Ongoing Care of a Renal Dialysis Catheter

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

INTRODUCTION

Renal patients requiring dialysis via a Renal Dialysis Catheter (RDC) are at high risk of blood stream infections. The Renal Registry (2008) reported that such patients are 800 times more susceptible to contracting MRSA than the normal public. Although this underlining risk of infection is related to uraemia, the increased exposure to hospital environments and to the type of renal replacement therapy also contribute to the problem. The use of renal dialysis catheters is the most common contributor to bacteraemia's in dialysis patients.

THIS GUIDELINE IS FOR USE BY THE FOLLOWING STAFF GROUPS:

Registered nurses trained, assessed and found competent in caring for a renal dialysis catheter only.

Lead Clinician(s)

Alison Shelton	Dialysis Unit Manager
Approved by Renal Specialty Meeting on:	27th February 2023
Review Date: This is the most current document and is to be used until a revised version is available	27th February 2026

Key amendments to this Document:

Date	Amendment	By:
May 2010	Guideline approved by	Clinical Effectiveness Committee
25/07/2013	Guideline reviewed and approved by	Dr Martin Ferring
07/08/2015	Document extended for 12 months as per TMC paper approved on 22nd July 2015	TMC
14/11/16	Further extension as per TMC 22nd July 2015	TMC
October 2017	Document extended for two years with no changes	Dr Martin FERRING
January 2020	Document extended for three months whilst under approval process	Dr Martin Ferring
14TH April 2020	Document extended for 6 months during COVID period	
February 2021	Document extended as per Trust agreement 11.02.2021.	
15th December 2021	Document extended for 6 months to allow for thorough review	Specialist Medicine Divisional Governance
17th March 2022	Document extended until the end of the year to allow for thorough review	Dr Jasper Trevelyan
January 2023	Document reviewed no amendments required	

Introduction

Patients with renal disease requiring renal replacement therapy are at the highest risk of contracting blood stream infections. Those with a RDC are 800 times more at risk of acquiring MRSA, than those with an arteriovenous fistula which are 100 times more vulnerable than the normal public. General access sepsis rates also state RDC as high risk. AVF rates are 2.5 per 1000 dialysis sessions against RDC (permanent) at 13.6 and temporary RDC at 18.4 per 1000 dialysis sessions. The prevention of all HCAI is everyone's responsibility. The NHS and government have prevention and control of healthcare associated infections (HCAI's) as their highest priority. Effective clinical prevention and control of practice are essential features in protecting patients and eradicating infection. Consistent best practice must be embedded into every day clinical care to minimise risks of HCAI's and patient safety. Training, adherence and auditing are essential in ensuring tight consistent compliance and bad sloppy practice must be eradicated.

Support for Development of the Guideline

The Department of Health has issued to Chief Executives, a number of harsh targets relating to reducing infection which must be met by their Trusts. To reinforce the government's commitment to reducing infection it has produced a number of documents to assist and support Trusts. Getting Ahead of the Curve, Winning Ways: working together to reduce healthcare associated infection in England (2003). Towards Cleaner Hospitals and Lower Rates of Infection; a summary action as guidance to reduce HCAI (2004). Saving Lives, a delivery programme to reduce healthcare associated infection including MRSA (2005). The Essential Steps to Safe Clean Care: reducing healthcare associated infection (2007) and the Health Act: Code of Practice for the Prevention and Control of Healthcare Associated Infections (2006).

The National Patient Safety Agency issued campaigns also to complement reducing infection with Clean your hands Campaign (2004) and EPIC 2: Updated National Evidence-based Guidelines for Preventing Healthcare Associated Infection (2007)

All of this evidence has produced agreed best practice standards which the West Midlands Senior Nurse Forum have signed up to on behalf of their Trust. This commitment pledges that every renal dialysis catheter intervention will be compliant and adhere to using such evidence and best practice standard procedures. Deviation and non concordance to best practice must be documented and investigated as to the reason for incurring possible risk and infection.

Details of the Guideline

This guideline will ensure consistent care is delivered to all patients with a RDC. Using the above detailed evidence, the target and intention is to minimise blood stream infections, with zero infections as the goal.

The main aspects to ensuring infection rates are zero is strict adherence to hand decontamination and in the case of RDC strict aseptic procedures.

The guideline steps will be in two parts. Redressing the exit site of a RDC and Accessing a RDC. Both parts require achievement of competency before the tasks can be performed unsupervised.

Guideline Steps

This guideline must be carried out maintaining strict adherence to the principles of asepsis. Strict adherence to hand hygiene also applies before, during and after the procedure. 2% Chlorhexidine Gluconate in 70% Alcohol is the preferred solution as it provides rapid antimicrobial action and residual activity. If the RDC manufacturers recommendations prohibit the use of alcohol to be used on the tubing, hubs and luer connections, then Chlorhexidine Gluconate Aqueous solution should be used. For patients with sensitivity to Chlorhexidine a povidine-iodine product must be used. Where deviation from the standard CHG alcohol is not used, then this must be documented in the patients records as evidence and an incident report completed to log the event. If this deviation is a long term allergy issue and is confirmed as a true allergy via testing this must be documented in the patients notes and care plan.

Part 1
Redressing the exit site of a Renal Dialysis Catheter

Equipment required to clean and dress the exit site of a RDC

- Dressing trolley
- Apron
- Visor
- Tub of general detergent wipes
- Alcohol hard surface cloth
- Pair of non sterile gloves
- Pair of sterile gloves
- Sterile dialysis / dressing pack
- Chlora prep 2% applicator
- IV 3000 / Tegaderm dressing
- Disposal bag

Procedure steps to clean and redress the exit site of a RDC

i) Explain procedure to the patient
ii) Identify any sensitivities to equipment to be used
iii) Record temperature
iv) Gather equipment
v) Decontaminate hands
vi) Clean all sides of trolley with detergent wipes, allow to dry. Allow to dry
vii) Don apron and visor
viii) Prepare remaining equipment onto sterile pack.
ix) Decontaminate hands and don non sterile gloves
x) Remove old exit site dressing (taking care not to tug on catheter) and dispose and remove gloves.
xi) Wash hands with soap and water using the 6 step hand decontamination technique, allow to dry thoroughly.
xii) Don sterile gloves

xiii) Examine exit site for the following: (according to exit site scoring tool MR. VICTOR)
xiv)
- Redness
- Swelling soreness
- Oozing
- Crusting
- Pain

xv) If concerned follow protocol with scoring tool MR. VICTOR (appendix 1)

xvi) Clean site using Chloraprep applicator with firm circular movements, working from the exit site outwards
xvii) Allow to dry for 30 seconds
xviii) Apply fresh IV 3000 / Tegaderm dressing and date with next due dressing date
xix) Check the lumen tube ends are still covered and secure.
xx) Dispose of equipment safely and re clean trolley
xxi) Decontaminate hands
xxii) Document in patients notes details of the procedure, next due date of dressing, exit site score and temperature.

Part 2
Accessing a Renal Dialysis Catheter

Equipment required to access, take blood samples and or lock off a RDC

- Dressing trolley
- Apron
- Visor
- Tub of general detergent wipes
- Alcohol hard surface cloth
- Pair of non sterile gloves
- Pair of sterile gloves
- Sterile dialysis / dressing pack
- Extra pack of gauze
- Disposal bag
- PDI – Chlorhexidine 2% in alcohol 70% wipes x 2
- 5ml syringes x 2 (for removing lumen lock)
- 10 ml syringes x 2 (to flush lumens with saline)
- Syringes to take blood samples
- 2ml syringes x 2 (to lock lumens with lumen lock solution)
- Green needle x1
- Lumen caps x 2
- Lumen locking solution (Heparin or an antimicrobial such as Dura lock)

Procedure steps to access, take blood samples and or lock off a RDC

i) Explain procedure to the patient
ii) Identify any sensitivities to equipment to be used
iii) Record temperature
iv) Gather equipment
v) Decontaminate hands

vi) Clean all sides of trolley with detergent wipes, allow to dry before wiping with the alcohol wipe. Allow to dry
vii) Don apron and visor
viii) Prepare remaining equipment onto sterile pack.
ix) Review exit site in case it requires changing
x) Decontaminate hands and don non sterile gloves
xi) Remove gauze cover from ends of lumen hubs, using sterile new gauze drop lumens back down onto it. Remove gloves.
xii) Wash hands with soap and water using the 6 step hand decontamination technique, although to dry thoroughly.
xiii) Don sterile gloves
xiv) Place the waterproof sheet and absorbent sheet under lumens removing the piece of gauze
xv) Clean hub ends with PDI CHG 2% wipes (leave wipe wrapped around hubs)
xvi) Allow to dry for 30 seconds
xvii) Ensuring clamps are on, remove caps, attach 5ml syringe and with draw volume of locking agent and blood. Discard.
xviii) At this point blood samples can be taken (except INR) by attaching a fresh syringe
xix) Draw up 5mls sodium chloride 0.9% and flush each lumen ensuring a good flow is present. (If not then report to Doctor for synerkinase or RDC review)
xx) At this point either attach to dialysis machine using sterile gauze to touch lines, or lock each lumen.
xxi) To lock off lumens – flush each lumen again with a further 5mls sodium chloride 0.9%, and lock (using the pressure lock method) with the exact lumen catheter volume of prescribed Lumen Locking Solution drawn in a 2 ml syringe for each lumen
xxii) Ensure clamps are closed and attach new caps to ends of lumens.
xxiii) Wrap lumen ends with gauze to keep clean and avoid trauma.
xxiv) Dispose of equipment safely and re clean trolley
xxv) Decontaminate hands

- Document in patients notes details of the procedure and sign prescription.

- Ensure the patient has a copy of and understands how to care for their renal dialysis catheter and who to contact if they are concerned *(Caring for your renal dialysis catheter)*

Monitoring Tool

The guideline, training and achievement of competency will be assessed annually by the unit manager. Only trained staff will be permitted to handle, care and access RDC. This guideline is a mandatory requirement and must be applied consistently.

Staff will document the procedure using the Vascular Assessment Monitoring Form (Appendix 1) following the guidelines from DOGH Renal Vascular Assess Management (Appendix 2). This will be also monitored on a monthly basis using the High Impact Intervention III renal dialysis catheter bundle review audit tool. Monitoring will be conducted by either the unit manager or the infection control link nurse who must competent in the guideline.

Aseptic technique used during accessing and caring for a RDC, will be assessed annually as stated above.

When a blood stream infection occurs a root cause analysis will be conducted according to Trust policy and where necessary a review of staff training and competency and patient knowledge and education.

STANDARDS	%	CLINICAL EXCEPTIONS
For all patients to be treated in the same consistent manner and receive the same high standards	100%	None

Monitoring

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	These are the 'key' parts of the process that we are relying on to manage risk. We may not be able to monitor every part of the process, but we MUST monitor the key elements, otherwise we won't know whether we are keeping patients, visitors and/or staff safe.	What are we going to do to make sure the key parts of the process we have identified are being followed? (Some techniques to consider are; audits, spot-checks, analysis of incident trends, monitoring of attendance at training.)	Be realistic. Set achievable frequencies. Use terms such as '10 times a year' instead of 'monthly'.	Who is responsible for the check? Is it listed in the 'duties' section of the Policy? Is it in the job description?	Who will receive the monitoring results? Where this is a committee the committee's specific responsibility for monitoring the process must be described within its terms of reference.	Use terms such as '10 times a year' instead of 'monthly'.

References

- West Midlands Senior Renal Nurse Standards for Ongoing Care of a Renal Dialysis Catheter
- Department of Health (2005) Saving Lives: A delivery programme to reduce healthcare associated infection including MRSA
- EPIC 2: Updated National Evidenc-based Guidelines for Preventing Healthcare Associated Infection. Journal of Hospital Infection. February 2007; 65S:S1 – S64
- The Health Act (2006): Code of Practice for the Prevention and Control of Healthcare Associated Infections. DoH
- National Patient Safety Agency (NPSA) 2004 Clean**your**hands Campaign
- Department of Health (2004) Towards cleaner hospitals and lower rates of infection: A summary of actions
- Department of Health (2007) Clean, safe care: Reducing MRSA and other healthcare associated infections – a national debate
- Department of Health (2003): Winning Ways: Working together to reduce healthcare associated infection in England
- Department of Health High Impact Intervention No 3: renal dialysis catheter care bundle
- Renal Registry Report (2008)

CONTRIBUTION LIST

Key individuals involved in developing the document

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Clarisa Marquez	Ward Manager, RDU,KTC

Circulated to the following CD's/Heads of dept for comments from their directorates / departments

Name	Directorate / Department

Circulated to the chair of the following committee's / groups for comments

Name	Committee / group

Appendix 1

RENAL UNIT DIALYSIS KTC
VASCULAR ACCESS MONITORING FORM

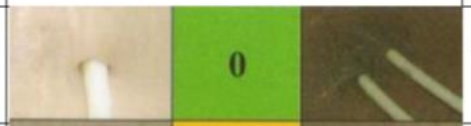
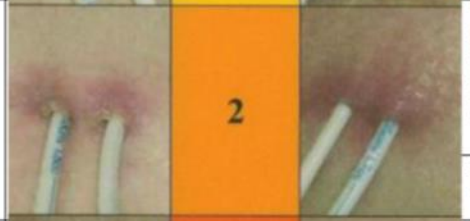
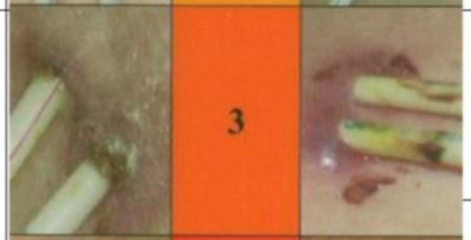
MONTH / YEAR _____

Name Address (patient label) NHS number		Access (please circle) AVF / AVG / catheter Left / Right Date Created: Date First Used:		
Access type (please circle)				
Brachio cephalic	Radiocephalic	Femoral	Internal Jugular	
Brachiobasilic transposition	Brachio basilic	Subclavian	Other	

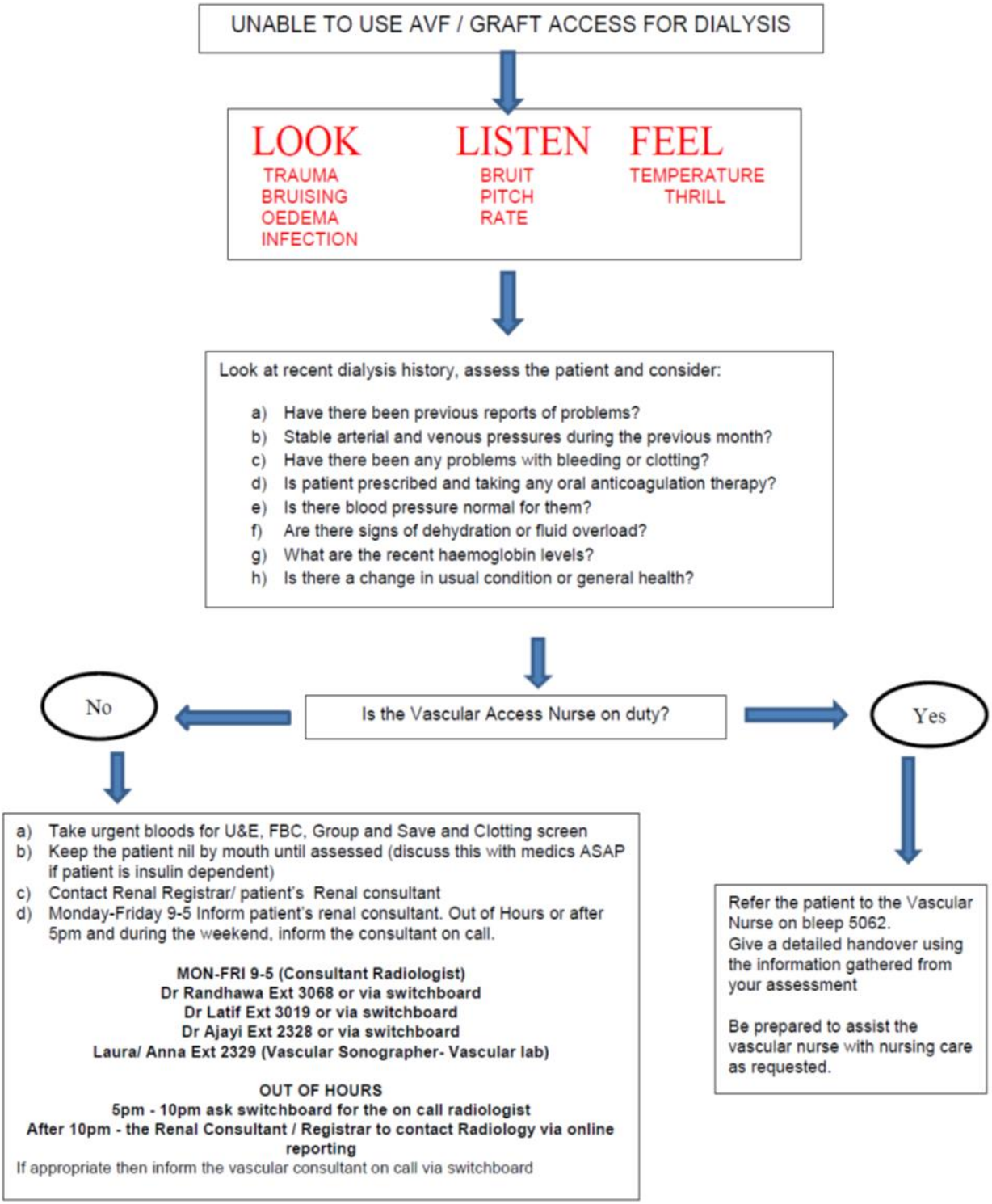
Date	AVF /AVG Pre needling Assessment						Renal Catheter						
	THRILL Normal (N) Abnormal (A) Absent(NIL)	**BRUIT Normal (N) Abnormal (A) Absent (NIL)**	**British Renal Society (BRS) Score (0-3)**	**Aneurysm present Y / N**	**Cannulation Technique used**	**Needle used**	**MR VICTOR (CVC) Score (0-4)**	**CVC Straight (S) Reverse (R)**	**Access safe to use Y / N**	**Has Combined access been flushed Y / N Actaplase used (A)**	**Swab done (MRSA, CPE)**	**Comments**	**Print and Sign**

Date	AVF /AVG Pre needling Assessment						Renal Catheter						
	THRILL Normal (N) Abnormal (A) Absent(NIL)	**BRUIT Normal (N) Abnormal (A) Absent (NIL)**	**British Renal Society (BRS) Score (0-3)**	**Aneurysm present Y / N**	**Cannulation Technique used**	**Needle used**	**MR VICTOR (CVC) Score (0-4)**	**CVC Straight (S) Reverse (R)**	**Access safe to use Y / N**	**Has Combined access been flushed Y / N Actaplase used**	**Swab done (MRSA, CPE)**	**Comments**	**Print and Sign**

MR VICTOR – Multi Racial Visual Inspection Catheter Tool

White/Pale/Asian Skins Inspection	These pictures are a guide only Action	Score	African/Caribbean/Asian Skins Inspection	These pictures are a guide only Action
Central venous exit site appears healthy Dressing intact	**No signs of infection** Observe daily Document		Central venous exit site appears healthy Dressing intact	**No Signs of infection** Observe daily Document
The following signs may be evident: Slight redness around exit site Slight pain around the exit site	**Possible signs of infection:** Observe exit site Dressing intact Document		**The following signs maybe evident:** Darker/Shiny/Dull skin Slight pain Hot to touch Slight redness around exit site None of the above may be apparent Ask the patient if the exit site is hot or painful	**Possible signs of infection:** Observe exit site Dressing intact Document
The following signs maybe evident: Redness Pain Swelling along exit site Pyrexia Neutropenic (low WCC) Patient may not display any of the above signs	**Early signs of infection:** Take dressing down Swab exit site Re-dress Inform nurse in charge Inform SpR or above to initiate treatment Document		**The following signs maybe evident:** Darker/Shiny/dull skin Pain Jot to the touch Pyrexia Slight redness around exit site None of the above may be apparent As the patient if the exit site is hot or painful	**Early signs of infection:** Take dressing down Swab exit site Re-dress Inform nurse in charge Inform SpR or above to initiate treatment Document
The following signs may be evident: Redness Pain Swelling/Tracking along exit site Exudate/Pus Crusting Pyrexia Neutropenic (low WCC) Patient may not display any of the above signs	**Advanced signs of infection:** Take dressing down Swab exit site Re-Dress Away result Inform nurse in charge Inform SpR or above to initiate treatment Document		**The following signs maybe evident:** Darker/Shiny/Dull skin Pain Hot to touch Golden crusting Pyrexia Slight redness around exit site Swelling/Tracking along exit site None of the above may be apparent As the patient if the exit site is hot or painful	**Advanced signs of infection:** Take dressing down Swab exit site Re-dress Await result Inform nurse In charge Inform SpR or above to initiate treatment Document
The following signs may be evident: Redness Pain Swelling/Tracking along exit site Exudate/Pus Crusting Oedema Pyrexia, Chills, Rigors, Raised WCC Raised CRP	**Severe signs of infection:** Take dressing down Swab exit site Re-dress Take blood culture central or peripheral sample Inform nurse in charge Inform SpR or above to initiate treatment Commence IV antibiotics Refer for removal of catheter Document		**The following signs maybe evident:** Darker/Shiny/Dull skin Pain Hot to touch Swelling/Tracking along exit site Exudate/Pus Golden crusting Pyrexia, Chills, Rigors Raised WCC Raised CRP Swelling/Tracking along exit site	**Severe signs of infection:** Take dressing down Swab exit site Re-dress Take blood culture central or peripheral sample Inform nurse in charge Inform SpR or above to initiate treatment Commence IV antibiotics Refer for removal of catheter Document

RENAL UNIT EMERGENCY MANAGEMENT PATHWAY FOR A FAILED ARTERIOVENOUS FISTULA or GRAFT



Note: refer patient to RHH instead of Vascular Access Nurse on duty. Pathway adopted from RHH Renal Unit.

British Renal Society (BRS) Vascular Access Arteriovenous Fistula/Graft (AVF/AVG) Pre-Needling Assessment Tool

Signs and Symptoms	Score	Actions
• No scabs larger than the needle sites • No pain or new swelling • No necrosed area • No aneurysms • No erythema • Normal Bruit / thrill • No hardness over AVF/AVG	0	No Action required Safe to needle
▪ No pain or new swelling ▪ No necrosed areas ▪ No scabs larger than the needle sites ▪ No erythema ▪ Normal Bruit/Thrill ▪ No hardness over AVF/AVG ▪ Aneurysms present and stable ○ Not increasing in size ○ Skin not shiny or thin over aneurysms	1	Monitor aneurysm Consider photograph AVF/AVG for reference Document aneurysm size by measuring arm diameter at aneurysm and position Safe to insert needle
• No necrosed areas • No scabs larger than needle sites anywhere on fistula Any of the following • Pain or discomfort to any area on the AVF/AVG • Aneurysms increasing in size or pulsating • New aneurysms • Thin and shiny skin around AVF/AVG • Whistling bruit on auscultation • Non-needling segments hard on palpation • Bleeding around needle site during dialysis • Extended post dialysis bleeding >20 minutes • Erythema >3 mm anywhere on the AVF/AVG	2	Refer to RHH / Vascular Access Team Previous actions (Score 1) Patient information given on actions and escalation if fistula bleeds at home. Review individual's antiplatelet and anticoagulation prescription (INR, tinzaparin, clexane). Refer to Doctor Swab erythema site Lift arm above head, to assess whether aneurysm(s) drain. Assess before needling- refer to Senior Nurse, Doctor
Any previous signs with any of the following: ❖ Pain / swelling to AVF/AVG ❖ Necrosed area on AVF/AVG ❖ Patient reports sites bleed at home ❖ Scabs at needle sites or elsewhere >3mm ❖ Absent or changed thrill on palpation ❖ Oozing (pus) from red/inflamed areas ❖ Erythema increased in size	3	DO NOT NEEDLE Urgent referral to RHH vascular team Swab pus / erythema Take bloods culture if erythema or pus present Take U&Es, CRP, ESR Refer to Doctor

Renal Unit Access Monitoring and Surveillance Standard Guide

Cannulation technique to be documented every session

Rope ladder (Antegrade / Retrograde)

Buttonhole

Needle size 17g, 16g, 15g, 14g (short hub / regular)

Assessment to be completed every session

LOOK

- Redness Swelling Bruising/Haematoma
- Aneurysm Oedema Vessel flat spot
- Scab size Exudate Discolouration of fingers

LISTEN (use stethoscope)

- Bruit present (whooshing sound)
- Pitch sound: continuous low pitch = Normal
  - High Pitch = ref to RHH renal unit

FEEL

- Thrill present (Buzzing or purring session)

ARM ELEVATION (possible stenosis if AVF will not collapse)

- Raise Arm: AVF collapse
- Raise Arm: AVF not collapsing

BLEEDING post treatment

- < 5 min – 10 min
- 10 min

Venous pressure challenge

- New AVF (if blood flow > 200 ml/min, then VP should be <150 mmHG)
- Established AVF (if blood flow > 300 ml/min, then VP should be < 200mmHG)

Access Flow

- Measured every 3 months using the “twister devise “.
- Should be greater than 500 mls/min for AVF
- Greater than 600mls/min for AVG

Dialysis Adequacies to be recorded following monthly bloods

- State if URR > 65% or URR < 65%
- Any significant increase in pre-urea, creatinine, potassium

Recirculation Studies

- State percentage: acceptable range > 15%, <15% refer to RHH renal unit

Appendix 2

Renal Vascular Access Management SOP from RHH.

Chapter 2

STANDARD OPERATING PROCEDURE DETAIL

The ideal vascular access for haemodialysis should provide safe and effective therapy by enabling the removal and return of blood via an extracorporeal circuit. Vascular access should be easy to use, reliable and have minimal risk to the individual receiving haemodialysis. (Renal association 2015)

The Renal Association (2015) has recommended that an arteriovenous fistula should be first choice for primary vascular access however it is identified that central venous access devices are still widely used in certain circumstances as a last resort and that the risk of infection or complications is significantly reduced by high standards of care and maintenance.

2.1 Types of renal Vascular Access

- Arteriovenous fistula
- Arteriovenous graft
- Long term catheter
- Temporary haemodialysis catheter

2.2 Common AVF/AVG complications

- Primary failure due to poor fistula maturation
- Stenosis due to neo-intimal hyperplasia in established access
- Thrombosis as a result of stenosis
- Thrombosis other causes
- Central vein stenosis
- Aneurysm and thin and shiny AVG/AVF skin
- Steal syndrome and necrosis
- Fistula Infection (erythema/pus)
- Bleeding fistula (BRS)
- Scabs
- Cardiac complications
- Haematoma
- Pain

2.3 Advantages and disadvantages of different types of vascular access

Arteriovenous fistula

Advantages	Disadvantages
Can be used for a long time	Cannot be used immediately due to maturation time
Less infection risk	aneurysm
Does not involves any medical devices	bleeding
Patients can bathe normally	Manual handling of heavy objects may cause problems
Good clearance on dialysis	Can clot
Easy to teach self-care	Body image
Recommended by the Renal Association Guidelines as the 1st choice of access	Cardiac failure from high flow
Can be created in advance for a planned start onto dialysis	
Can achieve excellent blood flows – good clearance	

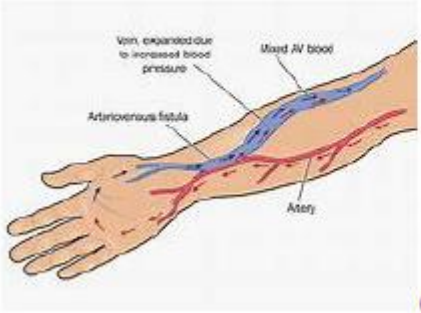
Grafts

Advantages	Disadvantages
Can be used very quickly after formation	Infection risk higher
Patients can bathe normally	aneurysm
Can be created in patients with vascular problems	bleeding
Recommended by the renal Association as the 2nd choice of access	clotting
	May require intervention after 2 years

2.4 Arteriovenous fistula

An arteriovenous fistula (AVF) is a surgically created anastomosis between a vein and an artery to create an arterialised vessel that can withstand high enough blood flows to allow haemodialysis to take place using specially designed wide bore needles inserted into the AVF.

Figure 1 shows an arteriovenous fistula formation



(Images curtesy of Medical Access)

2.5 Arteriovenous Graft

A vascular graft is a tube-shaped synthetic material surgically implanted in the veins and arteries. These grafts are used to create vascular access in hemodialysis patients. The Graft is cannulated using wide bore needles that can maintain adequate blood flows to allow for efficient dialysis.

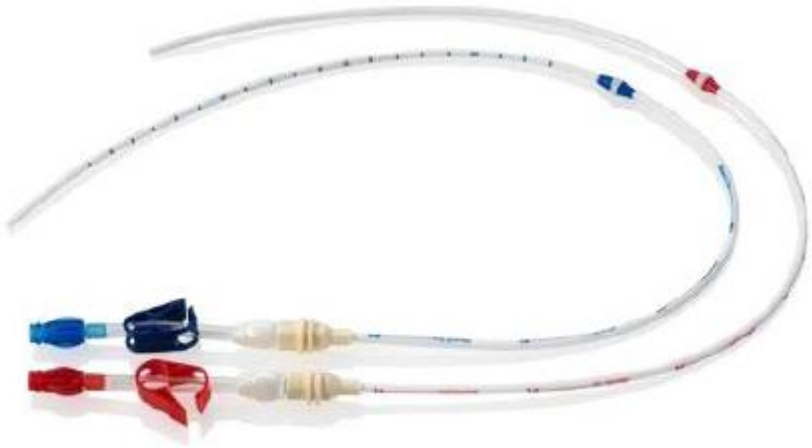
Figure 2 shows a graft formation

Chapter 5
LONG TERM CATHETER (TUNNELLED) AND TEMPORARY CATHETER

A tunnelled catheter or long term catheter is tunnelled under the skin and sits usually in a large vein such as the Internal Jugular vein in the neck, this is the most common site however they can also be placed in the femoral or subclavian veins. Tunnelled catheters are used to provide long term dialysis and can be left in for an unlimited period of time; however, there is an increased risk of infection with a long term catheter and a fistula is always the best choice for vascular access.

Figure 3 shows a dual lumen long term catheter.

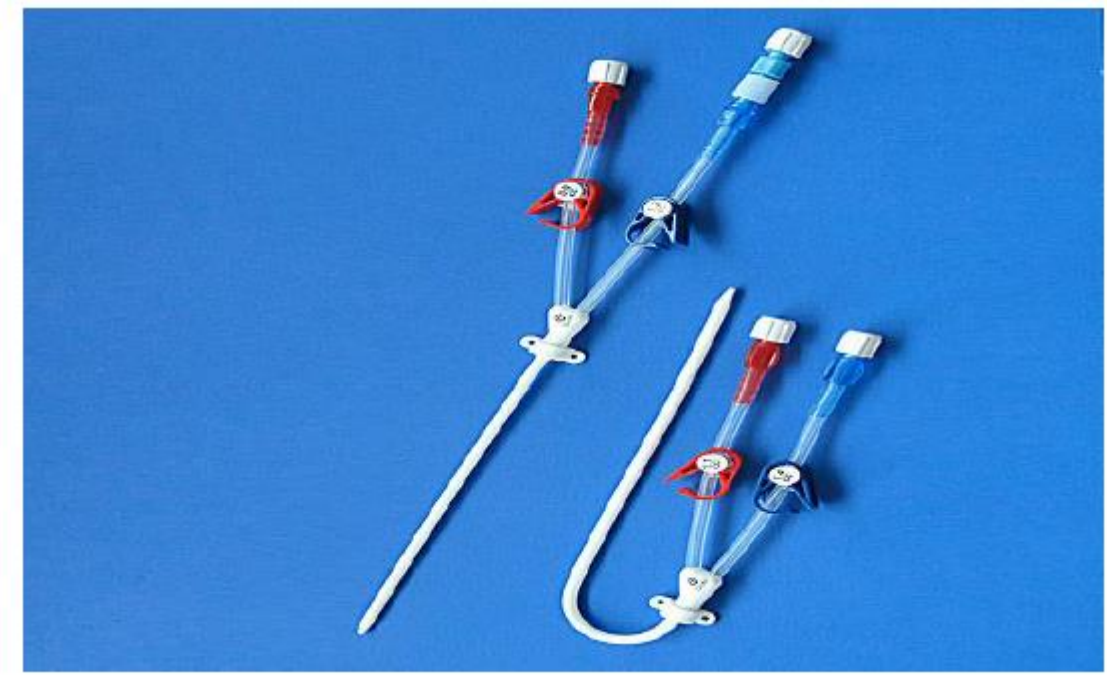
Figure 4 shows a single lumen long term catheter.



5.1 Temporary haemodialysis catheter

A temporary catheter is for short term emergency use and is not tunnelled under the skin. A temporary catheter does not have a cuff. The catheter can be inserted into a large vein such as the internal Jugular, subclavian vein or femoral vein to provide temporary access to the circulation for dialysis. Temporary catheter should be removed as soon as possible; the Renal Association suggest that a temporary line should only be used for a maximum of 7 days. (Renal Association 2015)

A temporary (non cuffed) catheter.



Long term tunnelled catheter

Advantages	**Disadvantages**
Can be used immediately	Patient cannot bathe normally
Not painful	Patient cannot swim
No risk of post dialysis bleeding	Infection risk very high
The Renal Association recommend this as a 3rd choice of access.	Can cause central vein stenosis
	clotting
	Bleeding and risk of pulling out
	Increase risk of DVT if femoral vein used

Temporary catheter

Advantages	Disadvantages
Can be used immediately	High risk of infection
Can be used for short term treatment/acute	Can cause bleeding
The Renal Association consider this an option of necessity.	Central venous stenosis
	Can be pulled out easily
	Risk of DVT

Chapter 6
CATHETER MONITORING AND SURVEILLANCE

Long term catheters (tunnelled) are widely associated with increased patient morbidity and mortality and are accountable for additional expense to the haemodialysis provider. They are linked with a significantly higher rate of infection than a native AVF or surgically inserted AVG. The Renal Association (2015) recommends that they are used in an emergency only and as a last resort.

Where a catheter is being used the renal unit utilise the MR VICTOR™ Appendix 3 shows the tool. The tool describes:

- Multi racial
- Visual
- Inspection
- Catheter
- Tool
- Observation
- Record

The tool is used to inspect a catheter exit site for signs of infection and uses a rating scale of 0-4 with actions assigned to each rating in detecting and treating possible infection. The tool takes into consideration different types of skin colour that may not with traditional monitoring tools show signs of infection.

The Renal Unit Access and Iron Monitoring form (Appendix 1) will be completed at each dialysis session referring to the Renal Unit Access monitoring and surveillance standards guide (appendix 2) to determine access performance by monitoring effective blood flow, monthly Urea Reduction Ratio and the Therapy Monitoring System (TMON) records venous and arterial pressures.

Chapter 7
COMPLICATIONS OF CENTRAL VENOUS ACCESS DEVICES

7.1 Mechanical failure/split catheter/clamp failure

Rupture or cracking of the body of a catheter is rare but can increase with long term use. The Renal Association (2015) identifies that an AVF is always the first access of choice however there are circumstances where a long term catheter will be used. Where mechanical failure occurs due to rupture or cracking of the catheter body this must be treated immediately to reduce the risk of contamination to the blood stream.

Catheter clamp breakages- clamps can be replaced using the “E” clamp (Side Pinch TM)

Dual Lumen catheter body ruptures/cracks - these catheters cannot be repaired and an urgent assessment by the Renal Consultant gained to determine if the catheter can safely be used until it is replaced

MedCOMPTM Catheters - these are single lumen are easily repaired using the Bio-Flex Tesio extension set and end cap repair kit that is always available in the Renal Unit and can be repaired using the procedure outlined in Appendix 9.

7.2 Line occlusion

Improving blood flows in haemodialysis catheters is essential in ensuring that dialysis adequacy is maintained. When problems are identified such as poor flow the Renal Unit can refer to Urokinase locks to improve blood flow rates in occluded haemodialysis vascular access standard operating procedure.

When a catheter has been identified with poor flow and the urokinase lock has been administered without success on 2 consecutive occasions a Catheterogram can be discussed with the Renal Vascular Access Nurse who will assist with arranging this. A patient information leaflet is available on the Hub.

Following the Cathetergram, the clinician with give instructions to the nursing team and arrange for further access intervention or formation if necessary.

The consultant may also suggest using an alteplase lock for occluded lines. Appendix 17 outlines the protocol.

7.3 Cuff Exposure

The Dacron cuff is placed under your skin, just above the exit site. Three to four weeks after insertion tissue will grow onto the cuff and create a seal. The seal helps keep the catheter from slipping out. The seal also prevents germs from going into the bloodstream. If the cuff migrates out of the skin and is exposed this will require catheter replacement. Appendix 8 outlines the procedure to be taken when an exposed cuff is identified.

7.4 Accidental catheter removal

Long term catheters can be accidentally removed with a small amount of pressure. Patients are given a patient information leaflet advising them what action to take if their catheter is accidentally removed.

If a catheter is accidentally removed whist the patient is on dialysis staff members will follow the emergency procedure.

7.5 Central vein stenosis

Central Venous stenosis is a well-described effect of placement of hemodialysis catheters in the central venous system, multiple line insertions can increase the risk significantly therefore it is important that regular monitoring and surveillance of the access is carried out to identify if any central venous stenosis is occurring and this should be escalated to the Renal Vascular Access Nurse/Consultant during MDT.

Supporting Document 1 - Equality Impact Assessment Tool

To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;

Worcestershire Acute Hospitals NHS Trust

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust		Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
Date assessment completed			

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title:**			
What is the aim, purpose and/or intended outcomes of this Activity?				
Who will be affected by the development & implementation of this activity?	❑ Service User ❑ Patient ❑ Carers ❑ Visitors		❑ Staff ❑ Communities ❑ Other _____	
Is this:	❑ Review of an existing activity ❑ New activity			

	❑ Planning to withdraw or reduce a service, activity or presence?
What information and evidence have you reviewed to help inform this assessment? (Please name sources, e.g. demographic information for patients / services / staff groups affected, complaints etc.	
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	
Summary of relevant findings	

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age				
Disability				
Gender Reassignment				
Marriage & Civil Partnerships				
Pregnancy & Maternity				
Race including Traveling Communities				
Religion & Belief				
Sex				
Sexual Orientation				
Other				

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)				
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)				

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
		.		
How will you monitor these actions?				
When will you review this EIA? (e.g. in a service redesign, this EIA should be revisited regularly throughout the design & implementation)				

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	
Date signed	
Comments:	
Signature of person the Leader Person for this activity	
Date signed	
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	
2.	Does the implementation of this document require additional revenue	
3.	Does the implementation of this document require additional manpower	
4.	Does the implementation of this document release any manpower costs through a change in practice	
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval.