

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 is not to replace any discussions you have with the doctors and nurses looking after your relative. Please feel free to ask questions at any time during face to face or telephone 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 that includes an artificial lung ("oxygenator") to put oxygen into the blood outside the body and remove carbon dioxide (the waste gas we breathe out). This takes over the role of the lungs. It gives the lungs time to rest and allows the underlying illness or injury to recover. 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



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To give feedback about this information sheet, contact InformationForPatients@uhl-tr.nhs.uk

Why ECMO?

ECMO for adults is a proven treatment that has been based at University Hospitals of Leicester (UHL) NHS Trust and used at Glenfield Hospital for over 30 years (<http://cesar.lshtm.ac.uk/>). In the UK there are 6 centres that provide Adult ECMO. Glenfield Hospital is the only centre providing ECMO for patients of all ages from newborn babies to adults.

ECMO provides artificial lung support 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 deteriorate despite full intensive care treatment.

The 3 most common reasons to need ECMO are:

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

However, many other conditions including 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 10 days, but some patients need a longer or shorter period on ECMO. Patients with COVID-19 need an average of 14 days on ECMO.

Once your relative has been accepted by the ECMO team they will need to be transported to the Adult Intensive Care Unit at Glenfield Hospital or another ECMO centre by our dedicated ECMO transport team. They are specialists in moving these critically ill patients. This may mean travelling by ambulance, helicopter or aeroplane. The type of transport depends on the distance of the referring hospital and the stability of the patient. While travelling, we monitor your relative in a similar way to when they are in intensive care.

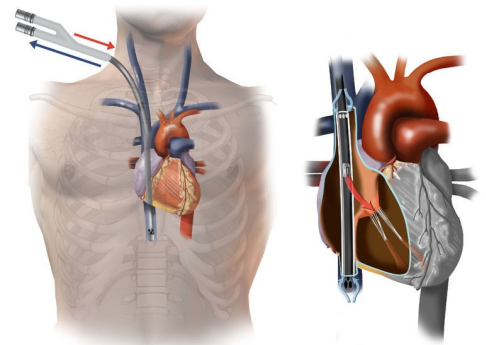
What will happen when the transport team arrives?

The ECMO doctor and nurse will be given the important information about your relative from the team looking after them. They will then carefully assess your relative to decide if ECMO support can help them and the best and safest way to transport them back 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 and is only used in intensive care. Patients needing ECMO will already be receiving full support from a ventilator in an Intensive Care Unit.

Across the UK there have been changes to every aspect of daily life due to the COVID-19 pandemic. It has had a major impact on the NHS and how patients are treated. It is likely you may not have seen your relative for a few days and have relied on information delivered over the phone. Whilst this has been done to protect you, hospital staff and the wider public, it must seem strange and upsetting. Normally we would arrange for you to come to your local hospital to talk about the use of ECMO and explain the benefits and risks but currently this is not possible. A senior member of the medical team will phone your relatives next of kin to discuss this over the telephone instead.

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 into the blood vessels in your relative's neck and possibly their groin. These allow the blood to be diverted into the ECMO machine where oxygen is added to the blood and carbon dioxide is removed before being 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, alongside other information on ECMO. The video will also show you Glenfield's Adult Intensive Care Unit and introduce some of the other team members. This can be viewed here: <http://www.leicestershospitals.nhs.uk/aboutus/departments-services/heart-services/ecmo/risks-and-benefits/>.

What are the main risks associated with ECMO?

- **Transport:**

For ECMO to be used safely it needs to be done in a specialist centre with highly trained, experienced staff. It is necessary to move the patient to a specialist ECMO centre. Moving any critically ill patients carries a risk but our team are trained to do this safely and effectively.

- **ECMO cannulation:**

The process of ECMO cannulation is described above. There is always a small risk of local blood vessel damage and, extremely rarely, damage to the heart during the procedure. To minimise the risk we use both ultrasound and X-rays to place the cannula(s) safely and accurately.

- **Bleeding:**

Whilst on ECMO we need to give a drug called heparin. Heparin thins the blood (anti-coagulation) to stop it clotting in the ECMO machine. When someone is critically ill there is an already an increased risk of bleeding and this can be made worse by treatment with heparin.

Most bleeding can be managed by our expert team. The most serious place for bleeding to happen is internally, especially in the brain. Bleeding in the brain can cause a stroke and, in the most severe cases, can prove fatal. Current evidence shows that bleeding in the brain happens in about 5 to 10% of adults (that is 1 in 10 to 1 in 20) needing ECMO support. Your relative will be monitored continuously by experienced staff to watch for any signs of bleeding so it can be managed quickly and effectively.

What other treatments may be needed?

Whilst having ECMO support, patients usually stay on the breathing machine (ventilator) at gentle settings to protect the lungs. It is not uncommon for the kidneys to temporarily stop working and we may need to support these with a kidney dialysis machine.

Your relative may need medication to support their blood pressure or heart function.

Some patients need tubes to be put in to drain air or fluid that has collected around their lungs.

Your relative will be connected to the ventilator via 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 and is almost always temporary.

A few patients may need an operation whilst on ECMO support. Specific details of any procedure or treatment will be provided to you via a telephone update.

Patient diaries

Our nursing staff will keep a patient diary for your relative during their stay. This provides 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 an average 75% survival rate in all adults receiving ECMO support in Glenfield Hospital, but this may be higher or lower depending on the factors listed.

Results from the first wave of COVID-19 infection show that adults needing ECMO support specifically for COVID-19 have survival rates of 50 to 60%.

The need for prolonged ECMO support beyond 3 to 4 weeks may mean that your relative is 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 and 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?

Normally we welcome visitors. However due to the numbers of people becoming unwell during the COVID-19 pandemic we have had to change our policy. There is no visiting and we follow the government guidance on social distancing. This may seem extreme, especially as your relative is severely ill and may be far from home, but it is to protect other patients, our staff and yourself.

We will try to make sure that we keep you as up to date as possible with your relative's progress through regular telephone updates from the clinical team. We will always try to answer your questions as accurately as we can. If needed we can arrange a face-to-face meeting with the senior medical and nursing teams. We also now have some access to video calling (via Skype or Facetime) to allow you to see and speak to your relative whilst they are being cared for by staff in Glenfield's ECMO team and Intensive Care Unit (ICU). Please know that your relative will have a member of staff caring for them around the clock and are never left alone.

As all services in the NHS are likely to be stretched during this pandemic, we kindly ask that you nominate one spokesperson for your family that is able to relay the information given over the telephone accurately to other family members. This saves us from having to say the same information many times. We will ask you for a password so we can be sure we are talking to the nominated family member for confidentiality reasons.

If your relative has COVID-19, the staff caring for them will be wearing full personal protective equipment (PPE) at the bedside, which can make talking on the telephone very difficult. We aim to update your nominated family spokesperson daily, please bear with us during this difficult time.

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 بلغةٍ 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।

Aby uzyskać informacje w innym języku, proszę zadzwonić pod podany niżej numer telefonu

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