care (see Section 3.1 Part A). This section therefore also includes relevant aspects of the roles and responsibilities of healthcare professionals in the discharging facility and is structured sequentially, in order of transition of care from hospital to the community.

Children's Palliative Care Clinical Nurse Specialist (Children's Health Ireland) (CHI) As a member of a hospital based palliative care team, the Clinical Nurse Specialist (CNS) is responsible for co-ordinating care between the hospital and the community, for children with specialist palliative care needs. As a hospital based team this is done in collaboration with the child's primary healthcare team. The Children's Palliative Care CNS has a responsibility to educate, in collaboration with existing education facilities and to support the primary healthcare team assisting in symptom management.

Consultant Paediatrician is responsible for the decision to discharge the child. This needs to be a well-planned integrated discharge to allow adequate time for healthcare professionals in the community to gain the required knowledge, skills and competencies to provide optimum care. The Consultant Paediatrician will communicate, as required with members of the Multidisciplinary Team (MDT) within the hospital, the child's GP, Paediatric Consultant in local hospital and Consultant in Palliative Medicine if relevant.

CNS / Designated nurse co-ordinating discharge is responsible for contacting the Director of Public Health Nursing (DPHN) or Registered Public Health Nurse (RPHN) as appropriate. She/he will provide a discharge summary relating to all aspects of the child's care. The CNS/designated nurse coordinating discharge if required will meet with healthcare professional(s) who will provide care for the child with a CVAD in the community and will supply a list of any required equipment to the RPHN/Community RGN. The CNS/designated nurse co-ordinating discharge may be required to collaboratively provide education either at hospital or community level. This will be decided on a case by case basis.

Children's Haematology/Oncology Clinical Nurse Specialist (CNS) – is responsible for co-ordination of care between the hospital and community for children with a haematology/oncology condition in collaboration with local healthcare professionals, at hospital and community level. The CNS has a responsibility to educate, in collaboration with existing education facilities and to provide support to the primary healthcare team, assisting in symptom management.

General Practitioner (GP) The child's GP receives notification regarding discharge which contains details regarding the child's condition, medical history and requirements for care from the hospital.

The GP is responsible for prescribing medication for the child in the community as required and in consultation, where necessary, with the child's Paediatrician and/or hospital team.

Director of Public Health Nursing (DPHN) DPHN is responsible for the governance management and leadership of the public health nursing service and is therefore responsible for implementation of this guideline within the community nursing service. She/he must ensure that nursing staff within their remit have access to this guideline and support staff education to support the implementation of the guideline.

Registered Public Health Nurse (RPHN) is responsible, given notification of planned discharge to have any required equipment/appliances in place as indicated by the discharging facility. She/he will provide direct care and management of the CVAD as required when the child has been referred to his/her caseload and will work within their scope of practice.

Community Registered General Nurse (CRGN) and Registered Nurses (RN) are responsible, given notification of planned discharge to have any required equipment/appliances in place as indicated by the discharging facility. They will provide direct care and management of the CVAD as required when a child has been referred to their caseload and will work within their scope of practice.

The Community Specialist Palliative Care Team is responsible for the provision of specialist palliative care for adults/children who have been referred and accepted for care by the Specialist Palliative Care Service. The Specialist Palliative Care Team is an interdisciplinary team made up of a Consultant in Palliative Medicine, Clinical Nurse Specialists, and may also include Health and Social Care Professionals. Following the referral and acceptance for care of a child with specialist palliative care needs the team works in collaboration with the GP, PHN team and other members of the primary care team and the paediatric units involved in the child's care.

Clinical Nurse Co-Ordinator for Children with Life Limiting Conditions (CNC-CLLC) is responsible for the co-ordination of care between the hospital and the community for children with life limiting conditions (see Section 3.1, Part A). In collaboration with local healthcare professionals this includes the provision of care for children with specific palliative care needs at hospital and community level. The CNC-CLLC acts as a paediatric resource and has a supportive role in education in collaboration with existing education facilities.

6.0 Monitoring, Audit and Evaluation

According to the Nursing and Midwifery Board of Ireland's (NMBI) Code of Professional Conduct and Ethics "Patients have a right to receive quality care by competent nurses and midwives who practise in a safe environment" (NMBI, 2014, p.20). Nurses who care and manage a central venous access device for a child in the community must have the required competence, skill and knowledge to do so competently and safely. The Scope of Nursing and Midwifery Practice Framework states that the expansion of practice, "must only be made with due consideration to legislation, international, national or local evidence-based clinical practice guidelines and available resources" (NMBI, 2015,

p.30). The nurse “should collaborate, consult and communicate with other health care professionals, health providers and other individuals and agencies regarding the appropriate nursing assessment, diagnosis, planning and intervention, and evaluation of patient care” (NMBI, 2015, p.31) Each service area/organisation which implements the Guideline must ensure robust governance and accountability processes for monitoring and evaluation are established.

6.1 Audit and Monitor

As per Section 4.0, Part B of this guideline, the Director of Nursing / Public Health Nursing Services is responsible for the implementation of the ‘Guideline for the Care and Management of a CVAD for a Child in the Community’ by registered public health nurses and registered nurses in which the governance structures and procedures to enable, support audit and monitor safe practice within their area of remit are identified.

Aim:

The aim of the audit is to:

- Measure nurses’ compliance with agreed practice standards for ‘Guideline for the Care and Management of a CVAD for a Child in the Community’
- Measure and evaluate activity of nurses in the Care and Management of a CVAD for a Child in the Community

6.2 Evaluation

Each service area/organisation which implements this guideline must ensure robust governance and accountability processes for implementation. Feedback will be sought from the DPHN group for evaluation.

7.0 Revision Update

7.1. Procedure for the update of The Care and Management of a CVAD for a Child in the Community Guideline

The National Guideline for the Care and Management of a CVAD for a child in the Community will be due for revision three years from publication. The procedure for update will be aligned to the HSE PPPG Policy (2016).

7.2. Method for amending The Care and Management of a CVAD for a Child in the Community if new evidence emerges

In the event of new evidence emerging which relates directly to the Guideline the development group will be convened to revise and amend the Guideline if warranted.

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9.0 APPENDICES

Appendix I: Psychological, pharmacological and non-pharmacological methods of pain relief for procedural pain in children

- Please refer to local guidelines and policies on pain scales and distraction techniques, pharmacological and non-pharmacological methods of pain relief.
- Pain scales used when appropriate should be developmentally, physically, emotionally and cognitively suitable for the child.

Stage - Age	Understanding of pain and responses to pain and Fears and concerns	Measuring pain Suggest pain scales: (used where appropriate)	Family Involvement	Distraction techniques and pharmacological methods of pain relief
Infants 0 – 1 Year	• Exhibit facial expressions of pain – brows lowered and drawn together, eyes tightly closed mouth opened and squarish. • Cry intensely, loudly, inconsolable. • Poor oral intake • Changes in sleep/awake cycles, activity level. Exhibit hypersensitivity or irritability. • Becomes withdrawn • Unresponsive **Fears and concerns:** • Totally dependent on parents and other adults for basic needs. ~Trusts that adults will respond basic needs.	• FLACC (Face, legs, arms, cry and consolability scale). • Behavioural assessment scale that uses body movements and sounds to assess the pain of infant and toddlers (Hockenberry and Wong 2013).	• Explain procedure to parents/guardian and reason for same. • Encourage parental tactile contact and encourage parent/guardian to hold and comfort but not to restrain the child (RCN 2019). • Explain to the child that the ethyl chloride spray can feel cold. • Also explain that Ametop or EmLa can be called 'magic cream or gel' as it 'disappears' when used.	• Sucrose and Glucose as prescribed. • Application of topical Anaesthetic (e.g. Tetracainee 4% Gel Ametop as EmLa is not recommended for children under 1 year) (Please refer to manufacturer's guidelines and local organisational guidelines). Infants should be supervised when applied in case of ingestion. • Use of ethyl chloride spray (if appropriate).(Dougherty and Lister 2015).(*Please refer to local guidelines, policies and manufactures' instructions*). • Oral pacifiers (soothers) or if mum is breastfeeding encourage same. • May cry from discomfort on being held rather than being in pain.

Stage - Age	Understanding of pain and responses to pain and Fears and concerns	Measuring pain Suggest pain scales: (used where appropriate	Family Involvement	Distraction techniques and pharmacological methods of pain relief
Toddler 1-3 Years	• Changed behaviours: Irritability, crying, screaming, unusual posture, unusual quietness. • Increased clinging, loss of appetite. • Restlessness, disturbed sleep pattern. **Fears and concerns:** • Little fear of danger. • Fear of separation from parents/guardians. • Limited language and understanding of procedure. • Threat of immediate pain is overwhelming.	• FLACC Pain scale: Same as above.	• Same as infant. • Ascertain from parent/guardian common word for pain (hurt) and ways of alleviating pain. • Parent/guardians should be encouraged to hold and comfort the child prior, during and after procedure. • Encourage parents/guardians to decorate cot of child with pictures and toys. • Parents/guardians may read a storybook to child with clinical procedure explained in a child friendly manner (Willcock et al. 2004), (Saul 2017).	• Application of topical anaesthetic agents or 'magic cream' (e.g. Tetracaine 4% Gel (Ametop Gel) and Lidocaine and Prilocaine 5% (EmLa Cream). Refer to manufacturer's instructions and local organisational guidelines. • Toddlers should be supervised when applied in case of ingestion. (Franuirk et al 2000). • Be honest with child and let them know that they will feel a pinch and let them know when they will feel it. • Listen to music recordings of family voices or child's favourite story/song. • Distract child with favourite toy or game. • Oral Pacifiers (soothers) or if mum is breastfeeding encourage same. • Reassure the child that you are only taking a small amount of blood and that they will have sufficient blood left. • Ascertain the advice/support of play therapist and psychologist if indicated. • Distraction techniques 10 minutes prior to the procedure to minimise **fear**. • Active distraction playing games or problem solving may be more effective in redirecting attention from the pain

				than passive distraction such as watching TV in children 1-7 years (Saul 2017). • A simple distraction such as asking the child to stick out their tongue refocuses their negative attention to something more positive (Prakash et al 2015).

Stage -Age	Understanding of pain and responses to pain and Fears and concerns	Measuring pain Suggest pain scales: (used where appropriate)	Family Involvement	Distraction techniques and pharmacological methods of pain relief
Preschool age children 4 – 6 Years	• Able to sue more descriptive adjectives and attachments of associated emotions (e.g. sad, painful, mad). **Fears and concerns:** • Greater body awareness. • Fear injury to body. • Difficult to realise that the pain from the needle will be over quickly. Reassure child that crying is ok.	• Wong-Baker Face Rating Scale. • Suggested age group 4 years and over and older children with different languages. (Hockenberry and Wong 2013).	• Advised to have parent/guardian present to assist with comforting the child and gaining child's co-operation (if the parents/guardians and/or child does not speak English, arrangements must be made according to organisational policy to organise an interpreter). • Reassure the child that they have done nothing wrong and are not being punished. • Parent/guardian may read a book to child with the clinical procedure explained in a child friendly manner.	• Same as with toddler. • Ascertain what the child likes to play with as this could be used as a distraction technique. • Child will have developed magical thinking which can be used for fantasy scenes in guided imagery. • Allow child to be involved in the decision making process for procedure.

Stage -Age	Understanding of pain and responses to pain and Fears and concerns	Measuring pain Suggest pain scales: (used where appropriate	Family Involvement	Distraction techniques and pharmacological methods of pain relief
School age children 6 – 12 Years	• Clearer differentiation of pain intensity. • Beginning to use cognitive coping strategies. Wants explanation of why pain hurts. **Fears and concerns:** • Fear loss of self-control. • More willing to participate and less dependent on parent/guardian. • Concerns of pain or procedure limiting current activities rather than future abilities.	• Numerical scale rating • Child rates pain intensity from 1 – 10. • Wong-Baker Face Rating Scale Can be used for child with different languages. (Hockenberry and Wong 2013 and Trigg and Mohammed 2010) • FLACC. • Pain scales have been proven to be beneficial in this age group (Nilsson et al, 2008).	• Child may not want parent/guardian present. • Parents/guardians and practitioner can use diagrams, models to explain procedure. • Encourage parents/guardians to bring in child's favourite music and books.	• Important to allow child to be involved in the decision making process. • Child will want more explanations of need for procedure. • Child will have developed magical thinking which can be used for fantasy scenes in guided imagery. • Child can be distracted by reading books, listening to music or T.V. (Dougherty and Lister 2015). • Active distraction playing games or problem solving may be more effective in redirecting attention from the pain than passive distraction such as watching TV in children 1-7 years (Saul 2017). • A simple distraction such as asking the child to stick out their tongue refocuses their negative attention to something more positive (Prakash et al 2015).

Stage-Age	Understanding of pain and responses to pain and Fears and concerns	Measuring pain Suggest pain scales: used where appropriate	Family Involvement	Distraction techniques and pharmacological methods of pain relief
Adolescences 13 Years +	• Pain acknowledged as a 'feeling.' • May be hyper responsive to pain, minor procedures magnified. **Fears and concerns:** • Want to be consulted with decisions regarding procedure. • Sense of identity. • Maybe embarrassed to show fear. May act hostile to hide fear. • Separation from peers (Duff 2008 and Melhuish and Payne 2006).	• As above.	• Child may not want parent present. • Child may be resistant to parental and authority figures. • Explanation should be given in adult terms.	• Consulted in the decision making process. • Give as much time as possible for advanced warning of procedure. • Reality conversation • Guided imagery • Listening to music, reading books. • Explanation of equipment and function, allow time for questions.
Children with Special Needs/ Intellectually challenged	**Indications of pain:** • Increased flexion or extension. • Crying or alteration in type of sounds made quieter/withdrawn. • Hypersensitivity. • Breath holding. • Colour changes. • Changes of facial expression. • Protective posture. **Fears and concerns:** • Similar in age appropriate behaviours that are based on their developmental level (Duff 2008).	• FLACC Behavioural assessment scale that uses body movements and sounds to assess older children that are cognitively and verbally impaired.	• Parent/Family member or carer should stay with the child and assist if necessary. Ascertain from parent /family member or carer how the child normally reacts to pain or discomfort and the comforting measures that they use. • Explain procedure to parent/family member or carer and reason for same. (Hockenberry and Wong 2003 and Trigg and Mohammed 2006).	• Similar to age appropriate behaviours that are based on their developmental level.

Adapted from Psychological, pharmacological and non-pharmacological methods of pain relief for IV Cannulation and Venepuncture in children (HSE 2010a).

Appendix II: Sample of services that may need to be contacted prior to child's discharge

This is not an exhaustive list and is individualised for each child

1. **GP**
2. **DPHN/RPHN/CRGN/RN**
3. **The Community Specialist Palliative Care Team**
4. **Clinical Nurse Coordinator for children with life limiting conditions**
5. **Local Hospital**
6. **Community Pharmacist**

Appendix III: Troubleshooting for a Hickman™/ Broviac™ catheter for a Child in the Community

Exit Site infections

1. If the exit site appears red, inflamed or a discharge is evident, a swab for culture and sensitivity from the site should be taken. If the exit site has a discharge a sterile self-adhesive absorbent type dressing should be used, to allow the exudate to be absorbed. The dressing should be changed daily (Supportive Care Guidelines Paediatric Haematology and Oncology (Version 3, OLCHC 2013).

2. Ensure that the catheter is firmly secured to prevent accidental dislodgement whilst the exit site is infected.

3. Depending on the sensitivity of the exit site infection appropriate topical and/or antibiotic treatment is applied.

4. If the infection spreads to include the skin tunnel and tracks upwards refer to the discharging facility supervising the child's treatment for specific guidelines.

Intra Lumen Infection

Catheter line infection is suspected if a child experiences rigors during or after flushing of the catheter. This warrants immediate medical attention. Please refer to the hospital supervising the child's treatment as it is necessary to obtain blood cultures from each lumen to determine the cause of infection and treat with appropriate antibiotics.

Occlusion

Obstruction secondary to thrombus formation is one of the complications associated with CVAD (Trigg and Mohammed 2010, Dougherty and Lister 2015). If the line is blocked it will not flush or yield blood on aspiration. Do not attempt to force totally occluded catheters as it may cause rupture of the catheter or dislodge a catheter embolus. Always check the following - cuff position, the line is not kinked and clamp is open. Consider asking the child to change position and cough, as this may improve blood flow. Contact the discharging facility regarding advice/treatment of occlusion.

Catheter Dislodgement

Catheters may accidentally become dislodged and the dacron cuff of the catheter may become visible. Secure the catheter with tape to the chest. Contact the discharging facility for further advice. Do not use the line until it is medically confirmed as safe to use once again (Supportive Care

Guidelines Paediatric Haematology and Oncology, OLCHC (Version 3, OLCHC 2013).

If the catheter falls out, apply an occlusive dressing should be applied to ensure air does not enter the vein and apply direct pressure over the entrance site (neck site) and the exit site to stop any bleeding. A chest x-ray should be performed to ensure that there is no residual tubing in situ. Contact the discharging facility for further advice (Supportive Care Guidelines Paediatric Haematology and Oncology, OLCHC (Version 3, OLCHC 2013).

Extravasation

CVADs have decreased the incidence of extravasation. Whilst the incidence of extravasation is lower, the severity of the injuries is far greater as detection tends to occur later and is therefore more serious requiring immediate management. Extravasation can occur as a result of a leaking or damaged catheter or fibrin sheath formation. It may present clinically as leakage of fluid around the catheter exit site, dull aching pain in the shoulder area, tingling, burning or a warm sensation of the chest wall or fever of unknown origin.

Catheter Damage

Catheter damage may occur in the form of a weakness/split of the catheter wall resulting in leakage from the catheter. If this happens:

1. Clamp the catheter between the child and above the damaged area with a smooth-edged, atraumatic clamp, to prevent air entering the catheter via the damaged area and to prevent any blood loss.

2. Seal damaged area with a sterile occlusive dressing to prevent infection and air entry.

3. Contact the discharging facility to arrange catheter repair (Supportive Care Guidelines Paediatric Haematology and Oncology (Version 3, OLCHC 2013).

Appendix IV: Troubleshooting for a Portacath™

Portacath™ Infection

Documented rise in temperature in a clinically well child following flushing of the Portacath™. It is associated with a chill/rigor, fatigue or decreased activity. It is necessary to contact the discharging facility immediately as this may warrant admission.

Port Occlusion

Obstruction secondary to thrombus formation is one of the complications associated with implantable Portacath™. Do not force flushing solution into the Portacath™ as it may dislodge a catheter embolus or result in the device bursting. Contact the discharging facility, as **Urokinase** or **Alteplase** may need to be prescribed to unblock the line occlusion.

Port Erosion

If skin breaks down over the port reservoir cover with a sterile dressing and contact the discharging facility supervising the child's care. Once port erosion occurs the device usually requires removal.

Splitting of the Portacath™

If there is a suspected break on the internal part of the catheter the child may experience pain or swelling along the catheter track, while flushing the Portacath™. Stop using the Portacath™ immediately and seek advice from the discharging facility. The child may need a lineogram to confirm the breakage.

Portacath™ Not Yielding Blood

If there is no blood return from the Portacath™, check that the non-coring needle is reaching the bottom of the reservoir. Check the catheter is unclamped and there are no obvious kinks. Following these measures, if the Portacath™ is still not yielding blood, insert a new non-coring needle and contact the discharging facility.

Port Pocket Infection

Swelling, tenderness and redness at the port site or along the catheter tract suggests port pocket infection. Do not access device and contact the discharging facility immediately.

Appendix V: Troubleshooting for a Peripherally Inserted Central Catheter (PICC)

Peripherally Inserted Central Catheter Exit Site Infections

If the exit site appears red, inflamed, tenderness or discharge is evident, a swab should be taken. If the exit site has a discharge, a sterile self-adhesive absorbent type dressing should be used, to allow the exudate to be absorbed. Contact the GP and the discharging facility. Ensure that the catheter is firmly secured but available to visualise if required. If the infection spreads to include the skin tunnel and tracks upwards refer to the GP and discharging facility.

Peripherally Inserted Central Catheter Line Infection

A PICC line infection is suspected if a child experiences rigors during or after flushing of the catheter. This warrants immediate medical attention. Contact the GP or discharging facility.

Bleeding from the Site

Line displacement trauma or injury is likely to be the cause of bleeding from the site. Place a sterile gauze pad over the site and hold in place until bleeding stops. It is acceptable to have a small amount of blood on the dressing post line insertion but this should not persist after 24 hours. If bleeding persists then contact should be made with the GP and discharging facility.

Fluid Leaking from the Peripherally Inserted Central Catheter Line

Fluid leaking from the line is generally as a result of line breakage or displacement. If a breakage is noted clamp the line above the breakage and contact your local paediatric team or discharging facility.

Securement Device becomes Loose

In the event that the dressings become loose do not try to further loosen them to remove them. Place a line of tape and another sterile dressing over the securement device and refer to the GP and discharging facility.

Peripherally Inserted Central Catheter (PICC) Line dislodgement

If the PICC lines comes out place a sterile gauze pad over the site and press firmly until bleeding stops. When bleeding stops place a sterile gauze dressing over the site and secure in place and contact the GP and discharging facility.

Appendix VI: Example of a Hickman/Broviac Catheter Blood Discard Volume Chart

(Refer to the discharging facility for specific instructions)

Age	**Volume**
< 1 year	1.5Ml
1-3 years	2.5 mL
>3 years	5 Ml

Reference: Our Lady's Children's Hospital Crumlin (2013) Supportive Care Guidelines, Paediatric, Haematology and Oncology. Version 3.

Appendix VII: Procedure for Blood Sampling

Appendix VII (a): Procedure for Taking Blood Sample from a Hickman™/ Broviac™ Catheter

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Gloves (non-sterile)
- Individual wrapped disinfectant wipes x 3
- 10mL syringe x 4* (syringes x 2 required if using pre-filled syringes)
- Blood specimen bottles and blood requisition forms
- Non – injectable bung x 4* (x 2 if using pre-filled syringes)
- Withdrawal needle/blunt fill needle x 2*
- Sodium Chloride 0.9% w/v * or pre-filled syringe
- Heparin Sodium 10 units per mL * or pre- filled syringe
- Sharps bin

**** Not required if using pre-filled syringes***

Procedure

1. **Gather all equipment, prepare equipment and environment**
2. **Explain the procedure to the child and parent/guardian**
3. **Perform hand hygiene (RCPI/HSE 2015)**
4. **Wipe the clean plastic tray with a disinfectant wipe and allow to dry**
5. **Open the preparation towel and cover the tray. With a filter needle/straw/blunt fill needle and 10mL syringe draw up Sodium Chloride 0.9% w/v. Remove the withdrawal needle/blunt fill needle, prime the syringe and attach a non-injectable bung to the syringe tip. Place the syringe on the tray**
6. **Draw up Heparin Sodium 10 units per mL in to a separate 10mL syringe using a filter needle/blunt fill needle. Remove the withdrawal needle/blunt fill needle, prime the syringe and attach a non-injectable bung to the syringe tip. Place the syringe on the tray**
7. **Open the other two 10mL syringes and attach non-injectable bungs to maintain the asepsis of the syringe tips and place them on the tray**
8. **Open the disinfectant wipes**
9. **Perform hand hygiene (RCPI/HSE 2015) again before putting on gloves**
10. **Clean the centre of the needle free device with a disinfectant wipe (scrub the hub). Discard both the disinfectant wipe and the needle free device outside of the tray. Pick up another disinfectant wipe (aseptic hand) and clean the open end of the Hickman™/ Broviac™ Catheter (scrub the hub technique). Discard the disinfectant wipe outside of the tray**
11. **Remove the non-injectable bung from a 10mL syringe; attach the syringe by pushing firmly into the centre of the needle free device rotating to the right for a secure fit. Open the clamp and slowly withdraw appropriate discard volume of blood (as advised by discharging facility). Close clamp, remove the syringe by rotating it to the left and discard the syringe with the blood in it**
12. **If there is any difficulty in withdrawing blood from the catheter, change the position of the child. Asking the child to cough may improve the flow or administer 2-3 mL of Sodium Chloride 0.9% w/v and try again**
13. **Remove the non-injectable bung and attach second 10mL syringe, open the clamp and withdraw the required amount of blood. Close clamp, remove syringe by rotating to the left, and place it on the tray**

14. **Attach the syringe with Sodium Chloride 0.9% w/v solution, open the clamp and slowly inject same using push – pause method. Close the clamp, remove the syringe by rotating to the left and discard the syringe**
15. **Attach the syringe with Heparin Sodium 10 units per mL; inject slowly using push-pause method. Close the clamp as last 0.5mL being injected and remove the syringe as above and discard. Discard the disinfectant wipe from underneath the needle free device**
16. **Clean the centre of the needle free device with a disinfectant wipe (scrub the hub technique). Pick up another disinfectant wipe (sterile hand) and clean the open end of the Hickman™/ Broviac™ Catheter (scrub the hub technique). Discard the disinfectant wipe outside of the tray. Ensure the Hickman™/ Broviac™ catheter is secured**
17. **Place blood sample in appropriate bottle and label correctly at the child's bed side (fill U+E bottle before FBC bottle to prevent EDTA contamination of U+E sample)**
18. **Ensure bloods are transported to the laboratory with the appropriate forms**
19. **Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy**
20. **20. Perform hand hygiene (RCPI/HSE 2015)**
21. **Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)**

Appendix VII (b): Procedure for Taking Blood Sample from Portacath™ (with non-coring needle in situ)

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel x 1
- Heparin Sodium 10 units per mL * or pre-filled syringe
- 10 mL syringe x 4* (two syringes required if using pre-filled syringes)
- Sodium Chloride 0.9% w/v * or pre-filled syringe
- Withdrawal needle/blunt fill needle x 1
- Blunt-fill needle (21g) x 1*
- Non injectable bung x 4 (x 2 if using pre-filled syringes)
- Individually wrapped disinfectant wipes x 2
- Blood specimen bottles and blood requisition forms
- Sharps bin
- Gloves (non-sterile)* not required if using pre-filled syringes

**** Not required if using pre-filled syringes***

Procedure

1. Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Open the sterile preparation towel and cover the tray. Open syringes, withdrawal needle/blunt fill needles, needle free devices on to the aseptic field
6. Open the disinfectant wipes onto the sterile preparation towel
7. Open the bottle of Heparin Sodium 10 units per mL and Sodium Chloride 0.9% w/v and place them beside the tray (outside the aseptic field)
8. Perform hand hygiene (RCPI/HSE 2015
9. Attach withdrawal needle/blunt fill needle to the syringe and draw up Heparin Sodium 10 units per mL as recommended by the discharging facility. Remove the withdrawal needle/blunt fill needle and discard into sharps bin outside the tray. Place the syringe on the tray (Dougherty and Lister 2015)
10. Attach blunt-fill needle to the second and third syringe and draw up Sodium Chloride 0.9% w/v, volume as recommended by the discharging facility. Remove the needle and discard outside the tray
11. Open the remaining two 10mL syringes and attach non-injectable bungs to maintain the asepsis of the syringe tips and place them on the tray.
12. Perform hand hygiene (RCPI/HSE 2015)
13. Carefully clean centre of the needle free device with a disinfectant wipe. Discard both the disinfectant wipe and the needle free device outside of the tray. Pick up another disinfectant wipe (sterile hand) and clean the end of the Portacath™ (scrub the hub technique). Discard the disinfectant wipe outside of the tray
14. Remove the non-injectable bung from a 10mL syringe; attach it by pushing firmly into the centre of the needle free device rotating to the right for a secure fit. Open the clamp and slowly withdraw appropriate discard volume of blood. Close clamp, remove the syringe by rotating it to the left and discard the syringe with blood in it
15. Remove the non-injectable bung and attach second 10mL syringe, open the clamp and

withdraw the required amount of blood. Close clamp, remove syringe by rotating to the left, and place it on the tray
16. Attach the syringe with Sodium Chloride 0.9% w/v, open the clamp and slowly inject 3mL using push–pause method. Close the clamp; remove the syringe by rotating to the left and discard
17. Attach the syringe with 2.5mL of Heparin Sodium 10 units per mL; inject slowly using push-pause method. Close the clamp as the last 0.5mL is being injected and remove the syringe as above and discard. Discard the disinfectant wipes from underneath the needle free device
18. Clean the centre of the needle free device with sterile disinfectant. Discard both the disinfectant wipe and the needle free device outside of the tray. Pick up another disinfectant wipe (aseptic hand) and clean the open end of the Portacath™ Catheter (scrub the hub technique). Discard the disinfectant wipe outside of the tray. Ensure the catheter is secured.
19. Place blood sample in appropriate bottles and label correctly with the child's details
20. Ensure blood sample are transported to the laboratory with the appropriate blood forms
21. Ensure that the child is comfortable and that the line is secured
22. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
23. Perform hand hygiene (RCPI/HSE 2015)
24. Document procedure as per local guidelines and Health Service Executive Standards and Recommended Practices for Healthcare. Records Management (HSE 2011)

Note: The non-coring needle may remain in place for up to two weeks unless the child is neutropenic, in which case it is changed after one week. Use a transparent waterproof dressing to secure the needle and avoid dislodgement

Appendix VII (c): Procedure for Taking Blood Sample from a PICC

Equipment

- Valid prescription and medications; expiry dates checked
- Clean plastic tray
- Sterile preparation towel
- Gloves (non-sterile)
- Individually wrapped disinfectant wipes x 3
- 10mL syringe x 4* (syringes x 2 required if using pre-filled syringes)
- Blood specimen bottles and blood requisition forms
- Non – injectable bung x 4* (x 2 required if using pre-filled syringes)
- Withdrawal needle/blunt fill needle x 2* (not required if using pre-filled syringes)
- Sodium Chloride 0.9% w/v * or pre-filled syringe
- Sharps bin

Not required if using prefilled syringe

Procedure

Note: if possible blood samples should not be routinely taken form the PICC line. If possible a peripheral sample should be taken. This reduces the amount of manipulation to the line and therefore reduces the risk of infection and occlusion (INS 2016). If possible, coordinate blood sampling with medication administration and/or line changes.

1. 1.Gather all equipment, prepare equipment and environment
2. Explain the procedure to the child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015)
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Open the preparation towel and cover the tray. With a filter needle/straw/blunt fill needle and 10mL syringe draw up Sodium Chloride 0.9% w/v. Remove the withdrawal needle/blunt fill needle, prime the syringe and attach a non-injectable bung to the syringe tip. Place the syringe on the tray
6. Draw up Heparin Sodium 10 units per mL solution into a separate 10mL syringe using a filter needle/blunt fill needle. Remove the withdrawal needle/blunt fill needle, prime the syringe and attach a non-injectable bung to the syringe tip. Place the syringe on the tray
7. Open the other two 10mL syringes and attach non-injectable bungs to maintain the asepsis of the syringe tips and place them on the tray
8. Open the disinfectant wipes and place them on the tray
9. Perform hand hygiene (RCPI/HSE 2015)
10. If I.V. infusion is in progress through another lumen stop, flush and clamp the infusion for 10 minutes
11. Clean the centre of the needle free device with sterile disinfectant. Discard both the disinfectant wipe and the needle free device outside of the tray. Pick up another disinfectant wipe (using aseptic hand) and clean the open end of the PICC (scrub the hub technique). Discard the disinfectant wipe outside of the tray
12. Remove the non-injectable bung from a 10mL syringe; attach the syringe by pushing firmly into the centre of the needle free device rotating to the right for a secure fit. Open the clamp and slowly withdraw appropriate discard volume of blood (as advised by discharging facility not; do not discard if taking blood cultures). Close clamp, remove the syringe by rotating it to the left and discard the syringe with the blood in it

13. Remove the non-injectable bung and attach 2nd 10mL syringe, open the clamp and withdraw the required amount of blood. Close clamp, remove syringe by rotating to the left, and place it on a clean plastic tray
14. Attach the syringe with Sodium Chloride 0.9% w/v solution, open the clamp and slowly inject same using push – pause method. Close the clamp, remove the syringe by rotating to the left and discard the syringe
15. If required administer flushing medication as per instructions from discharging facility
16. Clean the centre of the needle free device with a disinfectant wipe (scrub the hub technique). Pick up another disinfectant wipe (using aseptic hand) and clean the open end of the PICC (scrub the hub technique). Discard the disinfectant wipe outside of the tray. Ensure the PICC is secured
17. Place blood sample in appropriate bottle and label correctly at the child's bed side (fill U+E bottle before FBC bottle to prevent EDTA contamination of U+E sample)
18. Ensure bloods are transported to the laboratory with the appropriate forms
19. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
20. 20. Perform hand hygiene (RCPI/HSE 2015)
21. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

Appendix VII (d): Procedure for Taking Blood Sample from a PICC (Sampling for Blood culture)

Equipment

- Clean plastic tray
- Sterile preparation towel
- Blood culture bottles anaerobic (orange top) aerobic (blue top) and blood requisition forms
- 10 mL syringes x 2
- Vial adapters x 2 if available
- Orange needles G 25 x 2
- Individually wrapped disinfectant wipes x 6
- Sterile gloves
- Sharps bin

Procedure

1. Gather all equipment, prepare equipment and environment
2. Explain procedure to child and parent/guardian
3. Perform hand hygiene (RCPI/HSE 2015
4. Wipe the surface of the clean tray with a disinfectant wipe and allow to dry
5. Open the sterile preparation towel on to tray and open equipment outlined on to the aseptic field
6. Remove tops from culture bottles and clean with disinfectant wipes leaving wipes covering top
7. If using vial adaptors attach to bottles and clean with disinfectant wipes leaving wipes covering top
8. Perform hand hygiene and put on sterile gloves
9. Using a disinfectant wipe the hub of the needle free device (scrub the hub technique).
10. If I.V. infusion is in progress through another lumen stop, flush and clamp the infusion for 10 minutes
11. Attach 10 mL syringe to the centre of the needle free device by pushing it in firmly and rotating it to the right for a secure fit
12. Open catheter clamp and withdraw at least 3mLs of blood. Place on the sterile field
13. Attach Sodium Chloride 0.9% w/v syringe to the needle free device and slowly flush using a Push-Pause Method and Positive Pressure Technique (is it both)
14. Close catheter clamp
15. If prescribed attach Sodium Heparin Sodium 10units per mL open clamp flush 1-2 mLs using Positive Pressure Technique
16. Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy
17. Perform hand hygiene (RCPI/HSE 2015)
18. Document procedure as per local guidelines and HSE Standards and Recommended Practices for Healthcare Records Management (2011)

Filling blood culture bottles

1. **Attach orange needle to blood filled syringe and fill each culture bottle (filling the aerobic blue top bottle first)**
2. **Fill each bottle with at least one mL of blood using a clean needle each time**
3. **If using vial adaptor attach syringe and fill each culture bottle (filling the aerobic blue top bottle first)**
4. **Be aware that blood culture bottles contain negative pressure, therefore, when attaching blood filled syringe to the first culture bottle care must be taken to ensure all blood is not drawn in**
5. **Dispose of all needles and syringes immediately into the sharps bin and dispose of all other equipment as per local policy**
6. **Perform hand hygiene (RCPI/HSE 2015)**
7. **Document procedure and label culture bottles and transport to Lab as per local guidelines and HSE Standards and recommended Practices for Healthcare Records Management (2011)**

Appendix VIII: Important safety features for a syringe driver infusion pump (as stipulated by the Irish Medical Board Safety Notice Medical Devices: SN2014 (22) Issue Date: 30 April 2014)

Due to the discontinuation of the MS16A and MS26 Graseby Syringe Driver devices from July 2014, the IMB wishes to remind those users who seek an alternative device to consider the following safety features when purchasing syringe drivers: -

a. Rate settings in millilitres (mL) per hour

b. Mechanisms to stop infusion if the syringe is not properly and securely fitted

c. Alarms that activate if the syringe is removed before the infusion is stopped

d. Lock-box covers and/or lock out controlled by password

e. Provision of internal log memory to record all pump events

Note: This is not an exhaustive list.

Further information may be obtained from the following IMB Safety Notices:

- IMB Safety Notice SN2006(03) The Procurement and Commissioning of Medical Equipment for Hospitals
- IMB Safety Notice SN2003(09) Equipment Management: Some Basic Principles of Equipment Management
- IMB Safety Notice SN2003(08) Equipment Management: Guidance for the Maintenance and Timely Replacement of Medical Equipment

During 2014/2015, the McKinley T34 syringe driver was identified as a replacement for Graseby MS16A.

Please note further safety information relating to Graseby Syringe Drivers (MS16A & MS26) is available at: https://www.hpra.ie/docs/default-source/default-documentlibrary/sn201422_smithsmedical_grasebysyringedrivers_ms16ams26_v20411_300414.pdf?sfvrsn=0

Appendix IX: Guideline Development Group

Ms. Alice Ward, Clinical Nurse Facilitator, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Imelda Hurley, Palliative Care CNSp, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Fionnuala O' Neill, Practice Development Co-Ordinator, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Liz O'Donoghue, Paediatric Palliative Care CNSp, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Naomi Bartley, Acting Director of Centre of Children's Nurse Education, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Susan Keane, Clinical Practice Facilitator, Children's Health Ireland (CHI) at Temple Street, Dublin (until November 2019)
Ms. Johanna Downey, NMPD Officer/ADON, Nursing Midwifery Planning Development Unit, HSE South
Ms. Virginia Pye, National Lead for Public Health Nursing, ONMSD, Dublin
Ms. Kathleen Fitzmaurice, Registered Nurse Tutor, Centre of Children's Nurse Education, Crumlin Childrens Hospital, Dublin
Ms. Anne Walsh, Chairperson, Director of NMPDU (Cork/Kerry) HSE South

Appendix X: National Consultation

Ms. Anthea Bryce-Smith, Clinical Nurse Specialist, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Olga Buckley, Paediatric Oncology/Haematology Clinical Nurse Specialist, Mercy University Hospital, Cork
Ms. Anne-Marie Carroll, Director of Nursing, Laura Lynn, Ireland's Children's Hospice, Dublin
Ms. Ann Mahony, Director of Nursing/Chairperson Directors of Nursing Specialist Palliative Care Services Group
Dr. Joanna Balfe, Faculty of Paediatrics, Royal College of Physicians Ireland, Dublin
Ms. Gráinne Bauer, Chief Director of Nursing, Children's Health Ireland (CHI), Dublin
Ms. Ann Moran, Nurse Practice Development Co-Ordinator(Paediatrics), Cork University Hospital, Cork
Dr. David Hanlon, National Clinical Advisor and Programme Lead, National Clinical Programme for Primary Care, HSE
Ms. Karen Lavelle, Pharmacist, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Imelda Kelly, Clinical Nurse Specialist, Haemophilia, Children's Health Ireland (CHI) at Crumlin, Dublin
Ms. Catherine Whitty, National Practice Development Co-ordinator, Public Health Nursing Services, HSE
Ms. Anne Lynott, Director of Public Health Nursing/Chairperson Director of Public Health Nursing Forum
National Clinical Programme for Paediatrics
Ms. Helen Murphy, Infection Control Nurse Manager, Health Protection Surveillance Centre, HSE

Dr. Feargal Twomey, Consultant in Palliative Medicine, UL Hospital Group and Milford Care Centre, Limerick
Dr. Brian Creedon, Clinical Lead for the National Clinical Programme in Palliative Care, HSE
Mr. Warren O'Brien, CNM3 Quality Improvement, St. Michael's Ward, Our Lady's Children's Hospital, Crumlin, Dublin
Dr. Regina McQuillan, Medical Director, St. Frances Hospice/Palliative Medicine Consultant Beaumont Hospital, Dublin
Dr. Clodagh Ryan, Paediatric Haematologist, Mercy University Hospital, Cork
Dr. Deirdre Murray, Consultant Paediatrician and Senior Lecturer in the Department of Paediatrics and Child Health, University College, Cork
Quality and Standards Committee, The Irish College of General Practitioners
Ms. Terry Hanan, National Clinical Lead for Cancer Nursing , National Cancer Control Programme
Ms. Sheilagh Reaper-Reynolds, HSE National Lead for Palliative Care, Primary Care, Division
Dr. Maeve O'Reilly, Consultant in Palliative Medicine, St Luke's Radiation Oncology Network
Ms. Carmel O'Donnell, Director Centre of Children's Nurse Education, Children's Health Ireland at Crumlin, Dublin

Appendix XI: Conflict of Interest Declaration Form

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

CONFLICT OF INTEREST DECLARATION

This must be completed by each member of the PPPG Development Group as applicable

Title of PPPG being considered:

_____

Please circle the statement that relates to you

1. **I declare that I DO NOT have any conflicts of interest.**
2. **I declare that I DO have a conflict of interest.**

Details of conflict (Please refer to specific PPPG)

_____

_____

_____

_____

(Append additional pages to this statement if required)

Signature

Printed name

Registration number (if applicable)

Date

The information provided will be processed in accordance with data protection principles as set out in the Data Protection Act. Data will be processed only to ensure that committee members act in the best interests of the committee. The information provided will not be used for any other purpose.

A person who is covered by this PPPG is required to furnish a statement, in writing, of:

I. The interests of the person, and

II. The interests, of which the person has actual knowledge, of his or her spouse or civil partner or a child of the person or of his or her spouse which could materially influence the person in, or in relation to, the performance of the person's official functions by reason of the fact that such performance could so affect those interests as to confer on, or withhold from, the person, or the spouse or civil partner or child, a substantial benefit.

Appendix XII: Signature Sheet

I have read, understand and agree to adhere to this Guideline:

Print Name	Signature	Area of Work	Date