

# Having a red cell exchange (apheresis)

Department of Haematology

Information for Patients

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## Introduction

This leaflet has been written to give patients information about red cell exchange. If you would like anymore information or have any questions please ask the doctors and nurses involved in your treatment.

## What is an automated red blood cell exchange (RBCX)?

Blood is made up of red cells, white cells and platelets, which are carried around in fluid called plasma. Red cells carry oxygen to different parts of the body and also remove waste such as carbon dioxide. The red blood cells can be separated from the rest of your blood and replaced with red blood cells from blood donated by donors. The sickle blood is then replaced with non-sickle red cells from a donor who does not have sickle cell disease.

This process is called **red blood cell exchange** or **exchange transfusion**. RBCX is done using a **machine called a blood cell separator** which can separate blood into its various parts.

**Blood cell separator /apheresis machine**



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## Why do I need a red blood cell exchange (RBCX)?

When you have sickle cell disease we usually recommend RBCX rather than a normal top up' transfusion. This is due to the following benefits:

- It is more efficient and is more likely to give you less sickle blood cells in your system.
- you will need fewer procedures each year as you can go longer between transfusions.
- there is less risk of iron overload as the exchange swaps your red cells for the donor red cells very effectively.
- It is also faster, the procedure can usually be completed within 3 hours.
- It could result in you having fewer problems with your sickle cell disease.

## How many RBCX or exchange transfusions will I need?

Sometimes only 1 RBCX will be recommended. This might be to help you prepare for an operation or if you are very unwell due to your sickle cell disease.

For some people we recommend regular exchange transfusions ; this may mean having a procedure every 4 to 8 weeks. This could be for a short length of time, for example, during pregnancy.

We may recommend a long-term exchange transfusion programme because of problems with your sickle cell disease or to prevent complications such as stroke or chest crisis (acute chest syndrome). More information on **chest crisis** on this link : [preventing breathing difficulties during sickle cell crisis](#)

## Where will the RBCX take place?

Red cell exchanges will take place at the Osborne treatment centre, Level 2, Osborne building, Leicester Royal Infirmary. Sometimes, RBCX may take place on a ward if you are an in-patient and are unwell.

## What are the side effects of RBCX?

- Reaction to donor red cells –the blood transfusion service gives the safest possible blood products. Even though blood components are matched to your blood group they may still cause side-effects. Most side effects are mild and easily treated. Very bad reactions are uncommon and staff are trained to recognise them. You should tell the nursing staff if you become or feel unwell.
- Early signs include; itching, hives and wheeziness.
- Signs to watch out for at home are;
  - jaundice or yellowing of the eyes
  - becoming more pale
  - passing very dark pee

- Reduced calcium levels - calcium is essential for your blood to clot. During the procedure a blood thinner is used to stop the blood from clotting on the machine. This can reduce the calcium levels in your blood. Sometimes this can cause a “pins and needles like feeling” in your fingertips and or lips. Please let the nurses know if you have this. If this happens we can give you replacement calcium in a drip or tablet.
- Feeling faint or dizzy - your blood pressure will be checked, some people may feel dizzy at the end of the procedure. Please let the nurses know straightaway if you feel unwell. Some people at times need a drip of extra fluids to feel better.
- Loss of some red cells - at the end of the procedure we cannot return the blood that is in the machine back to you which means you lose some red cells as a result. This should not cause you any problems. However we will often check your blood levels. This is to make sure they stay at a safe level after each exchange transfusion. If you have had a reaction to a blood transfusion in the past then please tell the staff.
- Low platelet count - your platelet count maybe lowered by the exchange but should stay within normal range. This will naturally increase back to your usual levels in the days after your exchange.

## What happens before RBCX?

**Before your first exchange transfusion,** your doctor or nurse will

- discuss the process with you including the risks and benefits and potential side effects.
- you will be asked to sign a consent form to confirm you are happy to have the procedure.
- measure your height and weight and take baseline blood tests.
- look at your veins so they know what sort of access within a vein they will need to do the procedure. If the veins in your arms are not suitable you may need to have a central tube inserted into a larger vein after a local or general anaesthetic. If this is necessary you will be given information about the type of tube to be used and how it is to be inserted. A RBCX needs excellent blood flow for the apheresis machine to work.
- So if you do not have good veins you may need the following:
  - Vascath - a temporary catheter into a vein in your groin at each exchange
  - Vortex port – a special device placed under your skin, this is a more permanent catheter

### **2 or 3 days before each exchange transfusion :**

- you will be asked to attend the blood test room at the hospital. This is where your blood samples will be taken. This is because we need to order in and match the blood to be used for your exchange. **If you do not do this step we will not be able to do your transfusion.**

Patients who live in Northamptonshire should be able to get their blood tests taken in Northampton hospital.

## What happens on the day of RBCX?

- Please arrive 10 minutes before your appointment time.
- If you arrive late we may not be able to do your exchange transfusion that day and we will need to reschedule your appointment.
- You should expect to be in hospital for 4 to 5 hours.
- The procedure itself should take 2 to 3 hours.

Your safety and comfort are of the utmost importance to us. Trained apheresis nurse will look after you throughout the procedure.

**Please note if you are having a tube inserted you must arrive at the ward at 08:30.**

## The RBCX process

The apheresis nurses will

- set up the machine.
- talk you through the procedure
- you will have the opportunity to ask questions.
- you will have your observations recorded such as blood pressure and pulse.

### During the procedure,

- blood will be taken out of a large vein in your arm or through a vascath or port into an apheresis machine.
- inside the machine the blood will be whirled around very quickly so that it separates into layers.
- your own red cells will then travel up into the collection bag, while the separated plasma and other blood cells will be returned to you with the donated red blood cells.
- there will be only about a cupful of blood outside of your body at any time.

### At the end of the procedure,

- a blood sample will be taken to check that the target goals of sickle cell are met. We are aiming for sickle cell percentage of 20 to 30%. This will depend on the reason why you are having an exchange transfusion.
- If you feel dizzy at the end of the procedure we may need to give you some fluid through your existing cannula or line.
- Your sickle cell specialist nurse will let you know when your next procedure is.

## What should I bring with me?

Please bring any medication that you would need to take during the time you will be at hospital. This includes any pain medication that you normally take.

If possible wear clothing with loose fitting sleeves as you will need to expose your upper arms. We offer cold and hot drinks and sandwiches only. It is important to have something to eat and drink before the procedure.

Once you are connected to the machine you will not be able to visit the toilet, so please go immediately before the procedure. You will be given help if you need the toilet once you are attached to the machine. Commodes, urinals and bedpans are available for use.

## After a RBCX

- Some people feel tired after the procedure is done. Please ask a friend or relative to take you home afterwards. You should not drive yourself home.
- You should not do any hard physical exercise for the rest of the day.
- If you had a vascath inserted for the procedure, this will be removed. You will need to stay on the outpatient clinic for 30 mins after it has been removed to make sure that any bleeding has stopped.
- Please do not hesitate to ring or email if you have any question or queries.

If you need to change an appointment date you **must** contact your specialist nurse or the Osborne treatment centre 1 week in advance. This will allow us to give the appointment slot to someone else. If you change your appointment without giving notice or miss 2 appointments, we will take you off the RBCX programme until a discussion with the consultant haematologist happens.

## Further information:

Osborne treatment centre: Telephone -01162585708 or 01162585264.

Adult haemoglobinopathies specialist nurse : Telephone- 07950891490.

Haematology helpline number: 08081782212 - available 24hrs a day.

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