



THE ECMO TEAM

The ECMO team consists of heart/trauma surgeons, critical care physicians, nurse practitioners, physician assistants, perfusionists (those who make sure the ECMO machine works properly), ECMO coordinator, ECMO specialists, critical care nurses, respiratory therapists, physical therapists, case managers and social workers. The ECMO team members work together to provide the best possible care for your loved one.

HEART/TRAUMA SURGEONS: These doctors will place and remove the cannulas (thin tubes) needed for ECMO. They work with the critical care team to take care of your loved one.

CRITICAL CARE PHYSICIAN: A doctor who is trained in caring for patients in an intensive care unit. They also have additional training to take care of patients on ECMO

PERFUSIONIST: A licensed perfusionist is educated and trained in the management and operation of the ECMO machines. The perfusionist will prepare the machine and tubing to help the surgeons place the patient on ECMO. If there are problems while your loved one is on ECMO, the perfusionist will work to correct the problem.

ECMO SPECIALIST: Responsible for the daily operation and maintenance of the ECMO machine.

PHYSICIAN ASSISTANT OR NURSE PRACTITIONER: He or she works with the doctors in the intensive care unit to take care of the patients. They have special training to take care of patients on ECMO.

CRITICAL CARE NURSE: A registered nurse that is specifically trained in the care of ECMO patients. The critical care nurse will also be at the bedside on a 24-hour basis.



RESPIRATORY THERAPIST: A caregiver who has special knowledge and practice treating patients with breathing problems. The respiratory therapist uses lung treatments to help the patient breathe. They are responsible, along with the ECMO team, to manage the breathing machine (ventilator).

CASE MANAGER: The case manager will work with you and your loved one to find an appropriate rehabilitation center. Most patients will not be able to immediately return home after their stay in the hospital. Rehabilitation hospitals help your loved ones get stronger so they can get back home.

SOCIAL WORKER: The social worker is educated to help families cope with the feelings and experiences of having a loved one in the hospital. They can assist you with any arrangements you may need.

CHAPLAIN: A clergy member in the hospital who talks with patients, families and staff. The chaplain provides spiritual support and may help find a clergy member of the patient's faith to better meet the patient's spiritual needs.

CONTACT INFORMATION

Cardiac Surgery ICU, CSICU Nurses station
410-328-5382

Lung Rescue Unit, LRU Nurses station
410-328-8578



ECMO

PATIENT AND FAMILY GUIDE



UNIVERSITY of MARYLAND
MEDICAL CENTER

WHAT IS ECMO?

ECMO stands for Extra Corporeal Membrane Oxygenation. It is a machine that helps provide support for patients with a sick heart, lungs or both. ECMO is used when traditional medical treatments have failed. ECMO does not treat the patient’s disease; it only supports the body while it tries to get better.

The goal of the ECMO machine is to improve oxygen delivery to the body and remove carbon dioxide (CO2) while the heart and/or lungs recover. Patients often require the support of ECMO for many days and sometimes even weeks. Patients on ECMO also require an intensive care unit setting, as well as a special ECMO team.

Usually, ECMO is used when a patient is really sick but has the potential to get better. However, ECMO is also used to help patients waiting for a heart or lung transplant, or waiting for other forms of heart surgery. Unfortunately, despite the use of ECMO, some patients do not get better and die.

Patients who require support only for their lungs are on VV ECMO, while patients who need support for their heart are on VA ECMO. A special machine is used to remove blood from the patient’s vein, pass it through tubing (oxygenator) where oxygen is added to the blood and carbon dioxide (a gas you breathe out) is removed. This oxygen-rich blood is then returned to the patient’s body.

TYPES OF ECMO:

VV ECMO: Veno-venous (VV) ECMO takes blood from a vein and returns it to a vein. It is used to support sick lungs.

VA ECMO: Veno-arterial (VA) ECMO takes blood from a vein and returns it to an artery. VA ECMO supports both the heart and the lungs when they are sick.

HOW IS A PERSON PLACED ON ECMO?

A specially-trained doctor, along with an ECMO team, will place the tubes. This will often take place at the bedside, but sometimes it will take place in the operating room. Before the tubes for ECMO are placed, medicines will be given to your loved one to make them comfortable.

In VA ECMO, one tube will be placed in a large vein and another in an artery. In VV ECMO, both tubes are placed in a vein. These tubes are then hooked to the ECMO machine. An X-ray will be taken right away to make sure the tubes are in the right place. Patients on ECMO will also remain on the breathing machine (ventilator).

THE ECMO MACHINE:

Blood flows through the tubes, by gravity, and is pushed along by the turning motion of the pump. As the blood goes to the machine it puts oxygen into the blood and takes out carbon dioxide. The blood is then warmed to body temperature and given back to your loved one. You will notice that the blood coming from your loved one will be dark because it contains little oxygen. The blood going back to your loved one will be bright red because it carries lots of oxygen.

As your loved one gets better, the ECMO team will set the machine to do less work. The amount of time this takes depends on how the heart and/or lungs heal.

CARING FOR YOUR LOVED ONE:

After your loved one is placed on ECMO, there will be many doctors and providers involved in their care. The intensive care unit staff (doctors, nurses, nurse practitioners, physician assistants) along with the heart/trauma surgeons and their team will be responsible for the daily care of your loved one.

Along with the nurse caring for your loved one and a respiratory therapist who takes care of the breathing machine, you will see an ECMO specialist daily. These people are specially trained to run the ECMO machine. A perfusionist oversees them. A perfusionist is someone who has a special degree in working with heart/lung machines (ECMO).

There are also people who are there to take care of you and your family. Ask your loved one’s nurse to call the social worker if you need help dealing with issues, like a place to stay and other needs, including emotional issues. The social worker will also help arrange family meetings to get periodic updates. A chaplain is on call 24 hours a day.



RISKS OF ECMO INCLUDE:

Bleeding is the most common complication. The machine requires a blood thinner to work best. The blood thinner levels are measured throughout the day.

Infection is always a risk in people who are sick. Signs of new infections are always being monitored.

Blood Clots/Strokes: There is a small chance that blood clots or air bubbles can get into the blood when patients are on ECMO. These can cause strokes.

Problems with ECMO equipment: The ECMO specialty team is trained to handle these rare emergency situations.

REMOVING THE ECMO:

When your loved one has gotten well enough, the ECMO machine can be stopped and the cannulas (thin tubes) removed. This is usually done in the patient’s room. Sometimes it is done in the operating room. This is called decannulation. The patient will remain on the ventilator to help assist with their breathing. As your loved one gets better over the next days to weeks, they will hopefully no longer need the ventilator.

WHAT IS THE FAMILY’S ROLE?

- Be involved in the daily rounds with the doctors if you would like.
- Bring photographs, blankets or any familiar items to your loved one.
- Feel free to touch your loved one and talk to them. If you have any concerns about touching them, ask the nurse or ECMO specialist for help.
- Take care of yourself during this time. Getting sick yourself will not help your loved one.
- Keep a diary of events.
- Call any time of day or night to check up on your loved one.

There may be times when we ask you to step out of the room and wait in the waiting room so we can provide the best possible care for your loved one. Please know we will let you return as soon as possible.