Transporting a child or young person on ECMO

If your child is seriously unwell and needs specialist care, they will be transferred to The Royal Children's Hospital (RCH) in Melbourne. The RCH Paediatric Infant Perinatal Emergency Retrieval (PIPER) team safely transports patients who need extracorporeal membrane oxygenation (ECMO).

What is ECMO?
ECMO is a life support machine. It temporarily does the work of the heart and lungs when a patient is very sick and helps keep a child alive by giving their body time to rest and recover.

ECMO stands for extracorporeal membrane oxygenation, which means:

- Extra-corporeal = outside the body
- Membrane Oxygenation = adding oxygen and removing carbon dioxide through an artificial lung

Why does my child need ECMO?
If a child needs ECMO, it means their heart or lungs are not working well enough. The ECMO machine will do what the heart and lungs normally do. Blood is taken from the body, oxygenated by an artificial lung, and then pumped back into the body.

ECMO is not a cure, but it will help support a child or young person while they receive the treatment they need. Patients will receive pain medication and sedatives while they're on ECMO and will be closely monitored at all times.

How long will my child be on ECMO?
Every child is different. Some children need ECMO for a few days, while others may need it for longer. We review a child's progress every day and adjust treatment carefully.

Transporting a patient to the RCH
On arrival at a child's hospital, the RCH team will aim to start ECMO as soon as possible and stabilise the patient. Our retrieval team includes:

- A Paediatric Intensive Care Consultant (Doctor)
- A Paediatric Intensive Care Nurse specifically trained in ECMO and retrievals
- A Paediatric Perfusionist – this is who person operates the machine
- A Paediatric Cardiac Surgeon, depending on the circumstances

Organising parent/carer transport
It's important to plan how you will travel to the RCH with your hospital team and family.

We understand parents and carers want to stay with their child while we transport them, however, due to limited space, family members cannot travel in the ambulance or aircraft. Before parents and carers leave, we will provide them with the RCH's Paediatric Intensive Care Unit contact numbers, maps of Melbourne and the RCH. We'll also request a family/carer's mobile number so we can update you on arrival.

Please read our Visitor Guidelines to learn more about the RCH's facilities and resources:
https://www.rch.org.au/info/Visitor_Guidelines/

Risks
The RCH is an experienced ECMO centre, providing retrieval services since 2005, with all patients safely transferred. There are risks with both transfer and ECMO. Our team will discuss these before departure and keep you updated on your child's condition.

ECMO-specific risks
ECMO is a very advanced treatment used when a child is critically unwell. While it can be lifesaving, it also carries risks.

Bleeding: Because blood flows through a machine, we must use blood-thinning medicine to prevent clots. This increases the risk of bleeding, which may happen:

- Around the cannula sites – this is where the ECMO tubes go into the body
- In the lungs
- In the stomach or intestines
- In the brain – however, bleeding in the brain is rare, but serious

Blood clots and stroke (cerebrovascular events): Sometimes clots can form despite blood-thinning medicine. These events are uncommon but possible, which is why we closely monitor patients. If a clot travels to the brain, it could cause a stroke, resulting in:

- blockage of blood flow to the brain, or
- bleeding in the brain

Both could cause a brain injury; however, we monitor your child and the machine tubing very closely to minimise the risk of these complications. Your child will be cared for by a highly trained ECMO team 24 hours a day.

Other possible complications include:

- Infection
- Kidney problems
- Need for blood product transfusions (red cells, clotting factors, albumin)
- Swelling
- Equipment malfunction (rare, but monitored continuously)

What happens after ECMO?
When your child improves, we gradually reduce ECMO support and remove it safely. After ECMO, some children recover fully, however, because ECMO is used in very serious illness, some children may need ongoing follow-up.

Will my child need follow-up after going home?
Some children who have been on ECMO may need:

- Neurodevelopmental assessment
- Physiotherapy
- Speech therapy
- Occupational therapy
- Hearing or vision checks

This is especially important if there were complications such as bleeding or stroke. Even if there were no major complications, we sometimes recommend follow-up to make sure your child is developing well.

Can I be with my child at the RCH?
Yes. You are an important part of your child's care. The ICU team will explain what is happening each day. Please ask them questions at any time – they're here to support you.

Who can I speak to if I'm worried?

- The bedside nurse
- The ICU doctor
- The ECMO specialist team

If you are worried about your child's condition at the RCH and want to speak up, follow the oneTEAM procedure: https://www.rch.org.au/oneteam/