

# TUNNELLED CENTRAL VENOUS ACCESS DEVICES (HICKMAN) CARE POLICY FOR ADULTS

**Compiled by:** Sue Currier, Haematology Nurse Specialist

**In consultation with:** Infection Prevention and Control Team

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Ratified by: Clinical Governance Committee

Review date: May 2020

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## History

Issue	Date Issued	Brief Summary of Change	Approved by
1	Dec 2011	New policy	Clinical Governance Committee
2	Aug 2013	Re-established as a standalone policy instead of CVAD Policy	

For more information on the status of this document, please contact:	Ann Birler, Nurse Consultant/Deputy Director of Infection Prevention and Control
Policy Author	Sue Currier, Haematology Nurse Specialist
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Ratified by	Clinical Governance Committee
Audience	All Trust staff

**TUNNELLED CENTRAL VENOUS ACCESS DEVICES (HICKMAN) CARE POLICY FOR ADULTS**

**1. INTRODUCTION**

Bloodstream infections associated with intravascular access devices are potentially among the most dangerous complications of healthcare that can occur, worsening the severity of the patients underlying ill health, prolonging the period of hospitalisation and increasing the cost of care. Almost 64% of patients in the UK with an intravascular device acquire a catheter related bloodstream infection (CR-BSI) (HPA 2012).

**2. PURPOSE**

The number of patients requiring central venous access continues to grow as the management of disease and trauma improves and life expectancy is prolonged. Hickman lines are lifelines for many patients in a wide array of circumstances, so establishing and maintaining safe, appropriate and reliable access and care for this group of patients is vital. This policy outlines measures that will be implemented to reduce the risk of infection in any adult with a Hickman lines.

**3. BACKGROUND**

Patients requiring Hickman lines are particularly prone to infections, therefore meticulous care needs to be taken when handling the lines. Aseptic technique must be used at all times.

This policy is to ensure that there is standard high quality care of Hickman lines in the Trust with an overall aim of minimising the risk of infection.

It can be used for the delivery of cytotoxic therapy, parenteral nutrition, therapy requiring central access or long term antibiotic therapy (greater than four weeks). It is also possible to deliver blood products via a Hickman line.

A Hickman line can be used by any nurse/doctor who has been assessed as both competent to administer intravenous therapy and competent in caring for Hickman lines (see Appendix 1).

**4. SELECTION OF CATHETER INSERTION SITE**

Hickman lines are inserted in the Radiology department under local anaesthetic/sedation. In an emergency situation the on call surgical team can insert the line in the operating theatre department.

A tunnelled central venous access device is a semi permanent indwelling catheter which is tunnelled under the skin on the anterior chest wall and into the subclavian or external jugular vein. The tip of the catheter lies just above the right atrium.

Once inserted position of the line must be checked.

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## 5. ASEPSIS

An aseptic technique is required throughout the procedure.

## 6. SKIN PREPARATION

Pre-insertion care

- Two pre-operative Hibiscrub showers or baths.
- Nasal Mupirocin ointment (t.d.s) for 48 hours prior to procedure.
- FBC and clotting investigations.
- Possible platelet transfusion/or FFP.

The patient's skin, if not visibly clean, should be cleaned with soap and water. Shaving of the skin should be avoided. If hair removal is considered necessary clipping is the preferred option using a disposable clipper head (Elliot 2001). Decontaminate the skin site with 2% Chlorhexidine gluconate/70% isopropyl alcohol (Chloraprep 3ml) applying gentle friction disinfect the skin site for 30 seconds and allow to dry prior to the insertion of the Hickman line. Use a single patient application of alcoholic povidone iodine application for patients with a history of Chlorhexidine sensitivity. Allow the antiseptic to dry before inserting the Hickman line.

## 7. SECURING LINE

The device is sutured in position at the entry and exit site.

The entry site suture to be removed after seven days.

The exit site (chest wall) to be removed two to three weeks (after fibroblastic response to the Dacron duff is adequate to secure the catheter) (Doughty 2006).

## 8. DRESSING OF LINE

The catheter is further secured in positing using a semi-permeable polyurethane sterile transparent dressing.

The Hickman Line exit site should be assessed 24 hours post insertion for signs of infection and the dressing changed if soiled.

Dressing should be changed weekly unless otherwise indicated. Decontaminate hands and use an aseptic non touch technique when changing the dressing. The exit site should be cleaned with ChloraPrep (3mls) and allowed to dry for 30 seconds before applying a semi permeable transparent film dressing. A sterile gauze dressing may be used if the insertion site is oozing or when the dressing is loose, damp or soiled. The gauze dressing must be changed every 24 hours.

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Dressings should be changed by a registered nurse with a competency in this procedure.

## 9. BIONECTOR DEVICE

Following insertion a bionector/TKO will be placed on the end of the device. This needs to be changed every seven days. At the end of the bionector/TKO a CUROS cap will be placed. This is a single use device with 70% alcohol and 2% chlorhexidine and **MUST BE REPLACED AFTER EVERY ACCESS OF THE LINE**. There is no need to further disinfect the end of the bionector/TKO prior to use.

## 10. DOCUMENTATION

Document line insertion in health care records including:

- Date of device insertion
- Type of device inserted
- Insertion site and catheter size
- Name of person inserting device
- Insert product label into patient's notes
- Core care plan to be inserted in patients' nursing notes following Hickman line insertion

## 11. SITE ASSESSMENT

Patients shall be encouraged to report any changes in their catheter site or any new discomfort to nursing and medical staff. A patient information leaflet should be given whenever possible.

A nurse shall assess the Hickman line site at least 8 hourly for signs of infiltration, phlebitis or infection; including pain, redness, swelling, induration, disruption of flow or lack of blood return when appropriate.

If gauze dressing is being utilised, assess for phlebitis and infection at time of dressing change.

If a localised infection is suspected at the Hickman line insertion site the medical staff shall be informed and a bacterial culture of the site sent. Line should be removed if systemic line infection suspected and the tip then sent for bacterial culture.

The entry site assessment shall be documented on the CVAD daily monitoring form.

## 12. POST INSERTION CARE

- Check the entry and exit sites for signs of bleeding.

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- Post procedure observations of vital signs for four hours.
- If the line is inserted in theatre the position of the line must be checked by x-ray prior to use (this must be documented in the medical notes).

### 13. ACCESSING/FLUSHING A HICKMAN LINE

#### 13.1 Hickman line in frequent use (at least once a day)

- Wash hands thoroughly with soap and water and dry hands.
- Gather all equipment needed including a dressing trolley and a dressing pack.
- Aseptic technique must be used at all times when accessing the line.
- Remove CUROS and discard. No further disinfection required.
- If CUROS not in use disinfect bionector/TKO with 2% chlorhexidine/70% alcohol wipe. Minimum 15 seconds and allow time to dry.
- Aspirate and discard 5 - 10mls of blood to confirm patency prior to administration of medications. The patency of the line will be checked prior to administration of medications and/or solutions, however there is no requirement to routinely draw blood and discard prior to flushing.
- Flush with 10mls of 0.9% sodium chloride using a push-pause technique to maintain patency. Do not use anything **smaller than a 10ml** syringe.
- Administer medications.
- If more than one drug, flush between each drug.
- At the end of drug administration finish by flushing with 10mls of normal saline using a push-pause technique ensuring positive pressure is maintained in the lumen with the final 1ml, then clamp the line before removing the syringe to prevent backflow of blood into the line.

#### 13.2 Hickman line NOT in frequent use (used once a week)

- Wash hands thoroughly with soap and water and dry.
- Gather all equipment needed including a dressing trolley and a dressing pack
- Aseptic technique must be used at all times when accessing the line.
- Remove CUROS and discard. No further disinfection required.
- If CUROS not in use disinfect bionector/TKO with 2% chlorhexidine/70% alcohol wipe.
- Aspirate line and flush each lumen with 10mls non saline then flush each lumen with Heparin Sodium solution 10 units in 1ml (i.e. 50 units in 5mls for each lumen).
- Dressings including statlock must be changed every seven days. Clean around the site with Chloraprep (3mls), allow it to dry for 30 seconds before applying a new dressing.

### 14. DRAWING BLOOD

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## **Taking blood from a Hickman line**

- Wash hands thoroughly with soap and water and dry.
- Gather all equipment needed including a dressing pack and a sharps bin.
- Aseptic technique must be used at all times when accessing the line.
- Remove CUROS and discard. No further disinfection required.
- If CUROS not in use disinfect bionector/TKO with 2% chlorhexidine/70% alcohol wipe.
- Aspirate and discard 5-10mls of blood.
- Using the vacutainer system withdraw the required amount of blood.
- Flush with 10mls of 0.9% sodium chloride using the push-pause technique.

**When taking blood cultures DO NOT pre-flush the line  
and DO NOT discard the first 5-10mls of blood**

**Refer to Blood Culture Taking Policy**

## **15. CONNECTION TUBING**

Administration sets should be changed as per Trust policy:

- TPN – every 24 hours
- Blood/blood components – changed when transfusion is completed or every 12 hours whichever is sooner. A new giving set must be used prior to administration if any other infusions
- Non-additive solutions – every 72 hours unless disconnected from the line

## **16. ADMINISTRATION OF FLUIDS**

Except in the operating department and in emergency situations, all fluids, where possible, shall be administered by infusion pumps. Patients who are receiving fluids with potassium or patients who have known cardiac disease should have fluids administered via an infusion pump.

## **17. REMOVAL OF HICKMAN LINE**

The decision to remove the Hickman line should be made by medical staff.

This procedure must be carried out in the Radiology department only and reason for removal should be clearly documented in the medical notes.

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## 18. TROUBLESHOOTING

Infected line. If the line is infected it is likely the patient will experience rigors after the Line is flushed. Take blood cultures from all lumen of the line and peripheral blood cultures. Swab exit site if there is any exudate. Treat with intravenous antibiotics as per antibiotic policy. Medical staff will advise on removal. Contact Radiology department for removal and reinsertion of new line if required.

Damage to the line. Inform medical team and line should be removed.

If there is oedema in neck, shoulder or face, consider possibility of thrombosis, Inform medical staff. If thrombosis is proven anti-coagulation therapy should be commenced.

If the Dacron cuff becomes visible, inform medical staff and do not use the line until its position has been checked and a senior doctor has authorized it safe to use.

Air embolism. This is a rare complication associated with Hickman lines. If the patient becomes acutely short of breath, air embolism should be suspected. Ensure line is clamped. Lay the patient flat and call for urgent medical assistance.

If there are any problems with Hickman Lines please contact the Medical Team or Haematology Specialist Nurses.

## 19. UNBLOCKING THE LINE WITH UROKINASE

The decision to unblock the line using this method must be discussed with a senior clinician or haematology specialist nurse.

- If you suspect a Hickman line has become blocked, check for mechanical obstruction before an attempt is made to unblock the line
  - Check any sutures are not too tight
  - Check the line is not kinked
  - Check the line has not migrated out
  - Change the bionector/TKO

**Do not use hepsal to unblock Hickman lines –** for advice please contact Haematology Specialist Nurses

- If unable to unblock and the cause of the occlusion is blood, please discuss with the Medical Team/Haematology Specialist Nurses and consider using Urokinase 5000 units in 2mls of 0.9% sodium chloride.
- Dilute 5000units Urokinase with 2 mls of 0.9% sodium chloride
- Using a push –pause technique, instil solution with a 10mls syringe
- Leave the solution in situ for one to two hours (do not use the line during this time)
- Aspirate and discard 5mls of blood and then flush with 20mls of 0.9% sodium chloride .

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- If unsuccessful, leave the Urokinase solution for four hours and repeat the above.
- Urokinase can be left in situ 24 hours.

**Urokinase MUST be prescribed prior to administration  
Only staff competent to undertake this procedure should  
perform this**

**20. DISSEMINATION AND IMPLEMENTATION**

This policy has been updated by the Infection Control Team, agreed by the Control of Infection Committee and ratified by the Clinical Governance Committee. The policy will be available on TrustNet.

To reduce the incidence of CR-BSI's all healthcare professionals who undertake Hickman line management will receive training and demonstrate competency in accordance with this policy.

**21. PROCESS FOR MONITORING COMPLIANCE WITH THE EFFECTIVENESS OF POLICIES**

This policy will be monitored by auditing infection rates in Hickman lines within the Trust.

**22. EQUALITY IMPACT ASSESSMENT**

The Trust has a statutory duty to carry out an Equality Impact Assessment (EIA) and an overarching assessment has been undertaken for all infection control policies.

**23. ARCHIVING ARRANGEMENTS**

This is a Trust-wide document and archiving arrangements are managed by Quality Dept. who can be contacted to request master/archived copies.

**24. REFERENCES**

- Dougherty, L. and Lister, S. (2011) The Royal Marsden Hospital Manual of Clinical Nursing Procedures, 8<sup>th</sup> Edn Royal Marsden NHS Foundation Trust Oxford. Wiley-Blackwell.
- Gabriel J. (1999) Long term Central Venous Access in Intravenous Therapy in Nursing Practice (Dougherty L. and Lamb J. eds.) Edinburgh, Churchill Livingstone.

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- Hamilton H. (2000) Venous Access in Nursing in Haematological Oncology. (Grundy M. ed) London, Balliere Tindall.
- Loveday, H.P; Wilson, J.A. and Pratt, R. J *et al* (2013) EPIC 3 National Evidence-Based Guidelines for Preventing Healthcare-Associated Infections in NHS Hospitals in England,,: London: Richard Wells Research Centre, University of West London. (Draft)
- Doughety, L. *et al* (2010) Royal College of Nursing Standards for Infusion Therapy, 3<sup>rd</sup> Edn, London: RCN.

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**APPENDIX 1**

**Competency:**                    **Accessing tunnelled central venous access devices (Hickman)**

**Standard Statement:**        **The Registered Health Care Professional will be competent in accessing the device for administration of medication, flushing and blood sampling. To be able to perform the activities satisfactorily without supervision or assistance with acceptable speed and quality of work. Also must have attended IV Study Day and been signed off as competent.**

No.	Competency Statement	(Please record 'achieved' or 'not achieved' as 'A' or 'N' and date and initial)						Summative Assessment (Please record 'achieved' or 'not achieved' as 'A' or 'N'; and date, initial and print name.)	
		Initial Assessment			Formative Assessment(s)				
		Date	Self	Mentor	Date	Self	Mentor		
A	Discuss Trust policy and procedures relating to accessing the device.								
B	Discuss the rationale for the use of the device, demonstrating a clear understanding of the rationale for accessing the device and the use of different lumens.								
C	Correctly identify the equipment required to access the device and discuss the rationale. Prepare the trolley for the procedure, demonstrate aseptic technique and correct hand washing technique. Identify infection control risks associated with accessing the device.								

No.	Competency Statement	(Please record 'achieved' or 'not achieved' as 'A' or 'N' and date and initial)						Summative Assessment (Please record 'achieved' or 'not achieved' as 'A' or 'N'; and date, initial and print name.)	
		Initial Assessment			Formative Assessment(s)				
		Date	Self	Mentor	Date	Self	Mentor		
D	Demonstrate and discuss the technique of blood aspiration and discarding of the first aliquot before taking blood samples. (Refer to blood culture competency) State if not applicable.								
E	Explain the rationale for the flushing of each lumen following its use and between drug administration. Demonstrate the correct 'push/pause' technique								
F	Identify and discuss potential risks and complications of the device and how to deal with them. <ul style="list-style-type: none"> <li>• Infection</li> <li>• Occlusion of the line/lumen</li> <li>• Drug compatibility</li> <li>• Ruptured lines/air embolism</li> <li>• Dislodged lines</li> </ul>								
G	Explain procedure and rationale to the patient, demonstrating awareness of the need for the patients' informed consent. Ensure that the patients' privacy and dignity is maintained at all times.								

No.	Competency Statement	(Please record 'achieved' or 'not achieved' as 'A' or 'N' and date and initial)						Summative Assessment (Please record 'achieved' or 'not achieved' as 'A' or 'N'; and date, initial and print name.)	
		Initial Assessment			Formative Assessment(s)				
		Date	Self	Mentor	Date	Self	Mentor		
I	Maintain accurate documentation and records of accessing the line, Bionector/TKO and CUROS change and drug administration e.g. Prescription sheet / fluid chart and patient records.								
J	Explain the procedure for removal of the line, the process of removal and complications.								

The following policies must have been read in conjunction with completing this competency:

- Aseptic Technique
- Blood Culture Policy
- Central Venous Catheter (CVC)
- Peripherally Inserted Central Line (PICC)
- Tunnelled Central Venous Access Devices (Hickman)

**This sheet must be completed in order to validate competence:** (Copies of this sheet should be kept in the practitioners department file and sent to the practice development team on the link corridor)

In signing here you the Assessor are confirming you are satisfied that the named practitioner has completed all assessments below to the agreed standard and is competent.	Assessors Name (BLOCK CAPITALS)	Signature

Accountability for Practice: Nursing and Midwifery Standards of conduct, performance and ethics for nurses and midwives (NMC, May 2008)

“The people in your care must be able to trust you with their health and wellbeing.” To justify that trust, you must:

- [make the care of people your first concern, treating them as individuals and respecting their dignity](#)
- [work with others to protect and promote the health and wellbeing of those in your care, their families and carers, and the wider community](#)
- [provide a high standard of practice and care at all times](#)
- [be open and honest, act with integrity and uphold the reputation of your profession.](#)

“As a professional, you are personally accountable for actions and omissions in your practice and must always be able to justify your decisions”

**Signature of Practitioner:** ..... **Print Name** ..... **Department**.....

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## Accessing tunnelled central venous access devices (Hickman) Competency Sign Off Statement

<b>Competent: Yes/No (delete as appropriate)</b>	<i>I the undersigned assessor have assessed the registered nurse in practice and deem him/her to be competent to the level laid out in the competency statement. Where the nurse is not competent or requires further training I have agreed an action plan with the registered nurse and set a time for completion.</i>
Action Required: (using SMART objectives)  S – Simple M – Measurable A – Achievable R – Realistic T – Time Bound	
Action Plan Completion Date	
Signature of Assessor	
Signature of Registered Nurse	
Date	