



Mount Elizabeth  
ORCHARD

## Liver Transplant Programme



# Mount Elizabeth Hospital Liver Transplant Programme

Mount Elizabeth Hospital is a tertiary hospital with 345 beds operated by IHH Healthcare. Opened since 8 December 1979, the hospital has consistently delivered clinical and service excellence to our patients.

Today, Mount Elizabeth Hospital offers a full range of medical services helmed by more than 1,500 leading specialists who are supported by highly-trained healthcare professionals. The hospital is equipped with 13 operating theatres, 2 intensive care units with 24 beds and a range of room types to cater to different needs.

Together with a team of experts for living donor transplant, we have helped many patients in need of liver and kidney transplants over the past 20 years.



# Causes of Liver Failure

Liver failure, also known as end-stage liver disease (ESLD), may be the result of serious liver injury or liver disease.

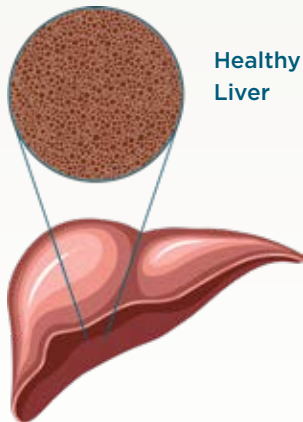
Liver failure may happen quickly or over a longer period of time, depending on whether it is acute or chronic in nature.

## Acute Liver Failure

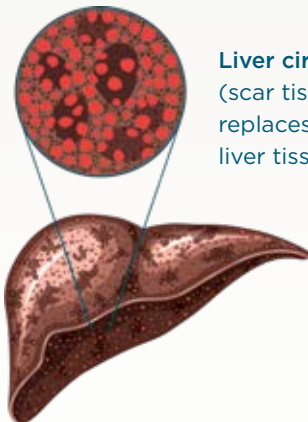
Occurs quickly, in a matter of weeks and is usually the result of medication-induced liver injury.

## Chronic Liver Failure

Mainly caused by scarring of the liver (cirrhosis). Liver cirrhosis may be due to viruses (Hepatitis B & C), alcoholic liver diseases, non-alcoholic liver disease, genetic disorders, and conditions involving the bile ducts.



Healthy Liver



Liver cirrhosis  
(scar tissue replaces healthy liver tissue)

# Liver Transplant

Liver Transplant 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). It is a surgical procedure that replaces a patient's diseased liver with a new healthy liver either partially (live donor) or whole (deceased donor).

Following a liver transplant, patients will require long-term medication (immunosuppressant) to prevent the body from rejecting the new organ. Advancements in immunosuppression, medical management, and surgical techniques, have led to remarkable improvements in the long term success of liver transplant.



# Types of Liver Transplant

## Deceased Donor Liver Transplant

Most transplanted livers are sourced from a pool of deceased donors, with the consent obtained from their immediate family members. The donor's whole liver will be transplanted to the patient. In Asia, many people do not come forward to be an organ donor (possibly due to personal or religious reasons, or lack of awareness) which has led to a shortage of deceased livers.

## Living Donor Liver Transplant

Part of the donor's healthy liver will be removed and transplanted to the patient. This can be done because the liver has a remarkable ability to regenerate itself. Both the donor and recipient's liver will grow back to its normal size in a few months. Due to the shortage of deceased donors in Asia, living donor liver transplant has become a feasible option for patients who require liver transplant.

# Why Living Donor Liver Transplant?



Long wait time for a deceased donor. During this period, the patient's health may deteriorate to develop fatal complications.



It allows for the scheduling of procedure. As such, the patient with decompensated liver function can be optimised prior to the operation.



Living donor liver transplant is an important life-saving procedure for patients suffering from acute liver failure and hepatocellular carcinoma (liver cancer). It can be performed on any patient with end-stage liver disease regardless of the original cause of the disease.



# The Living Donor Liver Transplant Journey



Liver patient  
and his/her  
family finds  
a compatible  
healthy living  
donor



Pre-transplant  
Assessment:  
Living donor  
and recipient



Family  
Conference:  
Meeting with  
the patient  
and his/her  
family



Optimising  
medical  
condition for  
transplant  
surgery



Interview and  
authorisation  
from the  
Transplant  
Ethics  
Committee  
(required by  
the Ministry  
of Health's  
Human Organ  
Transplant  
Act, HOTA, in  
Singapore)



Transplant  
surgery



Post-transplant  
evaluation  
and care with  
medical team  
covering  
medication,  
vaccinations,  
blood tests,  
liver scans  
and nutritional  
health

# Who can be a Living Donor?

There are some medical conditions that may make a donor ineligible such as an elevated body mass index (BMI), diabetes, hepatitis, certain cancers and heart or kidney disease.

## Donor Selection Criteria



Willing adult between the ages of 21 and 50 years



Family member, friend, or close acquaintance



Individual with BMI within the healthy range



Good physical and mental health



Compatible blood type with the recipient



No liver-related illness

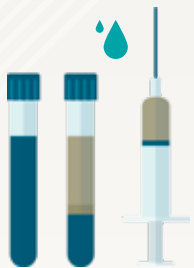


# Before the procedure

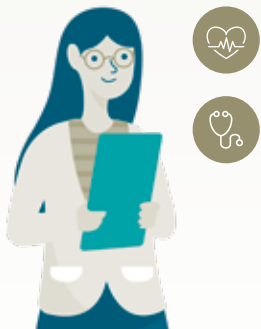


Patient and the potential donor(s) will be assessed by our transplant team to confirm the suitability to undergo a liver transplant.

For foreigners, blood and other imaging tests will be repeated in Singapore to confirm their medical condition.



Donor(s) will undergo a stringent medical evaluation. He/she will be asked to complete a questionnaire and have his/her blood tests done to assess suitability. This is also to rule out chronic conditions such as Hepatitis B and C. Further radiological and psychosocial examinations will be carried out.



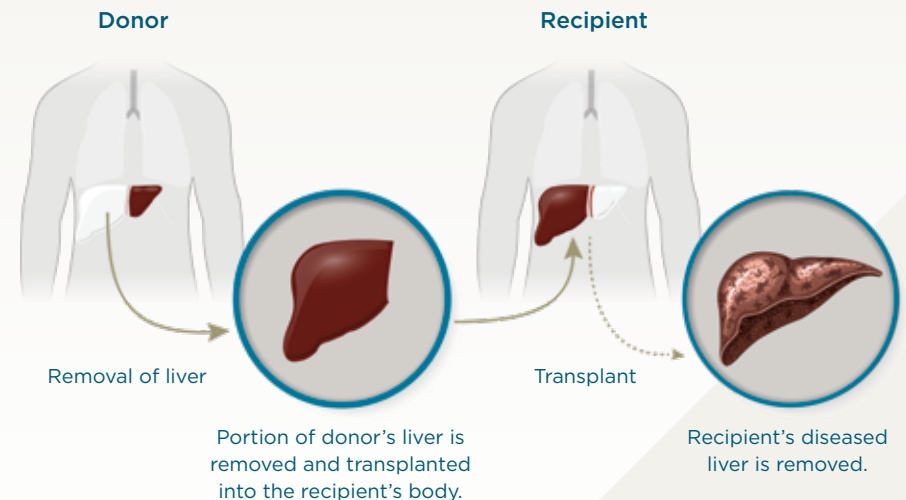
Donor(s) will be assessed by a team of doctors including, cardiac and infectious disease physicians, psychiatrists, dentists and nephrologists for suitability. The transplant coordinator will inquire about his/her family, social and financial history to gather the necessary information for the Transplant Ethics Committee. At times, personal questions may be asked.

# During the procedure

On the day of the transplant, surgeons will remove a portion of the donor's liver for transplant through an incision in the abdomen. The specific part of the liver donated depends on the size of the donor's liver and the needs of the recipient.

Next, surgeons remove the diseased liver and place the donated liver portion in the recipient's body, connecting the blood vessels and bile ducts to the new liver.

The transplanted liver in the recipient and the remaining liver in the donor will regrow, reaching normal liver volume and function within a couple of months.



# After the procedure

After the liver transplant, the recipient can expect to:



## Stay in the intensive care unit for a few days

Doctors and nurses will monitor the recipient's condition to watch for signs of complications. They will also test the liver function frequently for signs that the new liver is working.



## Spend 5 to 10 days in the hospital

Once stable, the recipient will be taken to a transplant recovery ward, where a medical team will monitor the recuperation process.



## Continue with frequent checkups during home recovery

The transplant team will design a checkup schedule for the recipient. Blood tests may be required a few times each week at first, and will gradually decrease in frequency over time.



## Take post-transplant medications

Recipient will take various medications following the liver transplant. Immunosuppressants are among these drugs, which help prevent the immune system from attacking the new liver. Additionally, other medications will help to lower the risk of further complications after the transplant, such as infections.



## Expect a recovery period of six months or more before resuming normal activities

Recipient may be able to return to normal activities or resume work a few months after the transplant. The duration of recovery might vary based on the severity of the condition prior to the liver transplant.





# Our Transplant Team

The Mount Elizabeth Hospital Liver Transplant Programme is led by

## Programme Director



### Dr Kieron Lim

Prior to starting private practice, Dr Lim was Head of Division of Gastroenterology and Hepatology at NUH, and Medical Director of Liver Transplantation at the National University Centre for Organ Transplantation.

He graduated from St Bartholomew's and The Royal London School of Medicine (UK), and worked at the Liver Unit at The Royal Free Hospital (London) before returning to Singapore. He undertook his fellowship training in transplant hepatology at the Recanati / Miller Transplantation Institute, Icahn School of Medicine at Mount Sinai New York, USA.

Dr Lim manages common and complex gastrointestinal and liver conditions. His special interests include liver transplantation, hepatocellular carcinoma and viral hepatitis. He is a reviewer for peer reviewed journals: Transplantation, Clinical Transplantation, World Journal of Gastroenterology, Hepatobiliary & Pancreatic Diseases, and the Singapore Medical Journal.

## Transplant Team

The Mount Elizabeth Hospital Liver Transplant Team consists of a multidisciplinary specialised team that includes transplant physicians (hepatologists), surgeons, intensive care specialists, transplant coordinators, social workers, transplant nurses including other members of Allied Health Professionals and many others. This allows us to care for liver patients with even the most complicated conditions.

The team has a combined experience of managing over 300 transplant cases and works closely to support patients and their families, to achieve the best medical outcome possible.

### Gastroenterology



Dr Kieron Lim



Dr Tan Poh Seng



Dr Asok Kurup



Dr Tan Aik Hau



Dr Lim Tai Tian



Dr Lim Hsien Jer

### Infectious Diseases

### Respiratory Medicine

### Cardiology

### Anaesthesiology

### General Surgery



Dr Chan Chung Yip



Dr Wong Jen San



Dr Tan Yu Meng



Dr Victor Lee



Dr Lee Ser Yee

# Who needs a Living Donor Liver Transplant?

Liver transplant can be a life-saving treatment that improves quality of life and life expectancy. Early evaluation is crucial to optimising post-transplant outcome.

At Mount Elizabeth Hospital, we carefully assess potential candidates for living donor liver transplant, evaluating the following factors to determine a candidate's suitability:

Cause  
of Liver  
Disease

Severity  
of Liver  
Disease

Risk-Benefit  
to Recipient  
& Donor

## A living donor liver transplant may be recommended to individuals with<sup>1</sup>:

- 1 Liver Failure:** Acute Liver Failure (ALF) or Acute-on-Chronic Liver Failure (ACLF)
- 2 Metabolic or other liver diseases** namely:
  - Budd-Chiari Syndrome
  - Familial Amyloid Polyneuropathy
  - Glycogen storage disease
  - Primary oxaluria
  - Recurrent cholangitis

- 3 Cirrhosis accompanied by:** An initial episode of any of the following complications related to decompensation:
  - Variceal haemorrhage
  - Chronic gastrointestinal blood due to portal hypertensive gastropathy
  - Ascites
  - Hepatic encephalopathy
  - Hepatopulmonary syndrome, Porto pulmonary hypertension

- 4 Liver cancer (Hepatocellular carcinoma)**

# Who may not be suitable for Liver Transplant?

An individual may not be suitable for liver transplant if he/she has:

- Severe cardiac or pulmonary disease
- Ongoing alcohol or illicit substance abuse
- AIDS
- Hepatocellular carcinoma with metastatic spread
- Uncontrolled sepsis
- Active or recent extrahepatic malignancy

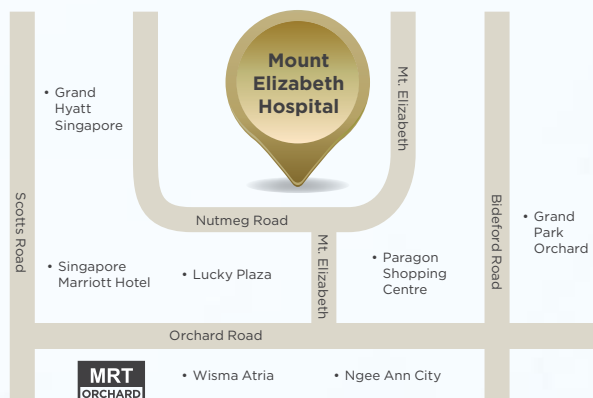
**For individuals who are not suitable for transplant, our team will consult and work closely with referring physicians to identify and recommend alternative treatment options.**



#### Reference:

1. Evaluation for liver transplantation in adults: 2013 practice guideline by the American Association for the Study of Liver Diseases and the American Society of Transplantation; Hepatology, 2014 Mar;59(3):1144-65
2. Liver transplantation for hepatocellular carcinoma: expansion of the tumor size limits does not adversely impact survival; Hepatology; 2001 Jun;33(6):1394-403

# Mount Elizabeth Hospital



📍 **3 Mount Elizabeth**  
**Mount Elizabeth Medical Centre**  
**Singapore 228510**

---

**Please contact our Parkway Patient Assistance Centre for  
more information about our Liver Transplant programme.**



[www.mountelizabeth.com.sg](http://www.mountelizabeth.com.sg)