

What you can do to help

It's natural to want your loved one to "wake up" from ECMO treatment as quickly as possible. But it's crucial for you and any other visitors to follow some important rules:

- Check with a member of your loved one's care team before talking to or asking your loved one questions. While hearing a loved one's voice can provide comfort to the patient, it may be in his or her best interest to rest, which increases the amount of oxygen the body has for healing.
- Respect the ECMO equipment. The ECMO machine is very delicate. Please do not touch any part of the machine for any reason. Keep a safe distance so you don't accidentally bump into it.
- Let the doctors and nurses watch the monitors. Changes in numbers are normal and expected. Our care team will tell you if there is a change you should know about.

Your Geisinger ECMO care team

Your loved one will receive care from a coordinated team of dedicated Geisinger health professionals. We encourage you to speak with any of these individuals throughout your loved one's treatment.

- Cardiovascular thoracic surgery team – Places the tubes or catheters in the patient
- Critical care medicine team – Manages the patient's daily care
- Perfusionist – A specialist with advanced training in both heart-lung machines and ECMO
- ECMO coordinator – Manages the ECMO department and acts as an extra resource
- ECMO specialist – A nurse, respiratory therapist or perfusionist who is specially trained to monitor the ECMO circuit while your loved one is receiving treatment
- Nurse – Cares for patients in the Intensive Care Unit
- Respiratory therapist – A specialist in ventilators and lung care

Caregivers need care, too

It's easy to become overwhelmed during a loved one's ECMO treatment. Here are some tips to help you stay focused on your loved one:

- **Understand that the whole experience will have many ups and downs.** One day your loved one will be doing well, while the next day may bring a setback. This is common and natural with ECMO.
- **Be an active part of your loved one's care team.** Ask questions that help you understand and make decisions. If you don't understand the answer, ask again. You deserve to know as much information as the team can provide you about your loved one's condition.
- **Build a support system.** You may need to think about meals, where to stay, getting back and forth to the hospital, child care and other basic needs. If friends and family offer to help, let them. If they don't, ask them. If you do not have a local support system, ask a member of your care team to connect you to a Geisinger social worker, who can help make your life easier.
- **Take good care of yourself.** You are an important part of your loved one's care team. Be sure to eat, sleep and rest so you will be ready to help make decisions.

Geisinger

ECMO: What you need to know about extracorporeal membrane oxygenation treatment



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If your family member or loved one is receiving extracorporeal membrane oxygenation (ECMO) treatment at Geisinger, you probably have a lot of questions. We are committed to caring for the whole person and helping our patients' families understand what their loved one is going through. In this brochure, we will address some of the questions we get asked most often about ECMO. These include:

- What is ECMO?
- Why is it necessary?
- How long will the treatment last?
- What can we expect over the coming days?

We know this guide may not answer every question you have. If you need more information, we encourage you to speak to a member of your loved one's care team here at Geisinger.

About the heart and lungs

To keep our body working properly and our organs healthy, our lungs fill our blood with oxygen. The heart pumps oxygenated blood to the organs (such as the brain, kidneys and muscles), where the oxygen is absorbed. The heart then pumps deoxygenated blood back to the lungs to pick up more oxygen.

If the heart and/or lungs cannot perform these functions effectively, we can temporarily support the body with ECMO.

ECMO as a temporary treatment

ECMO is a treatment that uses a machine to bring oxygen into the body when the heart and lungs aren't working well. ECMO is typically called for when a patient experiences respiratory failure (from trauma, pneumonia or infection) or heart failure (after a heart attack or surgery or before the patient has a more permanent life support device implanted).

ECMO is not a cure for any condition. It is a temporary treatment — usually lasting as little as 5 days or as long as 21 days — that allows the patient's organs to rest and heal.

Types of ECMO

There are two types of ECMO:

- Venovenous: Used when the heart is working, but the lungs need time to rest and heal.
- Venoaerial: Used when both the heart and the lungs need time to rest and heal.

Your Geisinger care team will explain which treatment is being used and why.

How ECMO works

The ECMO machine has a pump that works like a heart. This pump takes deoxygenated blood from the heart and out of the body through tubes called catheters that are surgically placed into large blood vessels in the neck, chest or groin.

It also has an oxygenator that works like an artificial lung. Blood is pumped through the oxygenator, where it removes carbon dioxide and adds oxygen to the blood. The oxygen-rich blood then flows back into the patient's body.

Deoxygenated blood

Oxygenated blood is filled with oxygen from the lungs. Deoxygenated blood has had most of its oxygen used up by the body and is returning to the lungs. The color of blood changes from bright red when oxygenated to dark red when the oxygen has been removed.

Why a ventilator is needed

Even though the ECMO machine is doing most of the work for the lungs, your loved one will also need a breathing machine called a ventilator. The ventilator (or "vent") works through a tube in the nose or mouth that maintains just the right amount of air pressure in the lungs to help them stay slightly expanded.

What to expect during ECMO treatment

You can rest easy knowing your loved one will receive excellent care from their Geisinger care team.

- We'll update you daily about your loved one's condition and plan for treatment.
- Our coordinated care team will visit your loved one at least twice a day, with additional staff always available. Plus, we'll regularly check vital signs such as temperature, heart rate and breathing.
- We'll conduct tests like a chest X-ray or CT (computerized tomography) scan to check the placement of tubes. We'll also do daily blood tests to see how your loved one is responding to treatment.
- We'll give your loved one medication for comfort and to help with sleep. We'll also give medication to thin the blood, which reduces the chance of clots while on ECMO. And we'll prescribe antibiotics to treat or prevent infection.
- We may use a feeding tube to give nutrition. This is a small tube placed through the nose or mouth and down into the stomach.
- If your loved one has kidney problems, we will add an artificial kidney to the ECMO machine for dialysis, to remove toxins from the body.
- We'll occasionally ask your loved one to open his or her eyes, squeeze our hands or otherwise interact with us so we can assess the sedation level and make sure there is adequate blood flow to the brain.
- Once your loved one improves, we'll talk to you about when to stop ECMO. We'll schedule surgery to safely remove the tubes, after which the patient may stay on the ventilator and continue to receive medications to support heart or lung function. We'll remove the ventilator when your loved one is able to breathe on his or her own.
- If your loved one does not respond to ECMO treatment, we'll discuss additional medical treatment options with you.