University Hospitals Birmingham NHS
NHS Foundation Trust

Expanded Practice Protocol for Registered Nurse Led Venesection for the Treatment of Patients with Post-Transplant Erythrocytosis.

CONTROLLED DOCUMENT

CATEGORY:	**Procedural Document**
CLASSIFICATION:	**Clinical**
PURPOSE	**This protocol supports registered nurses in the Renal Outpatient Department to undertake venesection for the treatment of patients with post-transplant erythrocytosis.**
Controlled Document Number:	**272**
Version Number:	**Version 4**
Controlled Document Sponsor:	**Executive Chief Nurse**
Controlled Document Lead:	**Senior Sister Renal Outpatients Department**
Approved By:	**Executive Chief Nurse** **Executive Medical Director (or nominated deputy)** **Associate Director of Nursing, Div C** **Matron Outpatient Departments** **Clinical Service Lead Renal Medicine**
On:	**May 2016**
Review Date:	**April 2019**
Distribution: • **Essential Reading for:** • **Information for:**	**All registered nurses in the Renal Outpatients Department who currently undertake the practice of venesection and all registered nurses in the Renal Outpatients Department who wish to expand their practice to include this skill.** **All clinical staff in the Renal Outpatients Department.**

EVIDENCE FOR PRACTICE

Post-transplant erythrocytosis (also referred to as polycythaemia) is an infrequent complication following renal transplantation.

Post-transplant erythrocytosis (PTE) is defined as a persistently elevated haematocrit to a level greater than 0.51 after renal transplantation. It occurs in 10% to 15% of graft recipients and usually develops 8 to 24 months after engraftment. Predisposing factors include male gender, retention of native kidneys, smoking, transplant renal artery stenosis, adequate erythropoiesis prior to transplantation and a rejection-free course with a well-functioning renal graft (Brennan, Vlahakos 2013 and Vlahakos 2003).

In PTE the blood's viscosity is increased due to the marked increase in number of red cells and this can cause thromboembolic complications in renal transplant recipients. Specific therapy of PTE itself involves venesection which is the insertion of a wide bore needle into the brachial vein to remove an amount blood in accordance with predetermined criteria. Venesection is performed at varying intervals until a satisfactory level of haematocrit is obtained. Additional management to reduce the haematocrit to below 0.51 is by the use of renin/ angiotensin system blocking agents i.e. angiotensin converting enzyme inhibitors (ACEi) and / or angiotensin 2 receptor blockers (A2RB). Both of these treatment modalities have been shown to be effective (Brennan, Vlahakos 2013 and Vlahakos 2003).

Once diagnosis is established, the patients may require repeat visits and follow up. The performance of venesection by registered nurses in the renal outpatient department provides a responsive and patient led service thus meeting the needs of this cohort of patients.

An audit of the expanded practice protocol was not possible at the time of update due to the low number of patients requiring venesection. However, a review has been undertaken to ensure the protocol is still clinically required and the practice covered by this document remains up to date.

A prospective audit of the next ten patients requiring venesection will be performed and this will be reported when complete.

CONSENT

Although formal written consent is not required for minor procedures, verbal consent prior to the venesection procedure must be obtained by the registered nurse from the patient, where possible, and this must be documented on the patient's record, (Patient Information and Communication System (PICS), Clinical Portal, Clinical Noting). For further information regarding consent and mental capacity please refer to the following documents:

- Department of Health Reference Guide to Consent for Examination or Treatment (2009).
- The Trust's Policy and Procedural document for consent to examination or treatment (current version).

- *Mental Capacity Act (2005).*

INDICATIONS

1. The patient has a medical diagnosis of PTE requiring venesection.

2. The patient must have been identified as being suitable to undergo registered nurse led venesection by the consultant, registrar or identified renal doctor and this must be documented in the patients record, PICS and/or clinical portal. The patient will be selected in accordance with the Renal Unit algorithm for venesection in post renal transplant patients (Appendix 3).

3. The patient's haematocrit (HCT) must be elevated on at least two consecutive blood tests to avoid undertaking unnecessary venesection based on a single erroneous result.

4. Prior to the commencing the treatment, the patient must have been fully informed about venesection and to omit anti-hypertensive medication on the morning of the procedure.

5. If the patient is 50 kilograms or more in weight, the target volume of blood to be removed is 400 ml (400-500 ml is acceptable).

6. If the patient is 49.9 kilograms or less in weight, the target volume of blood to be removed is 200 ml.

7. A consultant, registrar or identified renal doctor must always be present in the department when the registered nurse led venesection is in progress.

CONTRAINDICATIONS

The registered nurse must not perform venesection and must refer to the renal consultant or registrar in the following circumstances:

1. The patient has capacity and does not give consent for the venesection by the registered nurse.

2. The patient has a haematocrit within the normal limits and is asymptomatic.

3. The patient is under 16 years of age.

LIMITATIONS TO PRACTICE

1. The patient who has scarred or friable veins due to previous venesection may require a medical clinician to site the venesection needle.

2. If the patient presents with any of the following as a new issue they must be discussed with a renal consultant or registrar, prior to venesection:

    - The patient has had previous problems with venesection.

- The patient bruises easily or is receiving anticoagulation therapy.
- The patient has fainted in the past in association with venesection.
- The patient has taken their anti- hypertensive medication on the day of the procedure
- The site for vein puncture is limited to a limb with a functioning arterio-venous fistula.
- The patient has a blood pressure below 120/70mmHg and remains symptomatic of a high HCT
- The patient has a HCT of less than 0.51 on two occasions but remains symptomatic of a high HCT

3. If the patient has not had something to eat and drink prior to performing venesection they must be offered food and drink and procedure delayed until this can be achieved.

4. The registered nurse must discuss the patient immediately with a renal consultant or registrar prior to venesection if the patient demonstrates signs of unstable cardiovascular function for example systolic BP <100mmHg, HR <60 or > 100, the patient feels unwell and/ or when the compared to previous baseline observations the observations are outside of the patients normal parameters, observation trend.

5. If the patient is currently actively undergoing therapy for anaemia. They must be discussed with the renal consultant or registrar prior to venesection and referred to the referring doctor or the anaemia clinical team for review. (Refer to appendix 3).

6. If the registered nurse is concerned about the patient's condition they must immediately refer the patient to a renal consultant or registrar prior to the commencement of venesection for advice on any further action to be taken.

All actions and care provided must be documented in the patient's record, (PICS, clinical noting on clinical portal).

The appropriate Health and Safety risk assessments must have been completed for the clinical area.

CRITERIA FOR COMPETENCE

1. A registered nurse, working within renal outpatients department, who has successfully completed education and training in venesection for patients with PTE as recognised by the Senior Sister for Renal Out Patients Department.

2. The registered nurse must provide evidence of competence in the performance of phlebotomy in accordance with expanded practice protocol controlled document number 243 (formerly CP 10 / current version).

3. The registered nurse must be familiar with, and adhere to, the PTE venesection flow diagram (Appendix 3) and the guidelines for the practice of venesection (Appendix 4).

4. Evidence of satisfactory supervised practice must be provided by the registered nurse as witnessed by a practitioner who is already competent in venesection of patients with PTE (Appendix 1).

5. The number of supervised practices required will reflect the individual registered nurse's learning needs.

6. Evidence of competence in the practice of venesection must be provided and a copy kept in the registered nurse's personal file and in the department where the skill is practised (Appendix 2). Following each review and update of the protocol the registered nurse has a responsibility to ensure that there evidence of competence is against the current version of the protocol.

7. Registered nurses new to the Trust, who have been performing the skill elsewhere, must read, understand and be signed off against this protocol. Evidence of appropriate education and competence must be provided and checked by the Clinical Lead or Senior Sister/Charge Nurse within the Renal Outpatient Department before undertaking this expanded practice at the Trust. The decision whether the registered nurse needs to complete Trust training will be at the discretion of the registered nurse's line manager.

8. In accordance with codes of professional practice, the registered nurse has a responsibility to recognise, and to work within, the limits of their competence. In addition, the registered nurse has a responsibility to practise within the boundaries of the current evidence based practice and in line with up to date Trust and national policies and procedural documents. Evidence of continuing professional development and maintenance of skill level will be required and confirmed at the registered nurse's annual appraisal by the registered nurse's line manager.

A list of registered nurses competent to perform this skill must be kept by the relevant Outpatient Department area clinical manager.

PROTOCOL AND SKILLS AUDIT

The Sister/Charge Nurse in the Renal OPD will lead the audit of the protocol with support from the Practice Development Team. The audit will be undertaken in accordance with the review date and will include:

- Adherence to the protocol
- Any untoward incidents or complaints
- Number of registered nurses competent to perform the skill
- Patient experience feedback

All audits must be logged with the Risk and Compliance Unit.

CLINICAL INCIDENT REPORTING AND MANAGEMENT

Any untoward incidents and near misses must be reported via the Trust incident reporting system, and where required escalated to the appropriate management team. In addition, the Risk and Compliance Unit must be notified by telephone of any Serious Incident (SI).

REFERENCES

Brennan D, Vlahakos. DV (2013) **Erythrocytosis following renal transplantation.** Web page Up Date http://www.uptodate.com/contents/erythrocytosis-following-renal-transplantation [accessed 10.03.16]

Department of Health (2009) **Reference Guide to Consent for Examination or Treatment** HMSO London.

Mental Capacity Act 2005, http://www.legislation.gov.uk/ukpga/2005/9/contents [accessed 10.03.16]

University Hospitals Birmingham NHS Foundation Trust. (current version) **Expanded Practice Protocol for the Performance of Phlebotomy** University Hospitals Birmingham NHS Foundation Trust http://uhbpolicies/Microsites/Policies_Procedures/phlebotomy.htm [accessed 10.03.16]

University Hospitals Birmingham NHS Foundation Trust (current version) **Policy for consent to examination or treatment**, University Hospitals Birmingham NHS Foundation Trust http://uhbpolicies/Microsites/Policies_Procedures/consent-to-examination-or-treatment.htm [accessed 10.03.16]

University Hospitals Birmingham NHS Foundation Trust (current version) **Procedure for consent to examination or treatment**. University Hospitals Birmingham NHS Foundation Trust http://uhbpolicies/Microsites/Policies_Procedures/consent-to-examination-or-treatment.htm [accessed 10.03.16]

University Hospitals Birmingham NHS Foundation Trust (current version) **Infection prevention and control policy and associated procedural documents**. Birmingham: University Hospitals Birmingham NHS Foundation Trust. http://uhbhome/ipc-policy-procedures.htm [accessed 10.03.16]

Vlahakos. V, Marathias. P, Agroyannis. Madias. E (2003) Posttransplant erythrocytosis. **Kidney International**, 63(4), 1187-1194.

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Ahmed. S, Ahmed. E, Naqvi. R, Qureshi. S (2012) Evaluation of contributing factors of post transplant erythrocytosis in renal transplant patients. **Journal of Pakistan Medical Association** [accessed 10.03.16] http://www.jpma.org.pk/full_article_text.php?article_id=3867

McMullin, MF. Bareford, D. Campbell, P. Green A. R, Harrison, C Hunt, B. Oscier D, Polkey, M. I. Reilly, J. T. Rosenthal, E Ryan, K . Pearson T. C Wilkins B. (2005), Guidelines for the diagnosis, investigation and management of polycythaemia/erythrocytosis **British Journal of Haematology**, 130, 174–195

University Hospitals Birmingham NHS Foundation **Trust Risk Assessment Documentation** http://uhbhome/Resources/RiskAssessmentDocs/Home.aspx [accessed 10.03.16]

University Hospitals Birmingham NHS Foundation Trust (current version)
Procedure For The Management And Safeguarding Of Patients Less Than 18 Years Of Age http://uhbpolicies/Microsites/Policies_Procedures/patients-under-18.htm [accessed 10.03.16]

PROTOCOL SUBMISSION DETAILS

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Protocol reviewed by:

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Protocol submitted to and approved by

Executive Chief Nurse .....

Date 23/05/2016

Executive Medical Director
(or nominated deputy) .....

Date 24/5/2016

Associate Director of Nursing, Division C .....

Date 29.05.16

Matron for Out Patient Departments .....

Date 5/4/2016

Clinical Service Lead Renal Medicine .....

Date 13/5/16

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EVIDENCE OF SUPERVISED PRACTICE

To become a competent practitioner, it is the responsibility of each registered nurse to undertake supervised practice in order to perform **registered nurse led venesection for the treatment of patients with post-transplant erythrocytosis** in a safe and skilled manner.

Name of Registered Nurse …….

DATE	DETAILS OF VENESECTION	SATISFACTORY STANDARD MET	COMMENTS	PRINT NAME, SIGNATURE & DESIGNATION
		Yes / No		
		Yes / No		
		Yes / No		
		Yes / No		
		Yes / No		
		Yes / No		

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CRITERIA FOR COMPETENCE

END COMPETENCE: Registered nurse led venesection for the treatment of patients with post-transplant erythrocytosis

Name of registered nurse (print): ……. Designation: …….

Name of supervisor (print): ……. Designation: …….

Date(s) of Education and supervised practice: …….

ELEMENT OF COMPETENCE TO BE ACHIEVED	Date Achieved	Registered Nurse Sign	Supervisor Sign
Correctly define the term 'post-transplant erythrocytosis (PTE)'			
Define the term 'venesection' and identify the indications for venesection			
Discuss and identify the: • Indications • Contraindications • Limitations to practice for registered nurses performing venesection for patients with PTE according to this expanded practice protocol			
Provide evidence of competence in the performance of phlebotomy in accordance with expanded practice protocol controlled document number 243 (formerly CP 10 / current version)			
List the normal values in relation to haematocrit (HCT)			
Discuss symptoms in relation to high HCT			
Discuss symptoms in relation to PTE			
Demonstrate a knowledge of the most appropriate treatments for PTE			
Demonstrate knowledge and understanding of the application of the PTE Venesection flow diagram (Appendix 3)			
Demonstrate and discuss the importance of patient assessment in relation to the PTE venesection flow diagram (Appendix 3)			

ELEMENT OF COMPETENCE TO BE ACHIEVED	Date Achieved	Registered Nurse Sign	Supervisor Sign
Demonstrate knowledge and understanding of the rationale for the maximum volume of blood to be removed from a patient during one venesection procedure (Appendix 4)			
Accurately identify a suitable site for the insertion of the venesection needle, taking into consideration: • Presence of functioning arterio-venous fistula • Presence of non- functioning arterio-venous fistula			
Demonstrate accurate provision of information pre, during and post the procedure in a way that the patient understands			
Demonstrate a working knowledge of the Trust's policy for consent to examination or treatment			
Demonstrate a working knowledge of the *Mental Capacity Act*			
Demonstrate maintenance of the patient's privacy and dignity throughout the procedure			
Demonstrate proficiency in the procedure of venesection			
Correctly identify the potential complications of venesection and actions to be taken			
Discusses when the patient can safely recommence anti-hypertensive medication			
Discusses situations when the patient must be referred to the doctor prior to venesection			
Discuss the signs and symptom of mechanical phlebitis and correctly identify the action to be taken when it occurs			
Discuss the Health and Safety issues in relation to venesection and the handling of blood and sharps			
Demonstrate knowledge of the needle stick injury procedure			
Discuss any health and safety issues in relation to this expanded practice			

ELEMENT OF COMPETENCE TO BE ACHIEVED	Date Achieved	Registered Nurse Sign	Supervisor Sign
Demonstrate the ability to check the patient's record for their infection status and perform safe infection prevention and control practices throughout the procedure. To include: standard precautions, aseptic non touch technique (ANTT) and isolation procedures, where applicable			
Demonstrate a working knowledge of the NMC Code: Standards of conduct, performance and ethics for nurses and midwives (2015).			
Demonstrate accurate record keeping.			
Demonstrate an understanding of the incident reporting process.			

I declare that I have expanded my knowledge and skills and undertake to practice with accountability for my decisions and actions.

I have read and understood the protocol for: **Registered nurse led venesection for the treatment of patients with post-transplant erythrocytosis (PTE)**

Signature of registered nurse: …… **Print name:……..**

Date: …… **Designation:…….**

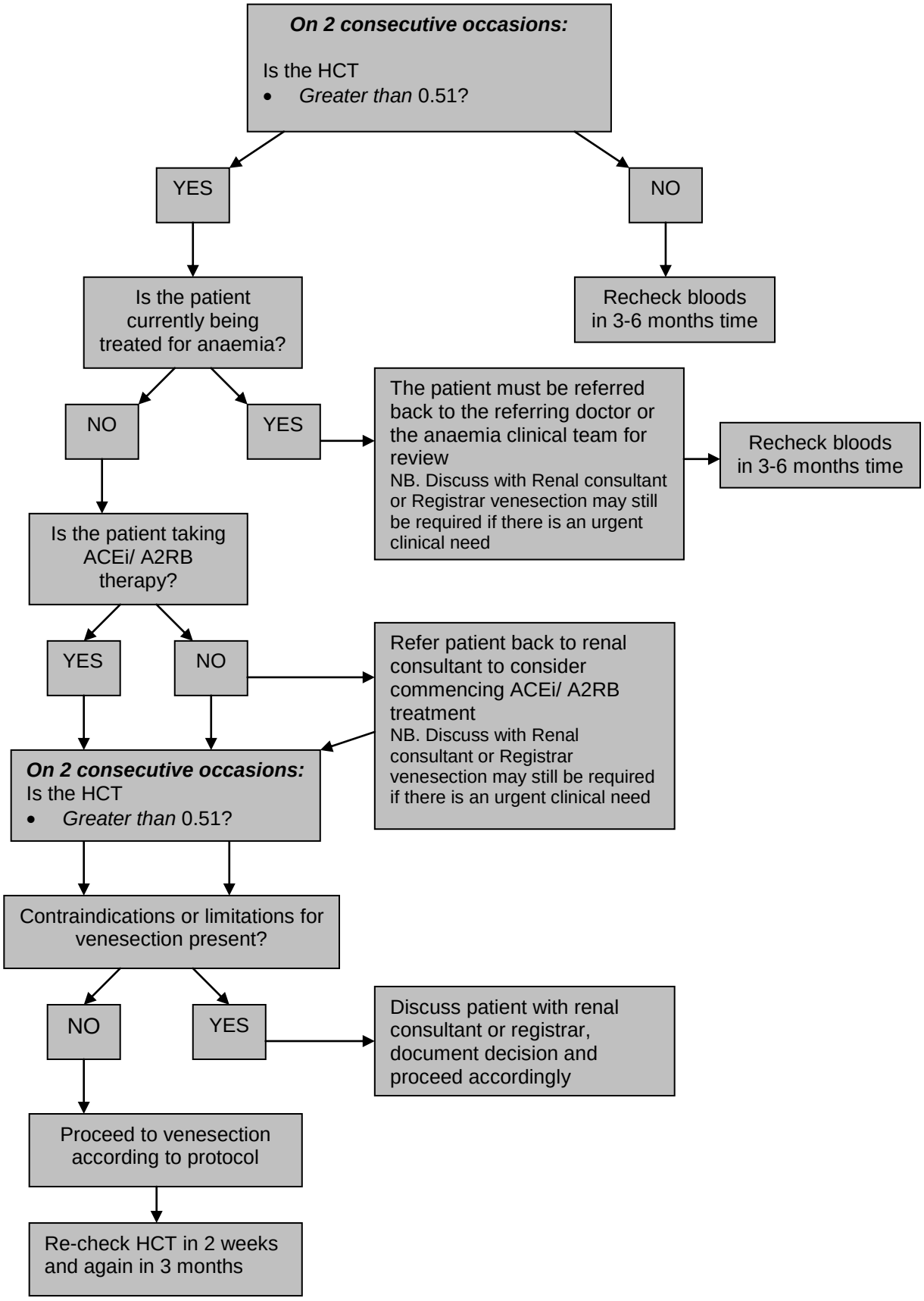
I declare that I have supervised this registered nurse and found her/him to be competent as judged by the above criteria.

Signature of Supervisor: …….. **Print name:……..**

Date: …….. **Designation:…….**

A copy of this record must be placed in the registered nurse's personal file, a copy must be stored in the clinical area by the line manager and a copy can be retained by the individual for their Professional Portfolio.

POST-TRANSPLANT ERYTHROCYTOSIS VENESECTION FLOW DIAGRAM



Guidelines for the Practice of Venesection

NB: All interventions and treatments must be documented on the patient record

Pre-procedure

- All patients attending for registered nurse led venesection must be identified as suitable by the senior registered nurse in renal outpatient department in liaison with a renal consultant. This must be documented in the patient's record, (PICS, clinical noting on clinical portal).

- All patients attending for registered nurse led venesection must have a documented plan of care.

- At each attendance for venesection, the patient must have baseline set of observations: blood pressure, pulse, temperature, oxygen saturation and weight documented.

Ask the patient the following questions:*****

1. How are you feeling today?
2. Have you had any previous problems with venesection?
3. Do you bruise easily or are you taking "blood thinning "drugs.
4. Have you ever fainted during venesection?
5. Are you suffering from dizzy spells?
6. Have you taken anti-hypertensive medication today?
7. When did you last have something to eat or drink?

∗Patients who state they are not in good health or who answer yes to any of the questions 2- 6 must see a renal consultant to be declared fit for venesection.

The registered nurse must clinically review and consider the patient's observations in comparison to the known baseline observations, the HCT levels and the patient's reported symptoms.

If in their professional judgment the registered nurse has any specific concerns they must seek medical advice.

Procedure

1. Check the patient's name, date of birth and address to confirm identity.

2. Explain the procedure to the patient and obtain verbal consent.

3. Ensure the patient and the clinician are in an optimum position for the procedure to be performed, ensure comfort

4. Ensure adherence to infection prevention and control practices throughout the procedure; to include ANTT and sharps safety

5. Perform site selection

6. Apply tourniquet to upper arm.

7. Clean the site for the insertion of the venesection needle with 2% chlorhexidine gluconate in 70% isopropyl alcohol for 30 seconds and allow to air dry.

8. Check the needle cover to confirm the seal is intact.

9. Remove the protective needle cap and inspect the needle for damage, nicks, bends, barbs or fluff.

10. Ensure the vein is fixed. Insert the needle with the bevel facing upwards through the skin immediately below or alongside the vein. When the bevel of the needle is fully under the skin insert into the vein.

11. Check that the blood is flowing into the line. If excessively fast or bright red, suggesting arterial puncture, stop the venesection.

12. If no blood is obtained in the line or initial flow is so slow that venesection cannot proceed, stop the venesection and take it down.

13. Re-attempt venesection on the other arm if possible, providing there is a suitable vein and there is not an A/V fistula present and the patient gives verbal consent. If unsure discuss with the renal sister or a member of the renal medical team

14. Ensure the line is secured to the patient's arm and gradually release the pressure of the tourniquet until good blood flow is maintained. The patient must remain lying down throughout the procedure.

15. Check patients observations half way through target bleed volume and at any stage if the patient develops symptoms of hypovolaemia, take actions and record interventions as appropriate

16. Check the venepuncture site for bruising and make sure the patient is comfortable.

Bleed Volume

- Patient weight:
  50Kg or above: Target bleed volume = 400mls (400mls-500mls is acceptable).

  49.9 Kg or less: Target bleed volume = 200mls.

- If the flow of blood has slowed or has been observed to stop, a single adjustment to the needle is permitted.

- To complete needle adjustment, either rotate the needle or partially withdraw it, do not advance the needle.

Post-Procedure

1. Once the target blood volume has been achieved, the venesection needle must be removed.

2. Apply pressure to the venesection site to stop bleeding and to prevent bruising.

3. Once the site is dry and there is no obvious oozing, apply a firm dressing.

4. Dispose of used equipment and venesected blood in accordance with Trust Infection Prevention and Control Policy and associated procedural document.

5. Re-check and document observations, pulse and blood pressure every 15 minutes post-procedure.

6. If the observations are satisfactory, and the patient is stable they may be discharged following light refreshment and a 30 minute rest period.

7. Ensure the patient has instructions on how to care for the needle site and what actions to take if unwell.

8. Ensure the patient understand that they must recommence their anti-hypertensive medication the next morning following the procedure

9. Document the procedure in the patient's record and arrange the next appointment in accordance with the venesection algorithm (Appendix 3).

Potential Complications

1. Hypovolaemia

If the patient becomes hypotensive and/or tachycardic: stop the venesection immediately.

Nursing Intervention:

1. Lay the patient flat with legs elevated if necessary.

2. Re-check pulse, blood pressure and respiration rate frequently whilst the patient recovers.

3. If the patient remains hypotensive 15 minutes after step 1 and 2 have been carried out, discuss with a renal consultant immediately.

4. Administer intra venous fluids if prescribed by a renal consultant.

5. Allow the patient time to recover from hypotension, offer oral fluids and reassurance.

6. Ensure the patient does not go home alone.

7. Document the episode and intervention in the patient's record.

2. Mechanical Phlebitis

Mechanical phlebitis is associated with poor fixation of the cannula, allowing movement within the vessel.

Mechanical damage is the actual tearing away of the endothelial lining.
This can happen during a traumatic insertion, by excessive motion of the cannula or during a traumatic removal.

Nursing intervention:

1. To minimise the risks of phlebitis developing, provide maximum stabilisation of the cannula to prevent excessive manipulation and movement of the intravenous site.

2. Assess vein prior to venepuncture and avoid placing near a valve, artery or arterio-venous fistula.

3. Provide atmosphere supportive of reduction in patient anxiety regarding venepuncture procedure.