

**GUIDELINE FOR CLINICAL STAFF ON THE CARE OF:  
PERMCATH VASCATH**


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Central Venous Access Devices (CVAD), is a broad term used to include many catheter types which are inserted into a peripheral/central vein in the body to deliver medications or other therapies to children.

A catheter has one end positioned outside the body while a port is surgically placed under the skin and requires a special needle to access it.


The most common CVADs include:

- Peripherally Inserted Central Catheter inserted into one of the peripheral veins in the upper arm.
- Central Venous Catheter
- Implanted ports inserted into the subclavian or vein or jugular and attached to a fluid reservoir placed in a surgically created subcutaneous pocket in the upper chest or into an arm vein.
- Hickman/Broviac catheter
- Permcath-Vascath Catheter
- Umbilical Venous Catheter

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**Table 1. Skin Asepsis prior to peripheral and central line insertion by clinical staff in OLCHC.**

S.A.R.I. Guideline 2009- for prevention of infection associated with CVC or peripheral line insertion recommends chlorhexidine gluconate 2% in 70% isopropyl alcohol (in a single patient use application) in adults & **children  $\geq$  2 months**.

INDICATION	PRODUCT	COMPOSITION
Skin cleansing prior to <b>peripheral</b> canula insertion	Sanicloth®	↑ 2% chlorhexidine gluconate in 70% isopropyl alcohol ↓
Skin cleansing prior to <b>CVC</b> insertion	OR	
Device cleaning (e.g. hubs)	Chlorhexidine 2% Alcohol (Ecolab) 200ml bottle	

For infants **< 2 months old** the recommendation is 0.5% Chlorhexidine in aqueous solution

INDICATION	PRODUCT	COMPOSITION
Skin cleansing prior to peripheral and central line insertion in infants < 2 months old (Corrected age)	Sterexidine 200®  150ml bottle	contains 0.5% Chlorhexidine Gluconate w/v in aqueous solution

## 2.0 Description of Permcath/Vascath


### Introduction:

This central venous access device is inserted into the central venous system with the tip sitting within the superior vena cava or the right atrium of the heart, the subclavian, Jugular, femoral or antecubital veins. (RCN, 2010, Dougherty & Lister 2015).

### Permcath / Vascath

Permcath are non tunnelled long term lines used for haemodialysis or plasmapheresis.

Vascaths are temporary non tunnelled lines used for maximum of three weeks for haemodialysis and haemofiltration or plasmapheresis. The choice of multi lumen catheter should be made according to the type of treatment required to be delivered to the child. A Quinton Permcath dual lumen catheter is the most common type of Quinton catheter used in OLCHC.

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**Unlike other central venous Catheters the Heparin used in this catheter must be aspirated and discarded prior to lumen use.**

### 3.0 Complications associated with central venous catheters/ Vascular Access

- Catheter related infections – Infection at the exit site, Contamination of the catheter hub, Intraluminal catheter colonization and haematogenous seeding of the catheter.
- Pneumothorax or hemothorax
- Mechanical complications, Access malfunction.
- Fibrin sheaths, Clots.
- Coagulopathies including anticoagulation therapy

### 4.0 Guidelines for accessing a non-tunnelled Permcath & Vascath


Equipment

#### Requirements for procedure


- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Dressing pack</li> <li>• 2.5ml syringes X 2</li> <li>• 5 ml syringes X 2</li> <li>• 10ml syringes X 4</li> <li>• green needles X 2</li> <li>• filter needle X 1</li> </ul> | <ul style="list-style-type: none"> <li>• Disinfection wipe Chlorhexidine 2% in 70% Alcohol</li> <li>• Red cap.</li> <li>• Sterile gloves.</li> <li>• 0.9% sodium chloride X 2</li> </ul> |
|---|--|

**Heparin 1:1000 units' preservative free. Initially ( may require 1:5000units of preservative free heparin as prescribed by medical team)**

ACTION	RATIONALE & REFERENCE
Close all windows and doors, decontaminate hands for one minute.  Wash Trolley with soapy warm water and clean with alcowipe and allow to air dry.  Decontaminate hands for one minute and apply gel.	To prevent infection by ensuring aseptic technique is adhered to. (OLCHC, 2011)

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<p>Open sterile equipment onto dressing pack, place syringes in order of use.</p> <p>Prepare disinfection wipes for use</p> <p>Decontaminate hands for one minute using the correct hand washing technique.</p> <p>Put on sterile gloves</p> <p>Draw up 10mls of 0.9% sodium chloride in each 10ml syringe</p> <p>Check if a child is on a fluid restriction as the 0.9% sodium chloride flushes are included in the child's daily allowance.</p> <p>Draw up volume of preservative free heparin 1:1000 units or as indicated in the <b>2.5ml syringe</b> as per prescription.</p> <p>Explain the procedure to your child and their family.</p> <p>Lay a sterile drape under the Permcath / Vascath.</p> <p><b>Clean the red cap. Clean the tip of the lumen with the disinfection wipe.</b></p> <p><b>Attach a 5ml syringe to the lumen and clean the lumen if there is blood present. Withdraw heparin lock (withdraw .1ml extra).</b></p> <p>Attach a 10ml syringe to the lumen; withdraw 10mls of blood ensuring the syringe is elevated at a 45 degree angle to enable the air to reach the top of the syringe. <b>The lumen should be flushed two- three times with the blood to check the patency of the line</b></p>	<p><b>To ensure items are ready for use</b></p> <p>Chlorhexidine and alcohol are used to clean the catheter (EPIC 3, 2014, RCN, 2013, CDC, 2011)</p> <p>To prevent infection (OLCHC, 2013)</p> <p>A flush of 10ml of 0.9% sodium chloride into each lumen of the central venous catheter ensures the lumen is free from fibrin streaks.</p> <p>This technique prevents thrombosis in the central venous catheter and maintains a good functioning line.</p> <p>Heparinised saline will reduce the risk of clot formation in the line</p> <p>To encourage co-operation and alleviate fear. (Dougherty and Lister 2015).</p> <p>To remove any micro pathogens at the tip of the catheter and to prevent infection.</p> <p><b>Remove the extra .1ml to ensure all the heparin has been removed from the line. Coagulation screens should be obtained Peripherally.</b></p> <p><b>Observe the line for any sucking, Sluggishness fibrin sheaths. Any of these symptoms may indicate a possible line malfunction. (When symptoms of line malfunction are present, check the line is still insitu and has not moved.</b></p>
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<p>Withdraw sufficient blood volume for tests required.</p> <p>Biochemistry 0.7ml, blood gas 0.5ml and 1ml for Haematology.</p> <p>Remove syringe and clean hub.</p> <p>Flush with 0.9% sodium chloride ensuring the lumen is clear from streaks of blood.</p> <p>Administer the heparin and clamp the line as soon as the heparin is at the end of the syringe.</p> <p>Place new red cap onto the end of the lumen</p> <p>Wrap both lumens together in sterile gauze.</p> <p>Decontaminate hands</p> <p>Document in the healthcare record</p>	<p>Reposition the child e.g. Extend the neck or turn the Child on their side. Flush the line with 0.9% sodium chloride.</p> <p>To prevent infection.(OLCHC 2013)</p> <p>To prevent clots from developing and maintain access.</p> <p>To prevent infection.(OLCHC 2013)</p> <p>An Bord Altranais, 2002, NHO 2012 NMBI, 2015</p>
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Detail taken from the Nephrourology department –


## 5.0 References and bibliography

1. Epic3 (2014): National evidence-based guidelines for preventing healthcare-associated infections in (Accessed April 27<sup>th</sup> 2016).
2. Dougherty, L. (2015) How to remove a non-tunnelled central venous catheter. *Nursing Standard*, **30**(16-18): 36-38.
3. Dougherty, L. and Lister, S (eds) (2015) *The Royal Marsden Hospital Manual of Clinical Nursing Procedures*, 9<sup>th</sup> Edition. Wiley-Blackwell: Chichester.
4. Hockenberry, M.J. and Wilson, D. (eds) (2015) *Wong's Essentials of Pediatric Nursing*, 10<sup>th</sup>
5. *Infection: Prevention and Control in Primary and Community Care*. NICE: London.
6. Ingram P. Sinclair L. and Edwards T. (2006) The safe removal of central venous catheters.
7. INS (2011) Infusion nursing standards of practice, 2011. *Journal of Infusion Nursing* **34**(1): supplement.
8. Joanna Briggs Institute (2013) *Central Venous Access Device (CAVD): Removal*. The Joanna
9. Kim, D.K. Gottesman, M.H. Forero, A. Han, D. Myers, D.W. Forienza, R. and Golzarian, J. (1998) The CVC removal distress syndrome: an unappreciated complication of central venous line removal. *American Journal of Surgery*, 64(4): 344-347.

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10. Lloyd-Jones, M. (2004) Minimizing pain at dressing changes. *Nursing Standard* **18**(24):65-70.
11. Long, K.D.L. (2015) *Central Venous Catheter (CVC): Dressing and Flushing*. The Joanna Briggs
12. Loveday, H.P. Wilson, J.A. Pratt, R.J. Golsorkhi, M. Ingle, A. Bak, J. Browne, J. Prieto, J. Wilcox, M.
13. Luettel, d. (2011) Avoiding air embolism when removing CVCs. *Nursing Times*, **107**(43): 23.
14. Maki, D.G. Kluger, D.M. Cmich, C.J. (2006) The risk of bloodstream infection in adults with
15. Meggiolaro, M. Roman-Pognuz, E. Baritussio, A, and Scatto, A. (2013) Air embolism after central venous catheter removal; Fibrin sheath at the portal of persistent air entry. *Case Reports in Critical Care*, 2013, Article ID 403243, 1-3. Available online: [www.hindawi.com/journals/cricc/2013/403243/](http://www.hindawi.com/journals/cricc/2013/403243/) (Accessed April 27<sup>th</sup> 2016).
16. Morgan, B. (2013) *Procedure for Removal of Central Venous Catheters (Jugular, Subclavian*
17. National Institute for Health and Clinical Excellence (NICE) (2012) *Healthcare Associated*
18. NHS hospital in England. *Journal of Hospital Medicine*, **8651**: s1 – s70.
19. NMBI (2015a) Recording *Clinical Practice*, 2<sup>nd</sup> Edition. Nursing and Midwifery Board of Ireland: Dublin.
20. NMBI (2015b) *Scope of Nursing and Midwifery Practice Framework*, 2<sup>nd</sup> Edition. Nursing and
21. Nolan, T. and Berwick, D.M. (2006) All or none measurement raises the bar on performance.
22. NPSA (2011) *Risk of Air Embolism When Removing Central Lines / Signal*. National Patient Safety Agency. Available online: [www.nrls.npsa.nhs.uk/rsources//entryid45+132830&p=3](http://www.nrls.npsa.nhs.uk/rsources//entryid45+132830&p=3).
23. *Nursing Standard* **20**(49): 42-46.
24. O'Grady, N.P. Alexander, M. Burns, L.A. Dellinger, E.P. garland, J. Heard, S.O. Lipsett, P.A. Masur, H. Mermel, L.A. Person, M.L. Raad, I.I. Randolph, A. Rupp, M.E. Saint, S. and Healthcare Infection Control Practices and Advisory Committee (HICPAC) (2011) *Guidelines for Prevention of Intravascular Catheter-related Infection*. (CDC) / HICPAC. Available online:
25. OLCHC (2008) *Infection Control / Waste Policy*, Our Lady's Children's Hospital, Crumlin: Dublin.
26. OLCHC (2010a) *Guideline for Hand Hygiene*, Our Lady's Children's Hospital Crumlin: Dublin.
27. OLCHC (2010b) *Hospital Formulary*. Our Lady's Children's Hospital, Crumlin, Dublin.
28. OLCHC (2011) *Standard Universal Precautions*. Our Lady's Children's Hospital, Crumlin: Dublin.
29. OLCHC (2012a) *Skin Asepsis Prior to Peripheral and Central Line Insertion*. Our Lady's Children's Hospital, Crumlin: Dublin.
30. OLCHC (2012b) *Anti Thrombotic Central Line Guidelines*. Our Lady's Children's Hospital, Crumlin: Dublin.
31. OLCHC (2013) *Aseptic Non-touch Technique, OLCHC Reference Guide*. Our Lady's Children's Hospital, Crumlin: Dublin.



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32. OLCHC (2015) Guidelines on Care Bundles in Our Lady's Children's Hospital Crumlin (OLCHC). Our Lady's Children's Hospital, Crumlin: Dublin.
33. Porritt, K. (2016) *Central Venous Access Device (CAVD): Dressing Change*. The Joanna Briggs
34. SARI Infection Control Sub Committee (2009) *A Strategy for the Control of Antimicrobial Resistance in Ireland (SARI): Guidelines for Hand Hygiene in Irish healthcare Settings*. Health Service Executive (HSE) / Health Protection Surveillance Centre (HPSC).
35. [www.cdc.gov/hicpac/pdf/guidelines/bsi](http://www.cdc.gov/hicpac/pdf/guidelines/bsi) (Accessed 22<sup>nd</sup> April 2016).
36. [www.lhsc.on.ca/Health\\_Professionals/CCTC/procedures/cvpremove.htm](http://www.lhsc.on.ca/Health_Professionals/CCTC/procedures/cvpremove.htm)  
(Accessed April 26<sup>th</sup>)

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