Introduction
This information sheet has been given to you to help answer some of the questions you may have about Vortex Ports. It explains what you can expect when the port is inserted as well as the benefits and risks of having a Vortex Port and any alternatives. If you have any questions and concerns, please do not hesitate to speak to a doctor or nurse in the Apheresis Team.

What is a Vortex Port?
A Vortex Port is a special device that is placed under your skin. It consists of a thin flexible tube placed in a large vein, connected to a double chamber or “port” implanted under the skin. The double chamber measures about 4cm long, 2cm wide and 1cm deep.

The port is usually placed under the skin on your chest just below your collar bone. It can be used for taking blood samples and for giving fluids or drug treatment without having to find a vein. A Vortex Port can also be used for automated red cell exchange treatment. When not in use, it is hidden under the skin and has no external parts. You will probably be able to see and feel it as a “lump” under the skin. When we need to use it, we will insert a needle through the skin into the port. If you are having a red cell exchange, two needles will be used, one for withdrawing and one for returning blood. When the treatment is finished the needles will be removed. There is no limit to how long the Vortex Port can stay in and you can go home with it in.

What are the benefits of having a Vortex Port?
Vortex Ports are quite new and we are still learning about them. We hope they will benefit patients requiring red cell exchange treatment but it is too early to say what the long-term disadvantages might be. For this reason at the moment we are only offering Vortex Ports to patients who find it difficult to
have their exchanges any other way. This might be because their arm or femoral veins are too difficult to access. Or it may be that they find having to have lines inserted into the arm or groin too distressing. We are also limiting Vortex Ports to patients who are able to commit to attending their planned red cell exchange appointments regularly. We think that these patients are less likely to experience complications with their Vortex Port because the percentage of sickle cell blood will be kept very low. If you are not sure why you are being offered a Vortex Port, one of the apheresis or central venous access nurses will be happy to discuss this with you.

When it is not in use a Vortex Port is completely embedded under your skin and there are no external parts. This means you can bath, shower or swim freely. A Vortex Port requires flushing once every four weeks. Flushing is a simple procedure where a needle is inserted through the skin into each chamber of the port and a heparin solution is injected. This helps to keep the port working.

Are there any alternatives to Vortex Ports?
A Vortex Port is one type of a group of devices we call ‘central venous catheters’. You have probably been given this leaflet because your doctor or nurse feels that a Vortex Port is the most suitable device for you but it may not be the only option.

If you have good veins in your arms one alternative might be to use these veins.

Another alternative is to use a femoral line, a temporary line which would be inserted into your groin each time you have an exchange.

Another possibility is a type of tunneled line which we sometimes call a permacath. A tunneled line is a long-term device usually placed on your chest. Unlike a Vortex Port, part of a tunneled line lies outside the body. When not in use it requires weekly flushing and dressing changes.

If you would like to find out about these alternatives, please ask a doctor, nurse or one of the central venous access nurses. Leaflets are also available online at www.uclh.nhs.uk/cvc

How is the Vortex Port put in?
Your Vortex Port will usually be put in by a doctor called an interventional radiologist. Putting in a Vortex Port is a minor surgical procedure. It takes about forty-five minutes and is carried out in an operating theatre. To reduce the risk of infection, the doctor will wear a surgical gown with a hat and mask. X-rays will usually be taken during the procedure to check the Vortex Port is in the correct place. You may also be attached to a heart monitor and fitted with an oxygen mask. Some patients are also given intravenous fluids.

Some patients have their Vortex Ports inserted under local anaesthetic alone but you may prefer to have an intravenous sedative as well. This is to help you relax during the procedure and be less aware of what is happening. You can discuss your options with the person putting in the Vortex Port or with one of the apheresis or central venous access nurses.

What do I need to do to prepare for my Vortex Port appointment?
If you are an inpatient, the nurses and doctors on the ward will discuss any preparation with you. If you are an outpatient, your Vortex Port insertion will usually be arranged by the Central Venous Access Team. A member of the team will give you detailed information about the arrangements. If you decide to have an intravenous sedative you may be asked to attend a pre-assessment clinic before the actual day of the procedure. You will also need to have blood tests and
a nose swab. These arrangements will be explained clearly to you. In all cases it is important that you do not have anything to eat or drink for five hours before the procedure. This is a simple safety precaution.

If you are taking any medication to thin your blood, you may need to stop this temporarily before your port insertion. Please discuss this with your haematology consultant and with the central venous access nurse arranging your port insertion.

**What happens after the procedure?**

If you are an inpatient you will be taken back to the ward after the procedure. If you are an outpatient you will be able to go home on the same day. You should arrange for a friend or relative to accompany you home. If you live alone we advise that you ask someone to stay with you overnight.

After the procedure you may have some bruising and be a little sore for a few days because the line has been implanted under the skin. Some patients take a mild painkiller such as Paracetamol to ease this. Once the bruising has settled down the port should be painless, though you may feel some brief discomfort each time the port is used as the needle is inserted through the skin.

We advise patients to wait four weeks before the Vortex Port is used for a red cell exchange. This will allow any swelling to settle. If you need an exchange sooner than this we will usually suggest using your arm or femoral veins.

**When and how will the Vortex Port be removed?**

A Vortex Port can stay in for several months or even years if required. It should be removed if it is no longer needed. Sometimes Vortex Ports are removed or replaced because of a problem. Removal of the Vortex Port can be arranged by the Central Venous Access Team and is similar to the insertion procedure.

**Are there any risks associated with having a Vortex Port?**

**Risks during insertion:** Most Vortex Port insertions go smoothly. Serious complications are extremely rare. There is a very small risk of a collapsed lung. This happens to less than one patient in every hundred. When it does happen, it is unlikely to lead to a serious problem. There is also a very small danger of puncturing a blood vessel in the chest or of air entering the venous system. These last two complications are thought to happen in less than one in a thousand patients but when they do happen they can be dangerous.

**Infection:** Some patients develop an infection because of their Vortex Port. When infections happen they are usually treated with antibiotics and in some cases the Vortex Port may need to be removed. Symptoms of infection include a high temperature, a shivery episode, or redness or swelling around the port. You should let the hospital know straight away if you notice any of these symptoms.

**Thrombosis (blood clot):** Having a Vortex Port can cause you to develop a thrombosis (blood clot) in the vein. Signs of a blood clot include swelling and pain in the shoulder, neck or arm. Some patients with clots have veins standing out on the neck or chest on the same side as the port. You should let us know straight away if you notice anything like this. If you develop a clot, you will usually be given medication to dissolve it. The port does not always need to be removed.

Some patients develop clots around the internal end of the line near the heart but without having any symptoms. For this reason, your haematology team will
arrange for you to have a test called an echocardiogram once a year to check for any hidden clots. An echocardiograph is a painless procedure which uses ultrasound to examine your heart. It is similar to an ultrasound scan used in pregnancy.

There is also a small risk of a blood clot on the lungs. This can be a dangerous complication. If you are concerned about this possibility please talk it over with your medical team. The symptoms of a clot on the lung include chest pain and sudden shortness of breath. This kind of symptom should be reported straight away.

**Malfunction:** If you are having regular red cell exchanges you may find that your exchange takes a little longer than usual for the first few times your Vortex Port is used. This may be caused by the swelling after the port is inserted. In the majority of cases this will settle after a few weeks. In a small number of cases the Vortex Port fails to function properly. This is usually due to the Vortex Port being wrongly positioned or becoming dislodged beneath the skin. If this happens the Vortex Port will need to be removed and replaced.

**Blockage:** Vortex Ports can sometimes become blocked. We can usually unblock them by using a special flushing solution. Occasionally this fails and we will need to remove the Vortex Port and replace it with another.

**Pain when the port is used:** When the Vortex Port is used, a special needle is inserted through the skin. If you are having a red cell exchange, local anaesthetic will be injected to numb the skin before the needle is inserted. Local anaesthetic causes temporary discomfort similar to a blood test or injection but once the skin is numb inserting the needle should not be painful. When the port is accessed for other reasons such as a blood test, local anaesthetic will probably not be required. This is because the needle used in this situation is much smaller than the needles used for an exchange. Some patients choose to apply a numbing cream to the skin before the port is accessed for blood tests. You can discuss this with one of the nurses.

**Difficulty in inserting the needle into the port:** The Vortex Port should only be used by nurses who have been specially trained. This includes the nurses in the Apheresis Team and in Supportive Care Department as well as some of the nurses on the haematology wards at UCLH. Sometimes it may take more than one attempt to successfully insert the needle.

**Scarring:** Most patients will find they have a scar about two centimetres long just to the side of the port. There will also be a small scar just above your collar bone. Some people make a larger than average scar when their skin is damaged e.g. after a cut or sometime even with an ear piercing or insect bite. This is called keloid scarring. It can happen to anybody but is particularly common in people with dark skin such as people from African, African-Caribbean, Mediterranean and South Indian communities. If this is a problem that applies to you, it is likely that you will already be aware of it. Please discuss this with the doctor inserting the line. It may be possible to position the port so that the scars are less visible.

**What happens if I decide not to have a Vortex Port?**
If you decide against a Vortex Port, please discuss your options with a doctor or nurse. If you have any concerns you are welcome to contact the Central Venous Access Team or the Apheresis Team. You will find the correct telephone numbers at the bottom of this leaflet. It is your choice whether you have a Vortex Port inserted or not.
What about aftercare?

Dressings and stitches: After the Vortex Port is inserted you will have two small dressings: one on the side of your neck and one next to the port. These and any stitches should be removed seven to ten days after your port is inserted. Until this time you should keep the dressings in place. If you have transparent dressings you can shower or bath normally. Other types of dressings should be kept dry. After the stitches are removed you will not need a dressing and can bath and shower normally unless your Vortex Port is being used.

Other care: In between treatments the Vortex Port will not need any special care. However, if it is not being used for treatment it will need to be flushed every four weeks to stop it from getting blocked. Flushing the Vortex Port should be done by specially trained nurses at the hospital.

When you go home, it is important that you know who to contact if you have any problems (see contact numbers below). We would like you to contact us if you notice any of the following: a high temperature (above 38°C), a shivery episode or any pain or swelling.

Consent Form

By law we have to ask for your consent before putting in your Vortex Port and will ask you to sign a consent form. This confirms that you agree to have the procedure and understand what it involves. Staff will explain all the risks, benefits and alternatives before they ask you to sign a consent form. If you are unsure about any aspect of your proposed treatment, please don’t hesitate to speak with a senior member of staff again.

Further Information

If you have any questions about Vortex Ports please feel free to ask a nurse or doctor.

Useful contact numbers

Haemoglobinopathy Clinical Nurse Specialist:
Telephone 020 3447 7359

Apheresis Team:
Telephone: 020 3447 8955

Central Venous Access Team:
Telephone: 020 3447 7491

Out of hours emergency line:
Mobile: 07852 220 900.

UCLH switchboard: 0850 7555 000

Postal address: 1st Floor Annex, Rosenheim Building, 25 Grafton Way, London WC1E 6AU.

Additional Notes (for your use):

If you need a large print, audio or translated copy of this document, please contact us on 0845 155 5000 or 020 3456 7890 ext 77491. We will try our best to meet your needs. You can also find this leaflet online at www.uclh.nhs.uk/cvc

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