

# Liver Transplantation

## What is liver transplantation?

Liver transplantation is an operation performed when a person's liver problem has deteriorated to the point that it becomes life-threatening. It is performed by surgically removing the diseased liver and replacing it with part of a liver or a whole liver from another person. The new liver is obtained from either a person who is legally brain dead or from an adult living person who donates a part of his/her liver. The person who has received the transplant will then need to take medication for a long time to prevent his/her body from rejecting the new liver.

## Reasons why a child might need a Liver Transplant

Children can develop either acute (happens suddenly) or chronic (persisting for months or years) liver disease that may need liver transplantation. Although many chronic conditions can be treated with medications, sometimes the liver might still not work well enough even with the medications.

Causes of acute (sudden) liver failure:

- Infections such as Hepatitis A or B virus, Epstein Barr virus, cytomegalovirus, adenovirus (and many others).
- Medications that are toxic (or poisonous) to the liver, which can be prescription or "street" drugs and even some herbal remedies.
- Genetic causes that have been more recently discovered.
- Sometimes the cause of liver failure is unknown.

Chronic liver disease can occur for many reasons:

- In babies → biliary atresia (absence of open bile ducts) and genetic problems.
- In children → chronic viral hepatitis (long term inflammation of the liver caused by a virus), autoimmune liver disease (when a person's antibodies attack the liver due to an abnormal immune response) or genetic disorders.

Certain liver tumors can also be treated by transplantation.

## How many children need liver transplantation?

In the US, there are about 6,000 to 8,000 liver transplants performed every year in total. This number changes a little each year.

Of these, about 400 to 500 are liver transplants performed in children.

You can find more up-to-date information about liver transplantation at the United Network for Organ Sharing (UNOS) Patient Website - <https://transplantliving.org/>

## What are the symptoms of liver failure?

### Acute liver failure

- yellow eyes (jaundice)
- bleeding due to poor blood clotting
- eventually lethargy, confusion and even coma



## Chronic liver disease

All of the above, as well as:

- poor growth
- severe itching
- fluid in the abdomen (ascites)
- an enlarged spleen
- bleeding from swollen veins (varices) in the esophagus

## How are decisions made about donor livers?

There is a nonprofit, scientific national organization called the United Network of Organ Sharing (UNOS), which maintains the national waiting list for donor organs. Their goals are fairness to all and good outcomes for as many people as possible. Patients are evaluated by their transplant center, and depending on how sick they are and the probability of their disease being successfully treated with transplantation, they are matched by UNOS to donor organs as they become available. Patients are treated equally, regardless of ethnicity, gender or economic status. In the case of living donation, a healthy adult who wants to donate will undergo testing to determine if they are a suitable candidate.

Your child's liver doctor will be able to provide more information about this and what the options are for your child.

## How is a liver transplant performed and what are the short term risks?

When the donor is a live person, one group of surgeons will remove part of the healthy liver from the donor while the other group is removing the diseased liver from the child. When the donor is deceased, the child is admitted to the hospital while the liver is transported there. The healthy liver will be placed in the child's abdomen, and the surgeon reconnects all of the blood vessels and bile ducts. The child is then given medications to prevent the rejection of the new

liver. In uncomplicated cases, the child may be in intensive care for 2-3 days and in the hospital for 7-14 days.

The main risks right after surgery are bleeding, clotting of the artery to the liver, and poor function of the new liver. Other risks may depend on your child's diagnosis – your child's liver doctor will go over these with you.

## What is life like after a liver transplant?

The child is expected to live a normal life except that he/she needs to take daily medication to prevent rejection. Regular doctor visits to monitor the liver function and watch for medication side effects are also very important. A few special precautions are necessary to avoid infections. Long term risks are rejection of the liver, infections, and an unusual cancer of the lymph glands called post-transplant lymphoproliferative disease (PTLD). Most of these complications are treatable if discovered early which is why good medical follow up is so important. When transplanted children become teenagers, they need to start learning how to take on the responsibility of caring for themselves and the transplanted organ.

Your child's care team will include most or all of: medical liver doctors, surgeons, nurses, social workers, psychiatrists, psychologists and dietitians. You and your child will be supported before, during and for a long time after the transplantation.

## Quick Facts:

- Liver transplantation is taking a deceased person's liver, or part of a living person's liver, and placing it into a patient whose own liver is no longer working properly.
- A person's own liver can stop working suddenly (acute liver failure) or over time (chronic liver failure). In infants and children, there are several causes.
- The United Network of Organ Sharing, or UNOS, is a national organization that matches donor organs to people that need them.

## → Locate a Pediatric Gastroenterologist

**IMPORTANT REMINDER:** This information from the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) is intended only to provide general educational information as a definitive basis for diagnosis or treatment in any particular case. It is very important that you consult your doctor about your specific condition.



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