



# ECMO



## Information for Whānau



**ECMO** is a complex therapy which helps to support patients with severe heart and or lung failure. The Cardiovascular Intensive Care Unit (CVICU) in conjunction with the Paediatric Intensive Care Unit in Starship Hospital provides a nationwide service.

## Who needs ECMO

Extra Corporeal Membrane Oxygenation (ECMO) is provided to patients who have a treatable disease that causes severe lung and or heart failure. ECMO works by supporting these vital organs and “buying time” so they can respond to medical treatments such as antibiotic therapy. ECMO is not a treatment itself. Patients requiring ECMO are usually in ICU for a few weeks as they are often very sick and the body can take a long time to recover.

## Different types of ECMO

There are two types of ECMO that use the same machine. Veno-arterial (VA) ECMO provides support to the heart and lungs. Venous-venous (VV) ECMO provides lung support alone. The ECMO machine takes blood out of the body and pumps it through an

oxygenator, which transfers oxygen into the blood and removes carbon dioxide. This helps maintain the normal physiological process of blood pumping around the body (VA) and breathing (VV).

## What does my loved one look like on ECMO

ECMO requires 2-3 big tubes to come from the body, one to drain the blood and one to return it after it has been through the circuit. The ECMO machine sits at the foot of the bed and this helps to oxygenate and pump the blood around. Your loved one will also have a breathing tube connected to a ventilator which helps maintain the usual function of the lungs. There is a poster in the waiting room which shows some of the different equipment that may be used while they are in ICU.



Sometimes a patient's kidneys become impaired, requiring support through the use of a dialysis machine.

### Who takes care of my loved one during ECMO

Most of the time there is a Bedside Nurse and an ECMO Nurse caring for your loved one. The ECMO Nurse takes care of the ECMO circuit and works in collaboration with the Bedside Nurse looking after your loved one. The wider team is made up of the Consultant Intensivist, Perfusionist, Nurse Specialist, Clinical Nurse Coordinator, Nutritionist, Pharmacist and Registrar. The whole team provides input 24/7 to optimise the care for your loved one.

### What are the risks of ECMO

ECMO carries associated risks, some of which are life threatening. The decision to support a patient on ECMO is made when the perceived benefits of ECMO outweigh these risks. The ECMO circuit requires that the blood is "thinned" with medication, to prevent it clotting within the circuit.

This does however carry a risk of bleeding whilst on ECMO, and this bleeding can be life threatening. There is also a risk of infection, as the ECMO lines bypass the body's natural defences against infection, and bacteria can enter the body around them. Moreover, because the patient is entirely dependent on the ECMO circuit for survival, any major malfunction of the circuit can be life threatening. We aim to decrease all of these risks through close monitoring and the nurses are trained to pick up early signs of bleeding and infection.

### Will there be any long term problems due to ECMO?

There is potential for long term issues such as stroke, amputation, paralysis, psychological issues, ongoing organ failure and other ICU complications



### **How long will my loved one need ECMO?**

ECMO can continue for several weeks if there are no serious complications while we wait for the underlying problem to get better.

### **During ECMO: visiting and my role as a whānau member**

While we do encourage Whānau involvement in the care of your loved one there will be some limitations due to the risk involved in having a patient on ECMO. Each set of cares provided can interfere with the function of the ECMO circuit so this is carefully assessed by the ECMO Nurse. Sometimes even light touch or talking can stimulate your loved one and this can cause issues with the circuit. It is important that the circuit is able to function correctly as your loved one is so heavily dependent on it. This may require us asking you to step back and let your loved one stay asleep. While we do understand the need to for talking and touch with your loved one we need to prioritise their recovery while they are so critically unwell.

### **Who will keep me updated on my loved one's progress?**

Your bedside nurse is available to provide updates and answer questions that you might have. You will also receive regular formal updates from the Intensive Care Consultant and Nurse Specialist. The frequency of these formal updates will vary depending on whether there is any new important information to be discussed however will usually be at least once weekly.

### **What happens if my loved one doesn't get better with ECMO?**

ECMO takes over the function of your loved one's heart and/or lungs while they aren't functioning well. Without this support your loved one would pass away. ECMO doesn't heal your loved one's condition however. Sometimes, despite our best treatment, it can become clear that the patient will not make a meaningful recovery. In this case we will discuss the situation with you.



### How do you know a patient is getting better with ECMO

With VV ECMO your loved one's lungs are often not working at all. While they are attached to the ventilator we still try to put air into the lungs but at a minimal setting to rest the lungs. When the lungs start to improve more air is able to enter the lungs. Regular chest X-rays are performed and these can also show signs of improvement, just ask your ECMO Nurse to show you.

### Websites:

CVICU

[www.CVICU.co.nz](http://www.CVICU.co.nz)

Extracorporeal Life Support  
Organisation

[www.ELSO.org](http://www.ELSO.org)