



## Health & Safety Phlebotomy/Blood Collection Policy

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## **Policy Summary**

Scientific research projects, taking place at Edinburgh Napier University, may on occasion require the use of blood from human volunteers.

Trained phlebotomists are able to collect blood samples from volunteer participants/donors where consent has been given and ethical approval is in place.

Health and Safety legislation in the UK requires that any risks associated with this activity be assessed, managed and reviewed.

The policy contains appropriate guidance in the management of blood collection in order to ensure all health and safety mitigations are in place for phlebotomists and donors.

This policy applies to all work involving the collection of blood from human volunteers, including venepuncture and finger pricks, for research activities.

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# 1. Introduction

Phlebotomy is the collection of blood via various methods with the purpose of testing and analysing the components of the blood.

Venepuncture is the term used to describe the introduction of a needle into a vein to obtain a representative sample of the circulating blood for diagnostic or research purposes.

Edinburgh Napier University only collects blood samples from human volunteer donors for scientific research purposes.

## General Statement

- Staff and students from Edinburgh Napier University will, on occasion, undertake research work that requires the use of blood from human volunteers.
- Blood may be taken from volunteer donors provided that informed consent has been given.
- Blood donations must be voluntary. Donors should not be placed under pressure to donate blood and it should be clear that a donor can withdraw consent at any time.
- Ethical approval must be in place before any blood collecting takes place and for the use of the samples thereafter.

In areas where staff and students may have contact with human blood, blood products or bodily fluids (including human tissue samples) there is a potential for transmission of blood-borne pathogens. Staff and students who work with such materials in combination with needles, syringes, or other sharp instruments are at increased risk of exposure to blood-borne viruses (BBV) such as:

- Hepatitis B
- Hepatitis C
- HIV (Human Immunodeficiency Virus)

All care must be taken to ensure risks to safety and health are minimised and relevant control measures are in place.

# 2. Risk Assessment

A risk assessment, identifying any potential hazards and control measures required to reduce risk, must be in place before any blood collection can take place. Several factors should be considered when assessing risks associated with blood collection and phlebotomy:

- **Infection** – The risk of infection from giving a blood sample is relatively low but it is essential that needles, blood collecting tubes and any blood samples collected are stored correctly. In some rare cases, the site where the needle was passed into the vein may become infected. If this is the case the wound may become red and swollen, if the volunteer donor develops these symptoms then they should arrange to see their GP.
- **Excessive bleeding** – It is common for the site of the test to bleed after the blood sample has been taken, however, this should stop fairly quickly after a cotton wool pad or gauze has been placed on the wound. Once the bleeding has stopped the cotton wool/gauze should be disposed of in a clinical waste bag.

- **Bruising** – Mild bruising around the area where the needle went into the vein is fairly common after giving a blood sample however, in some rare cases, more severe bruising may develop. Severe bruising is usually caused by a lack of pressure being applied to the site of the wound after the needle has been removed (applying a cotton pad to the wound helps to stem the bleeding, which will reduce the risk of bruising) but it may also be caused by damage to the vein when the needle was inserted.
- **Haematoma** – A haematoma is a collection of blood under the skin. It is similar to bruising and is caused by the blood clotting to form a solid lump. It is fairly common to have a haematoma. The bruising should heal independently over time. Applying ice packs may help to ease the swelling (if an ice pack is used, make sure the ice pack is wrapped up in a towel or cloth to prevent damaging the skin).
- **Fainting and dizziness** – Some people may experience dizziness during or after a blood test - this is very common in people who have a fear of needles and injections. If the volunteer donor feels faint before or after a blood test they should inform the phlebotomist right away. Usually, any dizziness will pass if the donor sits or rests for a few minutes. If there are any concerns such as the donor is feeling dizzy or sick (or has been sick) contact a first aider.
- **Needlestick injury** – A needlestick injury is the penetration of the skin of the phlebotomist or other worker by a hypodermic needle or other sharp that has been in contact with blood, tissue or other bodily fluids. This is sometimes called a percutaneous injury. The main risk from a needlestick or sharps injury is the potential exposure to infections such as blood-borne viruses or BBVs e.g., Hepatitis B, Hepatitis C or HIV. Occupationally acquired blood-borne infections relate to viruses that persist in the blood and are known to be endemic in the UK population:
  - The risk of contracting a BBV depends on the amount of virus in the blood and the type of contact.
  - A piercing through the skin poses a greater risk than a splash on the skin.
  - The potential pathogens that users may be exposed to must be identified during the risk assessment process where work with blood is being undertaken.

Any risk assessment in place should identify suitable risk control measures and emergency procedures to deal with spillages and/or any accidental exposure.

### Routes of exposure

Blood may be contaminated by viruses which were present in the donor and transmitted to the phlebotomist/other worker handling the blood by:

- Contamination of open cuts, grazes in the skin (including skin conditions such as eczema).
- By accidental contamination by a sharp instrument/needlestick injury e.g., needle or broken glass.
- Penetration of mucous membranes e.g., eyes and mouth.

### Immunisation

Vaccination is available against Hepatitis B. The need to be immunised should be determined by risk assessment but all phlebotomists should have Hepatitis B immunisation. The risk to other laboratory staff is likely to be significantly less than that posed to phlebotomists (although sometimes these can be the same people) but any laboratory staff or researchers, who may be exposed to blood samples, should be immunised against Hepatitis B. Again, a risk assessment will determine the need for immunisation. Speak with your line manager, supervisor or Occupational Health personnel if you are unsure. **Immunisation should never be regarded as a substitute for good laboratory practice.**

The Hepatitis B vaccination can be organised through Occupational Health. The Hepatitis B vaccine consists of 3 immunisation jabs (given over a 3-month period) followed by an antibody test. If your antibody titre is above a certain threshold you will not require any boosters and will be covered to work with blood. This vaccination should give lifelong protection against the virus.

### 3. Ethical Approval

Any collection of blood samples for research or teaching requires a consideration of:

- The health and safety of the donors.
- The health and safety of the phlebotomist.
- An ethical overview of the experiments proposed.

**Ethical consent will always be required for projects involving the collection and use of human blood.**

Ethical approval must be obtained before any blood samples required for a research project can be collected. Speak to your line manager or your supervisor.

The university seeks to ensure that, where investigations involving humans as participants/donors are undertaken within the university in the course of teaching or research, ethical standards are conformed to. The Research Ethics Committee aims to provide impartial advice to participants and investigators and to protect the dignity, rights, safety and wellbeing of all actual, and potential, human participants/donors.

In terms of ethical requirements, a Research Ethics Committee review should be sought and take into consideration:

- How fully informed, freely given consent will be obtained.
- How volunteer donors' confidentiality will be protected.

Blood donation for teaching or research must always be voluntary. Staff, students or other volunteer donors should not be placed under pressure to give samples. All potential donors should be able to refuse to give blood, without having to give an explanation for a refusal.

Before agreeing to donate, any volunteer donors should be told:

- What volume of blood is to be taken.
- What the sample is going to be used for.

Written consent, confirming that donation is voluntary and informed, must be obtained. The donor should also be made aware of this policy which will be (at a minimum) available as a public document held and distributed through the university's website under [Health & Safety](#).

Ethical approval is not required when blood collection is for phlebotomy training purposes e.g., a newly qualified phlebotomist is taking blood samples as part of their 10 supervised withdrawals (see section on training).

## 4. Donors

Blood donation for research or teaching must always be voluntary. Any volunteer blood donors must read, sign and date the Subject Declaration for Venepuncture Blood Donation consent form (see Appendix 1).

Donors must:

- Read, sign and date the donor consent form
- Be informed of how much blood will be donated
- Be informed of how the blood will be used
- Only donate blood if they are feeling well on the day

### Risk Factors

There are a number of risk factors that may make a potential donor ineligible for donating blood. The list is as follows:

If the donor has in the last 12 months:

- Given birth
- Received a blood transfusion
- Had a tissue or skin graft
- Had hormone treatment
- Had major surgery
- Travelled to a malarial area or in Asia, South America or in Sub-Saharan Africa

If the donor has in the last 4 months:

- Had any ill-health issues
- Had any contact with infectious diseases
- Had any vaccinations or immunisations
- Had a tattoo or body piercing

Potential donors should think about any medication they are taking (especially medicines which thin the blood) and consider whether it is safe to donate blood. If any of the above risk factors do apply to the donor, they should not offer their services as a blood donor or sign the declaration. The volunteer donor does not have to indicate which of the above risk factors apply. Any personal information given by the donor will be treated with the upmost confidentiality. But please note it is the responsibility of the donor to ensure that if they have any health issues which could affect the health of anybody working with their blood, that they should make it known and they should not donate.

If the volunteer donor also donates blood e.g., with Scotblood/National Blood Transfusion Service they should consider how recently they donated and how much blood they are being asked to donate at the university. To ensure individuals are not donating too often the following information will be recorded by the phlebotomist and stored electronically in the university:

- The name of the donor
- The date the blood was donated
- The volume donated

### **Restriction of volunteers**

It is not appropriate to take blood samples from certain donor volunteers:

- Anyone who could feel pressured or coerced into giving blood should not be approached for blood samples.
- No-one should carry out research work using their own blood. In the event of accidental exposure, the immune system will not challenge the transformed cells.

The following individuals should also not be approached for blood samples:

- Individuals who are pregnant.
- Individuals who are known to be a carrier of a contagious blood borne infection (Hep B, Hep C or HIV).
- Individuals who are aware that they may have anaemia (iron deficiency).
- Children under the age of 18.
- Individuals who are under 50Kg.
- Potential participants who may lack the capacity to consent.

### **Covid-19 and other illnesses**

You must not donate blood if you have been ill with Covid-19 or had a positive Covid test in the last seven days. You must not donate blood if you have received a Covid-19 vaccine (or booster) in the last 48 hours. Please do not give blood if you have any signs/symptoms of other illnesses e.g., cold/flu or are feeling unwell.

## **5. Training**

Any member of staff, research student or other individual required to carry out venepuncture to collect a blood sample from a volunteer donor must:

- Be trained and competent in phlebotomy/blood collection
- Have immunisation against Hepatitis B

Any Phlebotomy training must be carried out by a professional, accredited phlebotomy training company. Training would normally take place off site at an external location but, if a number of staff/researchers required training, then it could be arranged for the training to be delivered on campus.

A basic phlebotomy for beginners course will normally consist of 2 days training and would be a mix of classroom teaching and practical work. Any Phlebotomy training required would normally be paid by the School and the individual requiring the training should not be out of pocket. Check with your line manager or supervisor.

Following completion of a phlebotomy training course it is recommended that any new phlebotomist would carry out at least 10 successful supervised blood withdrawals before working with volunteer donors. The names of newly qualified phlebotomists and how many successful supervised withdrawals they have completed will be recorded and stored electronically in the university. A record will also be kept of all trained phlebotomists working in the university.



## 6. Location

Any space designated as a phlebotomy facility should be carefully chosen and, if necessary, adapted to ensure it is suitable. It should also be managed and maintained to ensure it remains suitable.

Locations where chemical, microbiological, or radiation hazards are present, such as laboratories, are not suitable for blood collecting. Blood should not be taken in areas where the preparation or consumption of food and drink is taking place.

### Space requirements:

- The area used should have a floor, work surfaces and walls that are easily cleaned and disinfected. In practice, this means a hard floor, impervious benching/tables and chairs that are upholstered with wipe clean materials.
- The area should have a clean surface with 2 chairs (one for the phlebotomist and the other for the subject) or a bench, bed or alternative appropriate seating.
- There should be a handwash sink with hot and cold running water, liquid soap and paper towels available.
- Drinking water should be available.
- Alcohol hand rub should be available.
- It should be possible to provide privacy for the donor, whether that is through use of a dedicated room or the use of screens/curtains in a shared space.
- The room should have adequate heating, ventilation and lighting and should be cleaned routinely.
- A telephone should be available as a means of raising the alarm and obtaining assistance if the donor faints or becomes unwell.
- There should be storage for the required consumables, e.g., needles, containers, wipes, plasters, gloves etc.
- Ensure all equipment needed for the procedure is laid out and within easy reach on a tray or trolley, making sure all the items are clearly visible.
- A first aid box should be available.
- There should be a first aider onsite.
- A clinical waste bin and sharps bin should be present in the room (and close by).
- Materials to clean up any spillage and to decontaminate the parts of the room affected should be available.
- The protocol on how to respond to a needlestick injury should be available in plain sight within the facility.

## 7. Working With Needles

The majority of control measures required, when working with needles, rely on the user being competent in their use. With that in mind any information or training provided should contain the following:

- Safe use and handling techniques of any needles or other sharps being used.
- Information on any hazards workers could be exposed to and the risks from exposure.
- Findings of any risk or COSHH assessment relating to the activity.
- Control measures to protect employees such as medical devices, safer needle appliances, PPE (if required), safe systems of work, local procedures and codes of practice.
- Availability of prophylaxis (such as vaccinations) against hazards or potential treatments.
- Information on the safe disposal of needles and sharps.
- Emergency procedures and the requirement of individuals to report any incidents.
- Health surveillance where required.

All used needles or other sharps should be disposed of carefully at the point of use. This means suitable sharps containers should be portable enough to take to the activity and designed specifically to allow needles and sharp instruments to be disposed of easily and safely at point of use.

Contact with contaminated needles, scalpels, broken glass and other sharps could expose persons to blood that contains pathogens or other biological material which ultimately could pose a serious risk to the person exposed. Exposure in this way to bodily fluids, secretions and bodily tissues is treated as potentially posing a risk of infection. Any risk can be minimised by providing needle devices with safety features and puncture resistant UN approved sharps containers for their safe disposal. Infection control procedures must be followed, with incorporated safety mechanisms and the safe disposal of sharps. Standard aseptic non touch technique must be adhered to throughout the procedure of needle insertion.

### Basic Protocol

- Clean and disinfect the chair or couch/bed and any surfaces to be used before each drawing from a donor.
- Wash hands with soap and water and dry with single use towels i.e., paper towels.
- Disinfect the entry site using a 70% alcohol swab.
  - Do not touch the cleaned site, if the site is touched, repeat the disinfection.
- Use a single use device for blood sampling.
  - DO NOT reuse a blood sampling device.
  - DO NOT leave a used device lying outside a sharps container.
  - DO NOT re-sheath a needle.
- Discard the used device directly into a sharps container.
- Do not try too many times to obtain a blood sample from a donor. If the first attempt to draw blood is unsuccessful then there should be a maximum of 2 more attempts either in the same vein or by trying a different vein/arm. 3 attempts maximum and this only if the donor is agreeable and not showing any signs of discomfort.
- Do not carry any sharps between laboratory areas and never by hand. Use a tray.
- Do not place the hand, which is not holding the needle, in front of the needle.
- Always point sharps away from you and everyone else.
- Never put sharps in your lab coat pocket.

- Any spillages should be cleaned with a 1:10 Chemgene solution.
- Tourniquet, pillow cover, plinth and table should all be wiped down after use.
- Area should be sprayed down with disinfectant spray.

### **Disposal procedures**

- All contaminated waste goes into clinical waste
  - Needles and scalpel blades should be placed in a sharps bin.
  - Broken glass and other broken sharp shards should be disposed of carefully and in a way that can't harm other workers e.g., cleaning staff.
  - Used tissues, wipes, plasters, cotton wool balls etc. go into clinical waste bags
- In the case of unsuccessful withdrawals any blood tubes used, even if there is no blood, should be placed in a clinical waste bag.

Once full clinical waste bags and sharps bins are placed in large clinical waste bins, which are stored outside, for uplift by an external contractor.

### **Personal Protective Equipment (PPE)**

Suitable Personal Protective Equipment (eye protection, lab coat, gloves\*) must be worn when working with needles to collect blood samples. Exposed cuts or abrasions of the skin must be covered with a waterproof dressing or plaster.

*\*Wearing gloves when collecting blood is possible but may decrease dexterity and the ability to feel and palpate for a vein resulting in greater risk. If gloves are not expected to be worn then this should be highlighted in the risk assessment.*

### **Recapping needles**

Never recap a needle. Even a clean one that hasn't been used should be disposed of properly. Ensuring that even a clean needle isn't recapped should lower any risk of recapping a dirty one.

### **Having a sharps container at the point of use**

Always ensure a sharps container is within easy reach. This will reduce any risk of having to transport a contaminated needle.

### **Anchoring from above and below the puncture site**

Try and avoid putting the index finger above the intended puncture site to anchor the vein. Avoiding this technique lowers the risk of a needlestick injury.

### **Finger prick blood sampling**

A finger prick blood sample is one that is collected from the finger using a lancet that pricks the finger with a small, sharp needle. Finger prick blood sampling where less than 1ml is being drawn does not require a trained phlebotomist. This technique can be carried out by any worker following local training by a suitably trained academic or technician.

- Disinfect the entry site using a 70% alcohol swab.
- Use a single use device for blood sampling.
- Discard the used device directly into a sharps container.
- Any spillages should be cleaned with a 1:10 Chemgene solution.
- Dispose of any used tissues/blue roll/cotton wool balls in a hazardous waste bag.

## 8. Emergency Procedures

### Needle-stick injuries

In advance of any blood collection commencing, both the phlebotomist and donor should be aware of the protocol detailing how to respond to needle stick injuries. Viruses in the blood can be transferred to the phlebotomist from contaminated needles, scalpels and lancets, as well as from contaminated broken glassware.

Please note - few people from those potentially exposed are infected, but an injury like this can still have a traumatic effect on the individual even if there is no infection. Injured personnel could experience trauma from:

- The effects of the injury
- Anxiety about its potential consequences
- The effects of post-exposure treatment

Should you, or someone you are working with, suffer an injury with a needle or other sharp then you should contact a trained first aider via the security control room (ext. 4444 / 0131 455 4444) or the campus iPoint. Please provide the following information:

- Location of injured person (campus, school/service and room number).
- Details of injury (cut, laceration, puncture wound, or injection).
- Extension number from which the call is being made and name of caller.

The following first aid advice for needlestick injuries is recommended:

- Encourage the wound to gently bleed, ideally holding it under running water.
- Wash wound or exposed area under running water with soap.
- Do not scrub the area as this can further damage the skin.
- Do not suck the wound.
- Dry the wound and cover it with a waterproof plaster or dressing.

A flowchart showing the first aid advice for a needlestick injury is available (Appendix 2).

If blood had been taken, and therefore the needle was dirty, there is a risk of contamination, and you must seek medical advice as you may require treatment to reduce the risk of getting an infection.

Prompt medical advice is important following exposure to a BBV (Blood-Borne Virus). Treatment will probably be required but, to be effective, it may need to be started quickly.

If there is a risk of contamination then the circumstances of the incident need to be assessed and consideration given to any medical treatment required. The results of the assessment will contribute to decisions on whether a Blood-Borne Virus post-exposure prophylaxis is required.

The below information may help obtain a speedy medical referral:

- **Route of exposure** – percutaneous, mucous membrane (which includes eyes, mouth) and skin. Splashing of blood/body fluids onto mucous may result in virus transmission:
  - If intact, the skin is impervious to blood borne viruses: however,
  - If the skin is not intact e.g., through cuts or abrasions or chronic dermatitis such as eczema, then transmission may occur.

- **Direct or Indirect exposure** – an assessment should be made as to whether exposure to blood/bodily fluids was direct or indirect, e.g., through an item such as contaminated device or instrument.
  - If indirect, then in what way had the item become contaminated? Contaminated hollow bore needles (e.g., those used for injection) are more likely to transmit than solid needles (e.g., those used in suturing).
  - Needles that have been present in a blood vessel are more likely to transmit than needles used for intramuscular injection.
  - How soon after the sharps became contaminated did the exposure incident occur? The viability of the BBV will decrease rapidly on drying so, for instance, transmission is very unlikely from a dried-up needle.
- **PPE (Personal Protective Equipment)** - e.g., were gloves used? There is a wiping effect as a needle pierces a glove, which may reduce the likelihood of transmission.

## 9. Blood Spillages

If a blood spillage does occur, clean up immediately using 10% cleaning/disinfectant solution. Disinfect and clean the area. Be sure to dry floors to prevent slips.

- Thoroughly mop or wipe the area with detergent and dry.
- Any splashes of blood or bodily fluid on the skin should be washed off immediately with soap and water.
- Dispose of any used tissues/blue roll/cotton wool balls etc. in a clinical waste bag.
- Any sharps should be disposed of in the sharps bin.
- Any discarded blood tubes should be submerged in a beaker containing a 1:10 Chemgene solution.
- Tourniquet, pillow cover, plinth, table and trolley should all be sprayed and wiped with disinfectant solution.
- Area should be sprayed down with disinfectant spray.

## 10. Further Guidance

### Do's and Don'ts

Do	Do Not
Do carry out hand hygiene (use soap and water or alcohol rub) and wash carefully, including wrists and spaces between fingers for at least 30 secs.	Forget to wash your hands.
If gloves are being worn – only use one pair per procedure or donor.	Do not use the same pair of gloves for more than 1 patient. Do not wash gloves for reuse.
Do use a single use device for blood collection/sampling or drawing.	Do not use a syringe, needle or lancet for more than one donor.
Do disinfect the skin at the venepuncture site.	Do not touch the site after disinfecting it.
Discard the used device immediately into a sharps bin/container.	Do not leave an unprotected needle lying outside the sharps bin/container.

### Other issues

Problem	Cause	Suggested Action
Missed vein	Inadequate anchoring Poor vein selection Difficult venous access	Repalpate, withdraw the needle and discard it. Attempt the procedure again, providing the donor is not feeling too much discomfort.
Spurt of blood on entry	Bevel of needle enters vein before bevel is under the skin; normally when vein is superficial	Reassure donor, wipe blood away on removal of needle.
Blood stops flowing	Through puncture: needle inserted too far	Draw needle back. If bruising evident, remove needle immediately and apply pressure.

## Appendix 1 – Subject Declaration

### Subject Declaration for Venepuncture Blood Donation

You are consenting to donate blood in the School of Applied Sciences. The School phlebotomists have all undergone an approved training course and have Hepatitis B immunity. The blood you are donating will be used for

but **will not** be screened for pathogenic organisms that could adversely affect the health of any exposed person. It is therefore important that you *do not* donate blood if *any* of the risk factors listed below apply to you. At the end of the experiment the cells will be disposed of and will not be stored for future research.

**Please read the list below and think very carefully if any apply to you.**

If any factors do apply, please **do not** sign the declaration and do not offer your services as a donor. *You do not have to say which risk factors apply.*

#### Risk Factors

In the last 12 months	Recent (within the last 4 months)
Childbirth	Ill-Health, including anaemia
Blood transfusion	Contact with infectious diseases
Tissue or skin graft	Vaccinations or immunisations
Hormone treatment	Tattoo or body piercing
Major surgery	
Travel to a malarial area or in Sub-Saharan Africa, Asia or South America.	

Additionally, if you have any lifestyle factors which would pose a risk please do not donate.

Or, if you are a Blood Donor, please consider how recently you gave blood and how much blood you are being asked to donate today.

#### Declaration

I have read the risk factors and have considered my lifestyle factors and to the best of my knowledge none of them apply to me and I am in good health. I understand that my blood will be used for research purposes.

<b>Name of Donor:</b>	<b>Name of Phlebotomist:</b>
<b>Signature of Donor:</b>	<b>Signature of Phlebotomist:</b>
<b>Date:</b>	<b>Date:</b>

## Appendix 2 - Flowchart

### Management of Occupational Exposure to Blood-Borne Viruses

#### Immediate Actions:

- Contact a First Aider via the security control room by calling ext. 4444 (0131 455 4444)
- Encourage the wound to gently bleed, ideally holding it under running water
- Wash wound or exposed area under running water with soap
- Do not scrub the area as this can further damage the skin
- Do not suck the wound
- Dry the wound and cover it with a waterproof plaster or dressing

#### Assess if exposure is significant:

- Percutaneous injury (needle, instruments, bone/tooth fragments, or significant bites any of which break the skin)
- Exposure of broken skin (abrasions, cuts, eczema, etc.)
- Exposure of mucous membranes including the eye
- Used sharp

