

# Critically ill flu patients saved with artificial lung technology treatment

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In recent weeks the intensive critical care units at University Health Network's Toronto General Hospital have used Extra Corporeal Lung Support (ECLS) to support five influenza (flu) patients in their recovery from severe respiratory problems.

ECLS systems are normally used at the hospital as a bridge to [lung transplantation](#) but increasingly, the hospital is using ECLS on patients where the usual breathing machines (ventilators) cannot support the patient whose lungs need time to rest and heal.

The ECLS systems are essentially artificial lungs that oxygenate the patient's blood outside the body, which gives lungs the chance to rest and heal. This method of oxygenation means that a [ventilator](#) is not used to help the patient breathe and also means that the patient is not exposed to the possibility of further [lung](#) injury, which can happen to [ventilated patients](#). The use of ECLS system requires expertise in its use to avoid other problems such as clots, bleeding problems and infections related to use of the device.

The lung is the only organ that, even when injured, is required to support the life of the patient while it is enduring the injury and trying to recover. The ventilators routinely used in this setting can actually add further injury to the lung on top of the original injury caused by the flu or [pneumonia](#). This is where ECLS can play an important role by taking over the job of the lung so that the lung has a chance to be treated, rest and recover.

"ECLS is an important part of our ability to bridge patients to lung transplantation and we have a great deal of experience in its use," said Dr. Shaf Keshavjee, who directs the ECLS Program as part of the Toronto Lung Transplant Program. Dr. Keshavjee is a thoracic surgeon and the Surgeon in Chief at University Health Network. "As the technology has improved over the years, we are now able to offer this life-saving therapy to the small percentage of patients with [influenza](#) that get into severe trouble with [acute lung injury](#)."

This is part of our strategy to be prepared should we have a serious [flu](#) epidemic. The past few weeks have illustrated that our planning and training of our team has paid off. When several Ontario hospitals called us for help with their patients in serious lung failure, we were able to transfer those patients in and provide this life-saving therapy. All five patients survived to be weaned off the ECLS machines."

The use of ECLS requires insertion of a tube to remove blood from a large vein, which then has oxygen added to it and carbon dioxide removed. The blood is then pumped back into the patient through a second tube in another vein or artery. These patients are taken care of by a team of thoracic surgeons, intensivists, perfusionists and specially trained nurses in the Intensive Care Unit at TGH.

"Earlier this year, a patient arrived for urgent lung transplantation," said Dr. Eddy Fan, Intensivist and Medical Director of the ECLS Program at UHN's Toronto General Hospital. "After using ECLS, the patient's lungs healed themselves and we avoided a lung transplant. This is a remarkable outcome and our experience with [flu patients](#) is particularly rewarding for the Intensive Care Unit because we avoid the use of a ventilator which is very difficult for patients and can lead to further lung injury."

Provided by University Health Network

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