

## OUR PROGRAMME

Liver transplantation is now the accepted standard of care for patients with end-stage liver diseases, acute liver failure and selected cases of hepatocellular carcinoma (primary liver cancer). The development of effective immunosuppressive drugs and the refinement of surgical techniques have led to remarkable improvements in the long-term success of liver transplant.

The National University Hospital (NUH) Liver Transplant Programme was established in 1990. It consists of both the paediatrics and adult liver transplant programme.

## OUR TEAM

The NUH Liver Transplant team is made up of a multi-disciplinary group of specialists which includes surgeons, transplant hepatology physicians, paediatricians, anaesthetists, radiologists, intensive care specialists, transplant coordinators, nurses, social workers, dieticians, and many others. Our team approach is designed to provide comprehensive, dedicated and individualized care to our transplant patients. The transplant coordinators play a vital role as the direct and personal liaison between the transplant team and patients.



GIVE A  
**GIFT**  
OF  
**LIFE.**

AND A  
**NEW**  
LEASE OF  
**LIFE.**

## FOR MORE INFORMATION

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**LIVER  
TRANSPLANT  
PROGRAMME**

# UNDERSTANDING LIVER TRANSPLANTATION

Liver transplantation is the surgical replacement of a diseased liver with a healthy liver graft. Patients who require this operation suffer from end-stage liver disease (cirrhosis), which is characterised by jaundice (yellowing of eyes and skin), ascites (accumulation of fluid in abdomen), encephalopathy (confusion or coma), variceal bleeding, and fatigue. Patients with liver cirrhosis are also at risk of developing hepatocellular carcinoma (primary liver cancer).


## CAUSES OF LIVER FAILURE


A variety of liver diseases can lead to end-stage liver failure. Some of these causes include viruses (Hepatitis B and C), toxic drugs or chemicals, excessive use of alcohol, genetic and metabolic disorders, and conditions involving the bile ducts (biliary atresia, primary biliary cirrhosis and primary sclerosing – cholangitis).


Liver transplantation becomes a suitable option when the patient progresses to end-stage liver disease. The patient is then referred to the Liver Transplant Coordinator who will arrange for the patient to be assessed by the liver transplant team.

## ASSESSMENT AND THE WAIT FOR A SUITABLE DONOR

Prior to transplantation, a multidisciplinary liver transplantation team evaluates the potential liver recipient.

 A variety of tests are carried out to confirm the diagnosis, assess extent and severity of the disease, and determine suitability for liver transplantation.

 The patient and his/her family gets to know the team better and vice-versa.

 The patient and family get the opportunity to ask questions and learn more about transplantation.

Once assessment is completed and the entire liver transplant team agrees that transplantation is the right choice of treatment, the patient will be put on the waiting list for transplantation. The length of the waiting period depends on the patient's blood group, body size, and general medical condition. The average wait time for a Singaporean candidate is six months but often patients could wait longer.

## THE NEW LIVER

Donor livers come from two sources:-

### DECEASED DONOR

Usually, they are obtained from a deceased donor – a person certified as brain dead but who still retains functional body systems and organs. In Singapore, Singapore citizens and Permanent Residents above 21 years of age, who are not mentally disordered, are automatically included in the Human Organ Transplant Act (HOTA) unless they have opted out.

### LIVING DONOR

Donor livers can also be obtained from a living donor such as someone biologically/emotionally related or even a stranger (altruistic donor) who is willing to donate a portion of his/her liver to the patient.


## THE OPERATION


The liver transplant operation takes 6 to 12 hours. During the process, surgeons make an incision under your ribs to remove your liver (total hepatectomy) and replace it with the donor liver (implantation). After the blood vessels are connected, blood flow will be restored and the surgical team will control any bleeding before the incision is closed. During the operation, patients are under the care of a team of surgeons, anaesthetists, nurses, and other technical staff. After surgery, patients are taken directly to the Intensive Care Unit (ICU).

After the operation, patients have to begin taking medication to prevent the new liver from being rejected by the body. Complete recovery may take several weeks. The quality of life for transplant patients usually improves dramatically and most lead a healthy, normal life.


## SERVICES PROVIDED

### DECEASED DONOR LIVER TRANSPLANTATION

 **WHOLE LIVER TRANSPLANT**  
The diseased liver is removed and replaced with a whole, healthy liver.

 **SPLIT LIVER TRANSPLANT**  
Improvements in liver reduction techniques have enabled us to split whole deceased donor liver between an adult and a child patient; or between two adults, thus saving two lives.

### LIVING DONOR LIVER TRANSPLANTATION

 When deceased livers are not available, living donor liver transplants are offered to the patients in our programme. All potential donors are carefully screened to ensure that they are physically healthy and will not be harmed through the act of donation.

#### ADULT TO CHILD

The majority of living donor liver transplants have been from parents to children. Usually a volume of the left lobe of about 25% of donor's liver (one of the parents) is given to the child.

#### ADULT TO ADULT

Over the last few years, mortality on the waiting list for adult patients has been increasing. Hence, adult to adult living donor right lobe transplantation is offered to patients.

### LIVER TRANSPLANT PRE-TRANSPLANT / POST-TRANSPLANT OUTPATIENT CLINIC

Patients on the waiting list and those who have undergone liver transplantation see the doctors and the transplant coordinators in this clinic for continuing care.