Venous Blood Sampling in Adults Guideline

University Hospitals of Leicester NHS
NHS Trust

Trust Reference B16/2010

1. Introduction and Who Guideline applies to

1.1 This guideline sets out University Hospitals of Leicester (UHL) NHS Trust procedure for obtaining venous blood samples from an adult with the aim to provide safe and effective care and prevent micro-organism contamination.

1.2 This procedure uses the principles of Aseptic Non-Touch Technique (ANTT) and protecting the key parts

1.3 This procedure applies to all Health Professionals employed by UHL who undertake the Venous Blood Sampling of adults and includes (not a definitive list) Doctors, Registered Nurses, Registered Midwives, Phlebotomists, Healthcare Assistants, Nursing Associates, Assistant Practitioners, Support Workers, Clinical Aids, Scientific Staff, Radiographers, Research Assistants.

1.4 This procedure must be used in conjunction with the Venous Access in Adults and Children Policy (Trust ref B13/2010) and all staff who undertake this procedure must be appropriately trained as detailed in section 6 of that policy and also section 3 of this guideline

1.5 This procedure does not cover the taking of blood samples using lines (e.g. Hickman or CVC lines). Further training is required for this and must be actioned locally by the line manager.

1.6 This procedure **does not** cover blood culture sampling – please refer to the Clinical Microbiology Laboratory Services User Handbook available on INsite.

2. Guideline Standards and Procedures

2.1 Most samples are requested electronically orders apart from sample requests for blood transfusion, which are ordered by completing a handwritten request form. Please refer to the Blood Transfusion Policy appendix one (Trust Reference B16/2003) for specific request and sampling requirements.

2.2 Before undertaking the procedure the patient who needs the sample taking from must be correctly identified as per the UHL Patient ID Policy, Trust Reference B43/2007

2.3 After bleeding the patient the samples **must** be labeled at the patient's side, do not remove the samples to somewhere else to label, labeling samples incorrectly can be potentially fatal.

2.4 Always label the sample with the following minimum patient data:

a) Full surname

b) Full first name

c) Date of birth

d) System number (S Number)

e) Ward / Department

f) Date and Time sample was taken

Please ensure and check that the sample label refers to the correct patient

2.5 Key Parts of the Venous Blood Sampling Procedure

Key parts are items which come into contact with broken skin or mucosal layers creating a potential portal of entry for micro-organisms. These are Monovette needle, butterfly needle or normal needle and syringe tip (if using syringe)

No.	2.6 Procedure for Obtaining Venous Blood Samples from an Adult (For Blood Cultures please refer to Clinical Microbiology Laboratory Services User Handbook available on INsite)
1.	**Pre Procedure**
1.1	Clean hands, as per UHL hand hygiene policy (Trust Ref B32/2003) Check hands for any visibly broken skin and cover with a waterproof dressing Put on a plastic apron and clean gloves from a dedicated box (e.g not from a box kept in the sluice) You only need to wash rather than use alcohol hand rub on your hands if you have been in contact with bodily fluids, an infected patient or your hands are visibly soiled Clean both sides of a large plastic tray with Chlorclean or distel wipes, starting on the inside and then the outside, the tray will be the aseptic field for the procedure. Either allow to air-dry (for a minimum of three minutes) Alternatively dry the tray with paper towels and then disinfect using 70% Industrial Methylated Spirits – your tray/ now provides an aseptic field.
1.2	Assemble the equipment necessary for obtaining a venous blood sample Check all packaging for any damage and expiry date before opening and preparing the equipment protecting key parts Equipment: a) Printed form or sample request forms correctly completed b) Tourniquet – single use c) Appropriate size Monovette needle or butterfly needle d) Appropriate blood bottles e) Appropriate sized syringes, or adaptor for closed system e.g. Monovette f) 2% chlorhexidine gluconate in 70% alcohol wipe g) Dressing – gauze and tape h) Sharps bin i) Clean gloves from a dedicated box (e.g. not from a box kept in the sluice) j) Other protective clothing as risk assessed (see Preventing Transmission of Infective Agents Policy and Isolation Guidelines Trust Ref B62/2011)
1.3	Confirm the identity of the patient and check that these match the details on the request form by asking for their full name and date of birth and checking ID bracelet (if inpatient).
1.4	Approach the patient in a confident manner, clean hands and explain and discuss the procedure with the patient
1.5	Allow the patient to ask questions and discuss any problems which have arisen previously.
1.6	Consult the patient as to any preferences and problems that may have been experienced in the previous venous blood sampling and ask if they have any allergies to dressing types, Latex or Skin preparations.
1.7	Consider applying local anaesthetic cream (AmetopTM) to the potential blood sampling site(s). This may be beneficial for some groups of patients who may find venous blood sampling a distressing experience, the local anaesthetic cream must be prescribed.
1.8	With both in and out patients' situations, ensure there is sufficient lighting, ventilation and privacy to perform the procedure

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2	**During the Procedure**
2.1	Clean hands prior to patient contact If IVI in progress use other arm or if unable to, ask the Nurse caring for the patient to stop the infusion for 1 minute and then take blood distal to IVI, ensure the Nurse re-starts infusion immediately after taking sample.
2.2	a) Support the chosen limb on a pillow b) Apply a tourniquet 2-3 inches above the chosen site making sure it does not obstruct arterial flow. If the radial pulse cannot be palpated then the tourniquet is too tight. The position of the tourniquet may be varied, e.g. if a vein in the hand is to be used it may be placed on the forearm. A sphygmomanometer cuff may be used as an alternative. c) The arm should be placed in a position lower than heart level. The patient may assist in raising the veins by clenching and unclenching the fist. d) If all these measures are unsuccessful, remove the tourniquet and apply moist heat, e.g. a warm compress or soak limb in warm water.
2.3	Select the vein using visual inspection and palpation. Select the device, based on vein size, site etc.
2.4	Clean hands and put on apron and gloves Clean the patient's skin carefully using a 2% chlorhexidine gluconate in 70% alcohol wipe, rubbing for at least 30 seconds and allow to dry naturally without fanning, blotting or blowing the skin. Do not re-palpate the vein or touch the skin
2.5	Remove the cover from the needle and inspect the device carefully for any defects
2.6	Anchor the vein by applying manual traction on the skin a few centimeters below the proposed insertion site.
2.7	Insert the needle smoothly at an angle of 30 degrees. However, this will depend on size and depth of vein.
2.8	Reduce the angle of descent of the needle as soon as a flashback of blood is seen in the neck of the needle or butterfly device or when puncture of the vein wall is felt. If you are using a needle and syringe, pull the plunger back slightly prior to the procedure and a flashback of blood will be seen in the barrel on vein entry,
2.9	Do not exert any pressure on the needle. If unsuccessful after 2 attempts seek assistance from a more experienced colleague. A NEW NEEDLE MUST BE USED FOR EACH ATTEMPT.

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2.10	Withdraw the required amount of blood. Collect blood samples in the following 'correct order of draw' sequence to avoid contamination of samples and spurious results[1,2]: Sarstedt (S-Monovette® System) • White top bottle (Blood culture) • Brown top bottle (Serum gel) • Green top bottle (Sodium citrate) • Orange top bottle (Lithium heparin) • Purple top bottle (EDTA) • Pink/Red top bottle (EDTA) • Yellow top bottle (Fluoride EDTA) If a vacuum system is being used the bottles are changed whilst the needle stays in the patients arm. Ensure that all bottles are filled to the required level.

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2.11	Release the tourniquet. In some instances this may be necessary at the beginning of sampling as inaccurate measurements may be caused by haemostasis, If using a vacuum system remove the tube from the plastic tube holder / needle before removing the needle.
2.12	Pick up the gauze and place over the puncture point.
2.13	Remove the needle, but do not apply pressure until the needle has been fully removed.
2.14	Activate safety device, if applicable, then discard the needle immediately into a sharps bin.
2.15	Apply digital pressure directly over the puncture site. Pressure should be applied until bleeding has ceased; approximately 1 minute or longer may be required if current disease or treatment interferes with clotting mechanism.
2.16	The patient may apply pressure with the finger but should be discouraged from bending the arm if a vein is in the antecubital fossa is used
3	**After the Procedure**
3.1	Where a syringe has been used, remove the needle using the needle removing device at the edge of the opening to the sharps bin, take the top off the specimen bottle and transfer the blood, making sure that the correct quantity is placed in each container. This must be done as soon as possible. It is critical in many tests that the correct volume is added to the bottles.
3.2.	Gently invert tube at least 6 times.

3.3	Label the bottles with the following details: • Patients full surname • Full forename • Date of birth • System Number (S Number) • Patients ward or department • Signed by the person taking the blood Samples must always be labeled at the patient's bedside and where in use via the electronic blood track system . They must never be removed from the patients side unlabeled. Inadequately labeled samples will be rejected by the Laboratory and will need to be repeated
3.4	During this time ensure patients confidentiality by making sure that the patients details are not on display to the public.
3.5	Inspect the puncture site before applying a dressing.
3.6	Apply an appropriate dressing.
3.7	Ensure that the patient is comfortable.
3.8	Remove PPE, discard waste, making sure it is placed in the correct containers, e.g. sharps into a designated receptacle. Clean hands before leaving patients side.
3.9	Follow hospital procedure for collection and transportation of specimens to the laboratory. Please refer to the 'Clinical Microbiology Laboratory Services User Handbook' (available on INsite)

No.	2.6 Procedure for Obtaining Venous Blood Samples from an Adult (For Blood Cultures please refer to Clinical Microbiology Laboratory Services User Handbook available on INsite)
3.10	Blood from patients who are carriers of blood borne viruses must be placed in a bio-hazard bag and a 'danger of infection' sticker applied to the request form and the tube(s).
3.11	Put on PPE, clean plastic tray as before.
3.12	Remove gloves and any other protective equipment, dispose in a clinical waste bag and then clean hands
3.13	Document procedure as appropriate

3. Education and Training

3.1 Staff undertaking this procedure must have had the necessary training and assessment of competence using a suitable competency assessment tool such as Leicester Clinical Assessment Tool (LCAT) or Direct Observation of Supervised Practice (DOPS)

3.2 Training is provided by the Clinical Skills Unit and can be booked via HELM

3.3 Staff new to the Trust who have been trained elsewhere must:

a) Provide evidence of the training and assessment programme they have successfully completed

b) Comply with the relevant Trust policies and undertake additional training relating to equipment and documentation as required

c) Undertake a one off practical assessment by an appropriate assessor within own CMG/Ward/Unit if deemed necessary or insufficient evidence of previously competence provided

3.4 UHL is a teaching hospital and provides placement or work based learning for Pre-registration students (such as Medicine, Nursing, Midwifery, Paramedic, Radiography, Physiotherapy, Occupational Therapy and Pharmacy) and Trainees in the workplace (such as Assistant Practitioners and Nursing Associates). This guideline applies to these learners in the following circumstances:

a) If venous blood sampling is a specific competency requirement of their placement or programme then the pre-registration student / trainee is able to perform the skill under direct supervision of their mentor / supervisor once they have received the relevant underpinning theory and passed a simulated practice

b) If the pre-registration student / trainee has passed an LCAT / DOPS competency assessment in practice they may be able to perform the skill with indirect supervision at the discretion of their mentor / supervisor and the Registered Professional delegating the task.

c) If venous blood sampling is not a specific competency requirement of their placement or programme then the pre-registration student / trainee must only participate in the process as an observer.

4. Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Incidents reported on Datix of incorrect procedure followed	Via DATIX reports provided to CMG's	CMG Quality and Safety Board (as per usual DATIX Reporting Process)	As reported	CMG Quality and Safety Board

5.**Supporting References (maximum of 3)**

Sarstedt S-Monovette® Instructions for Use. [online] Available at: https://mft.nhs.uk/app/uploads/2019/02/SARSTEDT-S-Monovette-Instructions-for-Use-.pdf

Gurr et al "Musterstandardarbeitsanweisung Präanalytik" J Lab Med 2011

6.**Key Words**

Phlebotomy, venepuncture, blood sampling

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) **Lee Rowley, Clinical Skills Unit Manager**	**Executive Lead:** **Andrew Furlong, Medical Director**
Details of Changes made during review: V1 Approved by: Policy and Guideline Committee on 28th May 2010 V2 –June 2017, review of V1. Updated into latest Trust template, revised education and training section and scope of guideline to include new roles. Procedure reviewed to reflect latest infection prevention practice. V3 – May 2022, Section 2.10 "order of draw" amended to fully reflect the manufacturer literature and UHL teaching. The previous guideline V2 "order of draw" list was incomplete. Section 5 "supporting reference" V2 reference replaced and updated.	