

When an adult needs to be put on a life support machine (ECMO)

Adult Intensive Care Unit
Glenfield Hospital
Information for Patients

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Introduction

This leaflet has information about ECMO for you to keep. It does not replace any discussions you have with the ECMO doctors and nurses. Please ask questions at any time during face to face or phone conversations with the staff. We are always happy to explain or repeat any of the information.

What is ECMO?

ECMO stands for Extra-Corporeal Membrane Oxygenation. It is a specialist organ support machine. It includes an artificial lung ("oxygenator"). It puts oxygen into the blood outside the body and removes carbon dioxide (the waste gas we breathe out). It takes over the role of the lungs. It gives the lungs time to rest. It lets your body have time to recover from the illness or injury. ECMO is used to try and save someone's life when the usual intensive care treatment is not enough.

An ECMO oxygenator ('artificial lung')



A complete ECMO machine



Health information and support is available at www.nhs.uk
or call 111 for non-emergency medical advice

Visit www.leicestershospitals.nhs.uk for maps and information about visiting Leicester's Hospitals
To give feedback about this information sheet, contact InformationForPatients@uhl-tr.nhs.uk

Why ECMO?

ECMO for adults is a proven treatment. It has been based at University Hospitals of Leicester and used at Glenfield Hospital for over 30 years. In the UK there are 8 centres that offer adult ECMO. We are the only one that offers ECMO to everyone from newborn babies to adults.

ECMO gives artificial lung support. It is used for patients who are critically ill due to life-threatening lung disease. It is only used when your relative has failed to improve or continues to get worse despite full intensive care treatment.

The 3 most common reasons to need ECMO are:

- severe pneumonia.
- adult respiratory distress syndrome (ARDS).
- life threatening asthma.

Many other conditions such as COVID-19 may also benefit from ECMO support. We offer ECMO support when we believe it will improve your relative's chance of survival. The average length of time on ECMO support is 8 to 14 days. Some patients need a longer or shorter period on ECMO.

If your relative is accepted by the ECMO team they will need to be moved to the Adult Intensive Care Unit at Glenfield Hospital or another ECMO centre. Our dedicated ECMO transport team will move them. They are specialists in moving these critically ill patients. This may mean travelling by ambulance, helicopter or plane. The type of transport depends on the distance to the referring hospital and how stable the patient is. While travelling, we monitor your relative in a similar way to when they are in intensive care.

What will happen when the transport team arrives?

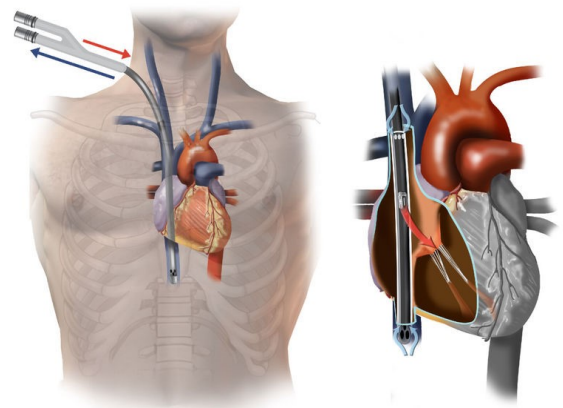
The hospital team will give the ECMO doctor and nurse information about your relative. The ECMO team will review your relative to see if ECMO can help them. They will also look at the best and safest way to move them to Glenfield Hospital. This could be either on a normal ventilator or by mobile ECMO. A ventilator is a machine that supports someone's lungs by breathing for them. It is only used in intensive care. Patients who need ECMO will be on a ventilator in an Intensive Care Unit.

The ECMO doctor will speak to you. It is best if this is face to face. If you cannot travel to the hospital we can talk to you on the phone. The ECMO team will explain the next steps. They will talk about the important benefits and risks of ECMO treatment. This will either involve:

1. Your relative staying in their current hospital.
2. Your relative being moved to Glenfield Hospital on a normal ventilator.
3. Your relative being started on ECMO and then moved to Glenfield Hospital on mobile ECMO support.

How is ECMO started?

So that your relative can have support from the ECMO machine they will need a small operation. This is called ECMO cannulation. This can be done in the operating theatre or in the Intensive Care Unit at either your relative's local hospital or in Glenfield Hospital. The ECMO doctor needs to insert 1 or 2 tubes called cannulas. They are inserted into the blood vessels in your relative's neck and possibly their groin. These let the blood be diverted into the ECMO machine. Oxygen is added to the blood. Carbon dioxide is removed. It is then pumped back into the body via the tubes.



<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3372439/figure/F1/>

We have a video that helps explain ECMO treatment on our website. There is also more about ECMO. The video will show you Glenfield Hospital's Adult Intensive Care Unit. It will also introduce some of the other team members. You can see it here: www.leicestershospitals.nhs.uk/aboutus/departments-services/heart-services/ecmo/risks-and-benefits/

What are the main risks linked with ECMO?

- **Transport:**

ECMO needs to be done in a specialist centre with highly trained, experienced staff. The patient needs to be moved to a specialist ECMO centre. Moving any critically ill patients carries a risk. Our team are trained to do this safely. We cannot take relatives in the ECMO ambulance.

- **ECMO cannulation:**

ECMO cannulation is described above. There is always a small risk of local blood vessel damage. There is, very rarely, damage to the heart. To lower the risk we use ultrasound and X-rays to place the cannula(s).

- **Bleeding:**

Whilst on ECMO we need to give a drug called heparin. Heparin thins the blood (anti-coagulation). It stops it clotting in the ECMO machine. When someone is critically ill there is already a higher risk of bleeding. Heparin can make this worse.

Our team can manage most bleeding. The most serious place for bleeding to happen is internally, mainly in the brain. Bleeding in the brain can cause a stroke. In the most serious cases it can be fatal. Current evidence shows that bleeding in the brain happens in about 1 in 10 adults to 1 in 20 adults who need ECMO support. The team will check your relative all the time to look for any signs of bleeding. We can then deal with it quickly and effectively.

What other treatments may be needed?

- Patients usually stay on the breathing machine (ventilator) at gentle settings to protect the lungs.
- It is not uncommon for the kidneys to stop working for a short time. We may need to support these with a kidney dialysis machine.
- Your relative may need medication to support their blood pressure or heart.
- Some patients need to have tubes put in to drain air or fluid that collects around their lungs.
- Your relative is connected to the ventilator by a tube in their windpipe. Many patients have a procedure to aid their recovery when this breathing tube is moved to the front of their neck. This is called a tracheostomy. It is almost always short-term.
- A few patients may need an operation whilst on ECMO support. We will explain the details to you of any procedure or treatment they need.

Patient diaries

Our nursing staff will keep a patient diary for your relative during their stay. This is a record of what happens to your relative whilst they are a patient at Glenfield Hospital. The nursing staff and other members of the clinical team will write in this diary daily and insert photographs. You may wish to keep your own diary of events whilst your relative is in hospital.

Will my relative recover?

We know this may be the most important question to you but it depends on many different factors. These include:

- your relative's underlying health and fitness.
- the cause for their lung failure.
- whether they have any complications during their critical care stay.
- the length of time they need ECMO support.

Our results show on average 3 out of every 4 adults who have ECMO support in Glenfield Hospital survive (75% survival rate). This may be higher or lower depending on the factors listed.

If your relative needs to stay on ECMO for longer than 3 to 4 weeks this may mean that they are sadly unable to recover. As a team we give you our promise that we will do everything we can to give your relative the best chance of getting better. We will always be open and honest with you about their progress and chances of recovery.

How will I be kept up to date on my relative's progress?

The ECMO team will update you every day. We will give the update to your relative's next of kin (1 person). We can do this either face to face when you are visiting or by phone if you are not able to visit.

Visiting Glenfield Hospital's Adult Intensive Care Unit

We welcome visitors. The Glenfield Hospital Adult Intensive Care Unit's visiting hours are 11.00am to 7.30pm. You can visit your relative at any time. We limit visitors to 2 at a time. You may be asked to wait in our relatives' waiting room during procedures or personal care. We will ask you to wait in our waiting room during nursing and doctor handover times. Afternoons are the best time to visit.

Safety measures

Sometimes, and if your relative has an infectious disease such as COVID-19 or flu, we will ask you to wear PPE (personal protective equipment). This is to keep you and our other patients and staff safe. This may include face masks / respirators, gloves and / or aprons.

Children visiting

Intensive care units can be scary for children. We advise that children under 12 do not visit. If you think it is important for younger children to visit, talk to the ECMO team. We can support visits for younger children with the right support. This might include visits outside the intensive care unit if it is safe.

Contact details at Glenfield Hospital

Duty ECMO Co-ordinator: 0300 303 1573 (via switchboard)

Adult Intensive Care Unit: 0116 258 3154

اگر آپ کو یہ معلومات کسی اور زبان میں درکار ہیں، تو براہ کرم مندرجہ ذیل نمبر پر ٹیلی فون کریں۔
على هذه المعلومات بلغة أخرى، الرجاء الاتصال على رقم الهاتف الذي يظهر في الأسفل
જો તમને અન્ય ભાષામાં આ માહિતી જોઈતી હોય, તો નીચે આપેલ નંબર પર કૃપા કરી ટેલિફોન કરો
ਜੇ ਤੁਸੀਂ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਭਾਸ਼ਾ ਵਿਚ ਚਾਹੁੰਦੇ ਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਹੇਠਾਂ ਦਿੱਤੇ ਗਏ ਨੰਬਰ 'ਤੇ ਟੈਲੀਫੋਨ ਕਰੋ।

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