<table>
<thead>
<tr>
<th><strong>Full Title of Guideline:</strong></th>
<th>Care Bundle for Insertion, Maintenance and Removal of Central Venous Catheters within the Renal and Transplant Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Author (include email and role):</strong></td>
<td>Dr S.D. Roe, Consultant Nephrologist. <a href="mailto:simon.roe@nuh.nhs.uk">simon.roe@nuh.nhs.uk</a></td>
</tr>
<tr>
<td><strong>Division &amp; Speciality:</strong></td>
<td>Cancer and Associated Specialities (CAS) / Renal and Transplant</td>
</tr>
<tr>
<td><strong>Scope (Target audience, state if Trust wide):</strong></td>
<td>Speciality specific guideline</td>
</tr>
<tr>
<td><strong>Review date (when this version goes out of date):</strong></td>
<td>January 2024</td>
</tr>
<tr>
<td><strong>Explicit definition of patient group to which it applies (e.g. inclusion and exclusion criteria, diagnosis):</strong></td>
<td>Applies to: All patients under the care of the Nottingham Renal and Transplant Unit (including patients dialysing at Kings Mill Hospital and Ilkeston Community Hospital and Nottingham Diaverum Clinic Lings Bar Hospital).</td>
</tr>
<tr>
<td><strong>Changes from previous version (not applicable if this is a new guideline, enter below if extensive):</strong></td>
<td>Revised to include guidance on removal of CVC lines following national patient safety alert.</td>
</tr>
<tr>
<td><strong>Summary of evidence base this guideline has been created from:</strong></td>
<td>See evidence base section below</td>
</tr>
</tbody>
</table>

*This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using guidelines after the review date or outside of the Trust.*
Introduction

This care bundle is based on EPIC guidelines, expert advice and other national infection prevention and control and patient safety guidance. The purpose is to act as a way of improving and measuring the implementation of key elements of care.

The risk of infection reduces when all elements within the clinical process are performed every time and for every patient. The risk of infection increases when one of more elements of a procedure are excluded or not performed.

The care bundle has three elements:
1. Insertion
2. Maintenance
3. Removal

Supporting Information

This document should be read in conjunction with:
1. Guidelines for MRSA screening and decolonisation within the Renal and Transplant Unit.
2. Guidelines for the insertion, exchange or removal of tunnelled central venous catheters (Permcaths) in haemodialysis patients.
3. Guidelines for the commencement and termination of extra-corporeal therapies via a central venous catheter (Tunnelled and Non-tunnelled) using citrate locking solution.
4. NUH Trust Nursing procedure for central venous catheters.
5. Care pathway for dialysis catheters (Appendix 1).

Audit Plans

The following items are recommended for audit:
• % Catheter insertions which adhere to High Impact Intervention No 3. Renal dialysis catheter care bundle guidelines.
• % Catheter insertions adhering to the NICE guideline on the use of ultrasound (standard: 100% of elective internal jugular cannulations should be carried out with ultrasound guidance).
• % Complications at insertion (for internal jugular approach: pneumothorax < 3%, haematoma due to arterial puncture <3%, incorrect placement <4%)
• % Subsequent catheter related infection (aim for <5%).
• % Compliance with hand hygiene requirements (aim for >95% compliance)
• % Compliance with High Impact Intervention No 3 Renal dialysis catheter care – ongoing maintenance.

References

INSERTION

The key components of the central venous catheter Insertion care bundle are:

- Adequate documentation of care / Competency of Operator
- Screening and decolonisation
- Appropriate use of prophylactic antibiotics
- Hand Hygiene
- Optimal catheter and site selection
- Maximal Barrier Precautions upon Insertion
- Chlorhexidine Skin Antisepsis
- Ultrasound locating device
- Confirmation of guidewire removal
- Exit site dressing
- Sharps and instrument management
- Daily review of in-patient central line necessity with prompt removal of unnecessary lines

Adequate documentation of care

The operator should be competent and trained to undertake the procedure and should be aware of the documentation available and of the knowledge and skills required. Junior medical staff should only carry out procedures unsupervised once they have been signed off as competent by a Consultant or Senior SpR. Competency will be recorded using the Directly Observed Procedures Session (DOPS).

The procedure should be fully documented using the insertion section of the dialysis catheter care pathway document (appendix 1).

Screening and decolonisation

These patients do not require screening swabs (although it is likely they will have been screened already as all admissions to NUH are routinely screened on admission).

They should be decolonised with:

- Octenisan® skin wash. Wash once daily for five days only. The product must be in contact with the skin for at least 1 minute. Hair should be washed twice during the course of treatment. The first treatment should ideally take place before catheter is inserted if the clinical circumstances allow.
- Nasal mupirocin 2% applied to both nostrils three times a day for 5 days.

Prophylactic Intravenous Antibiotics

Prophylactic antibiotics should be given at the time of insertion of tunnelled catheters.

- Prescribe flucloxacillin 1g IV as a single dose. If penicillin allergic or known MRSA then use vancomycin 500mg IV over 1 hour.

For non-tunnelled catheters prophylactic antibiotics are not indicated.

Hand Hygiene

One way to decrease the likelihood of central line infections is to use proper hand hygiene. Prior to the insertion of a central venous catheter hands should be washed with chlorhexidine 4% (Hibiscrub) or aqueous iodine (Betadine) and dried thoroughly. The correct technique of hand hygiene should be utilised.

- An effective hand-washing technique involves three stages: preparation, washing and rinsing, and drying. Preparation requires wetting hands under tepid running water before applying antiseptic
soap solution. Hands and forearms should be washed for at least 3 minutes. Dry thoroughly with a sterile towel.

**Optimal Catheter and Site Selection**

- Temporary catheters are indicated for short-term vascular access only (less than 3 weeks).
- Patients requiring (or who are likely to require) central venous access for more than 3 weeks should have a tunnelled catheter (Permcath) inserted.
- Temporary venous access can be obtained by the subclavian, internal jugular or femoral vein route. Subclavian catheterisation should be avoided in view of the long-term complications of subclavian vein stenosis and thrombosis, which can jeopardise future vascular access. Femoral vein access is the method of choice in most emergencies. It is the safest method of access in patients with clotting disturbances and is the easiest to perform. Outside of an emergency situation, internal jugular placement is the preferred route.
- The incidence of bacteraemia in femoral catheters left in situ for a week is around 10%. Femoral catheters should be removed as soon as possible and not left in place for more than five days except in exceptional circumstances.
- Femoral catheters limit the patient’s mobility and patients cannot be discharged home with femoral lines in situ. They are also associated with a six-fold increase in the risk of iliofemoral deep venous thrombosis. Deep venous thrombosis prophylaxis using low molecular weight (LMW) heparin +/- TED stockings should be used in all patients with a femoral CVC in situ unless contraindications exist. If LMW heparin is contraindicated the reasons for this should be documented in the medical notes and on the in-patient drug chart.

**Maximal Barrier Precautions**

A key change to decrease the likelihood of central line infections is to apply maximal barrier precautions in preparation for line insertion.

**Patient Barrier Drapes**

The patient should be covered from head to mid waist with a sterile drape, with a small opening for the site of insertion.

**Personal Protective Equipment (PPE)**

- For the operator placing the central line and for those assisting in the procedure, maximal barrier precautions means strict compliance with hand hygiene and wearing a cap, surgical mask, sterile gown and sterile gloves.
- Eye protection should be worn where there is a risk of blood, body fluids, secretions and excretions splashing into the face and eyes.
- Alternatives to natural rubber latex (NRL) gloves must be available for use by practitioners and patients with NRL sensitivity.

**Chlorhexidine Skin Antisepsis**

Chlorhexidine skin antisepsis has been proven to provide better skin antisepsis than other antiseptic agents such as povidone-iodine solutions.

The technique, for the use of Chloraprep® (2% chlorhexidine in 70% alcohol), is as follows:

- Pinch wings on the chlorhexidine applicator to break open the ampoule. Hold the applicator down to allow the solution to saturate the pad.
- Press sponge against skin, apply chlorhexidine solution using a back-and-forth gentle friction rub for at least 30 seconds. Do not wipe or blot.
- Allow antiseptic solution time to **dry completely** before puncturing the site (~ 2 minutes).
Single use alcoholic povidone-iodine solution may be used for patients with a history of chlorhexidine sensitivity.

(Povidone-iodine should not be used in patients with known or suspected iodine sensitivity.)

**Ultrasound Locating Device**

Real-time ultrasound guidance of central catheter insertion provides the operator with visualisation of the desired vein and the surrounding anatomical structures before and during the insertion.

The advantages of ultrasound-guided central venous catheterisation include the identification of the precise position of the target vein and the detection of anatomical variants and of thrombosis within the vessel, together with the avoidance of inadvertent arterial puncture.

Ultrasound guidance therefore has the potential to reduce the incidence of complications related to initial venous puncture, which is the first stage of central catheter insertion.

Two-dimensional imaging ultrasound guidance is recommended as the preferred method for insertion of central venous catheters into the internal jugular vein in adults in elective situations.

- The use of two-dimensional (2-D) imaging ultrasound guidance should be considered in most clinical circumstances where CVAD insertion is necessary either electively or in an emergency situation.
- It is recommended that all those involved in placing CVAD’s using two dimensional imaging ultrasound guidance should undertake appropriate supervised training to achieve competence.
- During CVAD insertions ultrasound locating device must be used with a sterile cover and gel.

**Confirmation of guidewire removal**

A number of incidents have been reported where guidewires have been retained in the patient post insertion. The incidents have required surgical recovery. Such an incident is by definition a never event. The incidents are most commonly attributable to:

- Loss of control of the guidewire during insertion due to inexperience with the Seldinger technique and/or insufficient supervision
- Failure to remove the guidewire once the line has been inserted

**Control of the guidewire must be maintained at all times during the insertion and positioning process. It is critical that the guidewire is removed once insertion is complete. Clinicians must complete the central line insertion checklist for every insertion, document the guidewire has been removed and confirm the guidewire has been sighted by the proceduralist and an independent observer to confirm that the guidewire is intact.**

**Sharps Management**

Sharps injuries account for a significant proportion of all hospital occupational injuries and are significantly under reported. To minimise the risk of injury used sharps must be handled as little as possible.

When handling sharps the following points should be adhered to:

- Needles must not be bent or broken prior to use.
- Needles should not be re-sheathed.
- Needles and other sharps instruments must not be passed hand to hand unless this is unavoidable.
- Sharps container should be available at point of use and should not be overfilled.
- The user is responsible for ensuring that the sharps bin cannot discharge its contents during transit e.g. ensure bin aperture is closed.
• There should be a formal counting in and counting out of sharps and guidewires. This should be conducted between the operator and assistant at the start and end of the procedure. They should audibly count the number of items. White boards are available in the procedure room in Bramley and each bed space on Carrel to facilitate recording of this information at the start of the procedure.

Sharps Disposal
• To minimise the risk of injury, sharps should be disposed of immediately after use.
• It is the responsibility of the individual using the sharp to dispose of it safely.
• Used sharps must be discarded into a sharps container

Exit site dressing
• The exit site should be cleaned with 0.9% saline removing blood and any debris prior to applying the dressing.

For tunnelled dialysis catheters (Permcaths):
• Best practice is to use a clear biofilm dressing which is permeable to both water vapour and oxygen, is impermeable to micro-organisms (currently Clearview Transparent film I.V. dressing if the patient is allergic to this then Clearview dressing Opsite IV 3000 can be used).

If a patient has profuse perspiration, or if the insertion site is bleeding or oozing, a sterile gauze dressing is preferable to a transparent semi – permeable dressing. The need for the gauze dressing should be assessed daily as an inpatient and each dialysis as an outpatient and changed when insertion site inspection is necessary or when the dressing becomes damp, loosened or soiled. The gauze dressing must be changed to a transparent dressing as soon as possible.

For non-tunnelled dialysis catheters:
• Use a chlorhexidine impregnated gel dressing at the exit site (Tegaderm CHG dressing).

MAINTENANCE

The key components of the Haemodialysis Maintenance Care Bundle

Hand washing
Maximal Barrier Precautions
Chlorhexidine antisepsis
Asepsis
Exit site dressing
Antimicrobial line lock
No routine catheter replacement
Nasal mupirocin

Hand Hygiene

One way to decrease the likelihood of central line infections is to use proper hand hygiene. Washing hands or using an alcohol-based waterless hand cleaner helps prevent contamination of central line sites and resultant bloodstream infections. The correct technique of hand hygiene should be utilised.

• An effective hand-washing technique involves three stages: preparation, washing and rinsing, and drying. Preparation requires wetting hands under tepid running water before applying liquid soap. The soap solution must come into contact with all the surfaces of the hand. The hands must be rubbed together vigorously for a minimum of 15-20 seconds paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers. Hands should be rinsed thoroughly prior to drying with paper towels and moisturising when necessary.
• When decontaminating hands using an alcohol handrub, hands should be free of dirt and organic material. The handrub solution must come into contact with all surfaces of the hand. The hands must be rubbed together vigorously, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers, until the solution has evaporated and the hands are dry.

Prior to procedure:
• Cuts and abrasions must be covered with waterproof dressing
• Staff must be “bare below the elbow” when in a clinical area, to facilitate effective hand hygiene.

Hands decontaminated must be performed:
• On entering a clinical area
• Before each and every episode of patient contact
• After any activity or contact that potentially results in hands becoming contaminated
• Before and after administration of medication
• Before donning sterile gloves
• Before performing an invasive procedure
• After removing gloves
• When visibly soiled or contaminated with dirt or organic material
• Between caring for different patients, or between different caring activities for the same patient.

Maximal Barrier Precautions (Personal Protective Equipment (PPE))
Maximal barrier precautions clearly decrease the risk of catheter-related bloodstream infections.

Selection of protective equipment must be on the basis of assessed risk of transmission of microorganisms to the patient, and the risk of contamination of health care practitioners clothing and skin by patients' blood, body fluids, secretions, and excretions.

Gloves, a full face visor and a disposable apron should be used at all times when dealing with a renal catheter.

Chlorhexidine Skin Antisepsis
Chlorhexidine skin antisepsis: best practice indicates Chloraprep® (2% Chlorhexidine in 70% alcohol) has been proven to provide better skin antisepsis than other antiseptic agents such as povidone-iodine solutions.

Alcoholic povidone-iodine solution maybe used for patients with a history of chlorhexidine sensitivity.

(Povidone–iodine should not be used in patients with known or suspected iodine sensitivity.)

Line Maintenance:
• Prior to accessing haemodialysis or central lines the external lines, clamps and hubs need to be cleaned with Sanicloth® (chlorhexidine 2% percent in 70 percent isopropyl alcohol).
• Chlorhexidine wipes are more effective when gentle friction is used, line contact time minimum of 30 seconds. One Sanicloth® should be used for each lumen separately.
• Allow antiseptic solution time to dry completely before opening ports.
• Chlorprep SEPP stix should be used to clean the exit site during dressing changes. Sterile technique for accessing dialysis catheters.

• Access to dialysis catheters should only be undertaken by registered nurses who have received appropriate training and have been assessed as competent to do so.

• The procedure for accessing dialysis catheters is undertaken by two nurses using a sterile technique (see Guidelines for the commencement and termination of extra-corporeal therapies via a central venous catheter (Tunnelled and Non-tunnelled) using citrate locking solution.

Exit site dressing
• When redressing the central venous catheter site a full aseptic technique must be maintained. The exit site dressing must be a separate procedure.

• Chlorprep SEPP stix should be used to clean the exit site during dressing changes. The solution should be applied in a concentric circle, allowing this to dry for 30secs.

• For **tunnelled** dialysis lines use a clear biofilm dressing (currently Clearview transparent I.V. dressing). The dressing should be changed, when no longer intact, when moisture collects at site (no longer than 7 days) or when the exit site is no longer visible.

• For temporary **non-tunnelled** lines use a chlorhexidine impregnated gel dressing at the exit site (Tegaderm CHG dressing). The dressing should be changed, when no longer intact, when moisture collects at site (no longer than 7 days) or when the insertion site is no longer visible. Exit site mupirocin is an alternative for patients with sensitivity to chlorhexidine impregnated dressings. 10mm of mupirocin 2% (nasal mupirocin ointment) should be squeezed directly on to the exit site each time the dressing is changed.

• It is recommended that patients describing sensitivity to the recommended dressing undergo a patch test to ascertain the sensitivity and to ascertain a suitable alternative (such as Tegaderm Advanced IV dressing or Opsite IV 3000).

• If a patient has profuse perspiration, or if the insertion site is bleeding or oozing, a sterile gauze dressing is preferable to a transparent semi – permeable dressing. The need for the gauze dressing must be changed to a transparent dressing as soon as possible.

• The catheter exit site should be observed on a daily basis for inpatients and at the time of dialysis for out-patients. The observation should be documented in the patient’s nursing documentation, along with any treatment recommendations. Exit sites should be assessed and recorded using the Mr Victor (Multi-Racial Visual Inspection Catheter Tool Observation Record) which grades the exit site from 0 (no evidence of infection) to 4 (signs of advanced infection).

Antimicrobial lock
Temporary and tunnelled dialysis catheters should be locked with Duralock-C® (trisodium citrate 46.7% solution).

Catheter Replacement
• Temporary dialysis catheters should not be routinely replaced unless there is evidence of catheter malfunction.

• Use guide wire assisted catheter exchange to replace a malfunctioning catheter **only** if there is no evidence of infection at the catheter site or proven catheter-related bloodstream infection.

• If catheter-related infection is suspected, but there is no evidence of infection at the catheter site, remove the existing catheter and insert a new catheter over a guide wire; if tests reveal catheter-
related infection, the newly inserted catheter should be removed and, if still required, a new catheter inserted at a different site.

**Nasal Mupirocin for Tunnelled Catheters**

Catheter related *Staph.* infection occurs most often in patients with nasal *Staph.* colonisation. A number of studies have shown that nasal mupirocin significantly reduces the risk of *Staph. aureus* skin and catheter colonisation, exit site infection and bacteraemia in haemodialysis patients. Regular retreatment is necessary and concerns do exist about the development of mupirocin resistance.

- All patients with tunnelled catheters should be treated every week with nasal mupirocin 2%: apply to both nostrils three times a day, for 1 day each week.
- Treatment should continue long-term whilst the catheter remains in place.

**Daily review of central line necessity with prompt removal of unnecessary lines**

For in-patients with non-tunnelled central lines, daily review of line necessity will prevent unnecessary delays in removing lines that are no longer clearly needed for the care of the patient. Many times, central lines remain in place simply because they provide reliable access and because personnel have not considered removing them. However, it is clear that the risk of infection increases over time as the line remains in place and that the risk of infection decreases if the line is removed.

**REMOVAL**

Tunelled and non-tunnelled central lines may be removed for the following reasons:

Catheter infection
- Dysfunction of catheter
- Temporary access no longer needed (e.g. AVF mature or CVC line removed post-transplant)
- Renal function has recovered

This care bundle aims to ensure the safe removal of haemodialysis central venous catheters in particular to:
- Ensure haemostasis is achieved
- Minimise risk of infection
- Minimise risk of air embolism

Tunelled catheters are generally removed electively. Further information is contained within the Guidelines for the Insertion, Exchange or Removal of Tunnelled Central Venous Catheters (Permcaths) in Haemodialysis Patients. Appendix 2 below describes the procedure for the removal of non-tunnelled central venous catheters.
### Central Venous Catheter Care Pathway

**For use in the Adult Renal and Transplant Unit ONLY**

- This care pathway should be followed for all patients with tunneled and non-tunnelled central venous dialysis catheters.
- All variations to care **MUST** be documented on variance section of this care pathway.
- **ALL STAFF** are responsible for completing this pathway whether the patient is having renal replacement therapy or not.
- Please ensure this form is kept with the drug card until completed, then file in the medical notes.

#### Pre-Insertion

**Tunneled line insertion in interventional radiology – complete interventional radiology proforma as well**

<table>
<thead>
<tr>
<th>On oral anticoagulants?</th>
<th>☐ Yes</th>
<th>☐ No</th>
<th>Last given: Date .......... Time ..........</th>
</tr>
</thead>
<tbody>
<tr>
<td>On aspirin / antiplatelet drugs?</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td>Aspirin / Dipyridamole / Clopidogrel Last given: Date .......... Time ..........</td>
</tr>
<tr>
<td>On heparin / LMW heparin?</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td>IV heparin / LMWH (prophylaxis) / LMWH (therapy) Last given: Date .......... Time ..........</td>
</tr>
<tr>
<td>Recent line / other infection</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td></td>
</tr>
<tr>
<td>MRSA screen obtained</td>
<td>☐ Yes</td>
<td>☐ No</td>
<td>Result (if available) ☐ Negative ☐ Positive</td>
</tr>
</tbody>
</table>

**Allergies** (including any dressings)

<table>
<thead>
<tr>
<th>Blood results (please ensure appropriate blood test results are recorded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INR (if on warfarin) .......... PT .......... Date taken ..........</td>
</tr>
<tr>
<td>Acceptable limits</td>
</tr>
<tr>
<td>INR &lt; 1.3, PT &lt; 15</td>
</tr>
<tr>
<td>Hb &gt; 8 g/dl</td>
</tr>
<tr>
<td>Plts &gt; 30</td>
</tr>
</tbody>
</table>

| Planned date of insertion: .......... |

| Nasal mupirocin prescribed for 5 days | ☐ Yes | ☐ No | Date started .......... |
| Octenisan wash prescribed for 5 days | ☐ Yes | ☐ No | Date started .......... |

| Prophylactic antibiotics prescribed on drug chart |
| ☐ Not applicable |

| Comments (e.g. reason for proceeding with out of range bloods) |

**Signature of Doctor completing .......... Print Name ..........**

**Insertion Checklist** (If line inserted outside renal unit give date of insertion and turn to next page)

**Information about where the line was inserted**

<table>
<thead>
<tr>
<th>Date Inserted ..........</th>
<th>Time (24hrs) ..........</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward / Area</td>
<td></td>
</tr>
<tr>
<td>☐ Bramley Treatment Room</td>
<td>☐ Bramley Bedside</td>
</tr>
<tr>
<td>☐ Interventional Radiology</td>
<td>☐ Other ..........</td>
</tr>
</tbody>
</table>

| Name of person inserting line |
| Grade |
| ☐ Consultant | ☐ Specialty Registrar | ☐ CMT 1/2 |

| Name of person assisting |
Insertion Checklist for Central Venous Line Insertion

CONSENT
Patient consent obtained? Yes No Comments

Information about the device
Type of catheter
☐ Tunnelled dialysis catheter
☐ Non-tunnelled dialysis catheter
☐ Other tunneled catheter
☐ 3 or greater lumen catheter

Catheter site
☐ Internal jugular
☐ Femoral
☐ Subclavian

If femoral line, reason for choice of site

Manufacturer

Product code & Batch No.

Line size (gauge)
Line length (if applicable)
No. of lumens:

Procedure – Assistant to complete

Perform procedural pause:
Check patient ID
Ensure prophylactic antibiotics administered if appropriate
Announce procedure to be performed
Assess site for cannulation with ultrasound
Ensure patient is positioned correctly for procedure

• Hands washed
• Wear sterile gown and gloves
• Face/eye protection used
• Wear surgical cap and mask
• Use 2% Chlorhexidine in 70% isopropyl alcohol to prepare skin? (or Povidone Iodine application if patient sensitive)
• Use large drape to cover patient in a sterile fashion

Apply Chlorhexidine impregnated IV dressing (Tegaderm CHG 1857R) to exit site (non-tunneled lines)

Site of insertion
Ultrasound used? Yes No N/A (e.g. Arterial line)
Comments

Removal of Guide Wire(s) MUST be confirmed and documented by both person inserting line and person assisting

Person inserting line
Person assisting

Print name
Signature
Date

Procedure – Line inserter to complete
Check list above followed? If not indicate WHY in comments
Comments

Post Insertion Checklist

Chest x-ray reviewed
☐ Yes ☐ N/A Date Time

Complications noted on Chest x-ray review?
☐ Yes ☐ No
If yes, please specify (describe fully in medical notes):

Sign off that line can be used for treatment
Name of Doctor: Signature:
### Monitoring Chart

**Patient name:**  
**Hosp no.:**

Please initial each aspect of care on completion of assessment. Lightly shaded areas represent variances in care; please enter the reasons for these variances in the variance section. **All lines should be examined daily.**

<table>
<thead>
<tr>
<th>Day (state date)</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interventions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dressing clean dry and intact (change day 7)</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Chlorhexidine impregnated dressing (NON TUNNELLED LINES ONLY)</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Patient afebrile (Temp. &lt; 37.5°C)</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Insertion site checked and Mr VICTOR score documented below</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Dialysis catheter sutures intact and secure</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Need for continued central access reviewed and documented</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Nasal mupirocin doses administered correctly</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Oclerinan washes used for 5 days post-insertion as per treatment card</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
<tr>
<td>Accessed for dialysis? Relock with trisodium citrate 47% solution</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
</tbody>
</table>

1. Femoral lines should be removed after 5 days. Temporary jugular lines should be removed after 14 days.
2. Nasal mupirocin should be administered for 5 days following a new line insertion (tunneled or non-tunneled). Patients with existing tunneled dialysis lines in situ should continue with weekly mupirocin administered one day a week (three doses administered during that day).

### Mr VICTOR score

<table>
<thead>
<tr>
<th>Day (state date)</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert Mr Victor score (0-4)</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
<td>pm</td>
<td>am</td>
</tr>
</tbody>
</table>

*Multi Racial Visible Inspection Catheter Tool Observation Record*
### Monitoring Chart Continuation Form

Please initial care appropriately. Lightly shaded areas represent variances in care; please enter the reasons for these variances in the variance section. **All lines should be examined daily.**

<table>
<thead>
<tr>
<th>Day (state date)</th>
<th>Day 8</th>
<th>Day 9</th>
<th>Day 10</th>
<th>Day 11</th>
<th>Day 12</th>
<th>Day 13</th>
<th>Day 14</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interventions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dressing clean dry and intact</td>
<td>am</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>(change day 7)</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorhexidine impregnated dressing</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(NON TUNNELLED LINES ONLY)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient apyrexial</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Temp. &lt; 37.5°C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion site checked and Mr VICTOR score documented below</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialysis catheter sutures intact and secure</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for continued central access reviewed and documented</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal Mupirocin doses administered correctly</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>See instruction below regarding patients with existing tunneled lines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dialysis catheter accessed? Reconnected with triosodium citrate 47% solution</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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1 Femoral lines should be removed after 5 days. Temporary jugular lines should be removed after 14 days.
2 Nasal mupirocin should be administered for 5 days following a new line insertion (tunneled or non-tunneled). Patients with existing tunneled dialysis lines in situ should continue with weekly nasal mupirocin administered **one day a week** (three doses administered during that day).

### Mr VICTOR score

<table>
<thead>
<tr>
<th>Day (state date)</th>
<th>Day 8</th>
<th>Day 9</th>
<th>Day 10</th>
<th>Day 11</th>
<th>Day 12</th>
<th>Day 13</th>
<th>Day 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert Mr Victor score</td>
<td>(0-4)</td>
<td>am</td>
<td>pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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2 **Multi Racial Visible Inspection Catheter Tool Observation Record**
## Line Removal

<table>
<thead>
<tr>
<th>Place of removal:</th>
<th>Date:</th>
<th>Number of days line in situ:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

| Time:              |               |

### Reason for removal:

- [ ] Was the line removed within 2-4 hours of decision?
- [ ] Line infected at any time?

### Standard of Removal

<table>
<thead>
<tr>
<th>Have you used?</th>
<th>Yes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand hygiene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterile gloves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterile field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorhexidine 2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occlusive dressing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catheter tip sant</td>
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<td></td>
</tr>
</tbody>
</table>

### Complications

- Exit site infection
- Bacteraemia
- Poor flow / catheter dysfunction
- Leak / bleed

### Removed by:

- Name (print):
- Signature:  
- Band:

### Nursing Staff Initial & Signature record

<table>
<thead>
<tr>
<th>Name</th>
<th>Initial</th>
<th>Signature</th>
<th>Name</th>
<th>Initial</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

### Significant Events & Variance Recording

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Significant Event/ Variance/ Actions taken</th>
<th>Name &amp; Signature</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
APPENDIX 2 PROCEDURE FOR REMOVAL OF NON-TUNNELLED CENTRAL VENOUS CATHETER

Confirm patient’s identity, explain and discuss procedure with patient and obtain verbal consent.

Aseptic no touch technique (ANTT) should be maintained at all times throughout the procedure.

Prior to procedure

- **Appropriate timing of procedure.** This is a semi-elective procedure: as such the responsible clinical team should ensure adequate staffing levels and appropriate competency exist to monitor the removal site and patient during and after the procedure and ensure patient comfort. The patient’s ability to comply with instruction should be considered in relation to post-procedural monitoring.

- **Possibility of coagulopathy.** Ensure patient is not anti-coagulated (i.e. on warfarin, heparin) or has not had haemodialysis using heparin within previous 4 hours. Check to ensure INR is <2 and platelet count >20. If these are abnormal discuss with nephrology consultant and haematology whether to defer pending correction if coagulation abnormal. In some cases, it may be still be appropriate to remove the line (e.g. severe sepsis) but careful attention to haemostasis is required.

- Lines must only be removed after discussion with the medical and nursing teams. Lines must be removed by professionals competent to do so or under the direct supervision of a competent healthcare professional (Registered nurse or medical practitioner assessed as competent to remove CVC catheters).

**Equipment required**

Dressing trolley  
Sterile dressing pack  
Chloraprep Sepp 0.67ml applicator  
Non-sterile gloves  
Apron  
Alcohol gel  
Occlusive Dressing  
Sterile gauze  
Stitch cutter  
Sterile scissors (if required)  
Bacteriological swab (if required)  
Sterile specimen container (if required)  
Sharps bin

**Procedure**

- Clean trolley with Clinell Universall Wipe  
- Explain procedure to patient and gain verbal consent  
- Wash hands with liquid soap and dry thoroughly, apply alcohol gel  
- Apply apron  
- Open sterile pack, place stitch cutter, occlusive dressing, and sterile gauze pads onto sterile field.
• Put patient flat in Trendelenburg position by tipping the bed (i.e. head slightly lower than feet) if neck line (subclavian or jugular). For femoral lines patient should be flat or slightly head up.

• Using non-sterile gloves remove existing dressing from patient’s central line site and place in clinical waste bag; inspect site.

• Remove gloves and decontaminate hands with alcohol hand gel.

• Wash hands with liquid soap and dry thoroughly

• Place sterile field around line site

• Apply alcohol hand rub and put on non-powdered sterile gloves

• Clean exit site with ChloraPrep Sepp 0.67ml applicator and leave to dry

• Remove sutures from line and dispose of stitch cutter in sharps bin

• Place several pads of sterile gauze over exit site, ask the patient to perform the Valsalva manoeuvre by taking breath in and out then holding breath in expiration with forced expiratory effort (“strain”) against closed airway – patient may be advised to pretend they are trying to blow into a trumpet

• Hold the catheter with one hand near the point of insertion and pull outwards firmly and gently.

• As the catheter begins to move, press firmly down on insertion site with the sterile gauze pads. **Maintain pressure on the puncture site with the swabs after the catheter has been removed for 5 minutes for a jugular or subclavian line and no less than 15 minutes for a femoral line.** Then carefully lift the pressure swab to check that there is no bleeding or swelling at puncture site.

• Care must be taken to ensure full haemostasis is achieved with no evidence of bleeding before leaving the puncture site pressure free. Serious complications including fatalities from bleeding from a femoral catheter site have been reported to the National Patient Safety Agency

• Place line in sharps bin unless removing for infection when tip needs to be removed with sterile scissors and sent for Microscopy, Culture and Sensitivity.

• Digital pressure should be applied until haemostasis is achieved. Pressure dressings provide inadequate compression and can increase patient discomfort and delay the detection of bleeding.

• When bleeding has stopped apply sterile, occlusive dressing to site leave dressing in situ for 72 hours (unless signs of leakage or infection)

• Dispose of equipment in clinical waste bag

• Following removal of jugular/subclavian lines nurse patients sitting up at 45 degrees with minimal activity for 30 mins. Following removal of femoral lines ensure the patient lies flat with minimal activity for 60 mins. If no noticeable bleeding occurs make patient comfortable.

• If bleeding occurs maintain pressure on the insertion site and seek medical advice.

• Ensure that the patient can be appropriately observed following the procedure. This is particularly important for confused patients. Check site for signs of bleeding every 15 mins for the first hour, then every 30 mins for the next 2 hours.

• Document removal of line in care pathway bundle

• Recent removal of line should be taken into account in determining timing of safe discharge from hospital