PROCEDURE

Organ transplant

An organ transplant is surgery that replaces a failing organ with a healthy donor organ.

PURPOSE
Replace organ function and improve survival or quality of life

PROCEDURE TYPE
Therapeutic surgery through an open incision

WHERE IT IS DONE
Operating theatre in a specialist transplant hospital

ANAESTHESIA
General

HOW LONG IT TAKES
Two to twelve hours, based on the organ transplanted

PREPARATION
Fasting, medication review, testing, and rapid hospital arrival

RECOVERY
Days to weeks in hospital; no driving until cleared

MAIN RISKS
Bleeding, infection, rejection, blood clots, and organ failure

RESULTS
Organ function monitored immediately and throughout lifelong follow-up

Overview

An organ transplant is an operation to place a healthy organ from a donor into your body. It may replace a kidney, liver, heart, lung, pancreas, or intestine that no longer works well enough.

The donor may be living or deceased. Living people can donate one kidney, part of their liver, and, less commonly, part of another organ. Deceased donors can provide several different organs.

Before transplantation, a specialist team assesses whether the likely benefits outweigh the risks for you. If you are accepted, you may join a waiting list or arrange transplantation with a suitable living donor.

A transplant is not a cure in every case. You will need lifelong follow-up. Most recipients also need medicines that suppress the immune system to reduce rejection, which is when the

immune system attacks the donated organ.

Why the procedure is performed

Transplantation may be considered when an organ has failed or is likely to fail and other treatments cannot provide enough support.

Its aims may include:

The expected benefit differs by organ and by your overall health. For example, a kidney transplant may replace dialysis, while a heart or lung transplant may be considered when medicines and mechanical support no longer control advanced disease.

- Helping you live longer
- Improving daily function and quality of life
- Replacing treatments such as long-term dialysis
- Reducing symptoms caused by advanced organ failure

Who should and should not have it

You may be assessed for transplantation if you have severe, irreversible organ failure and are well enough to undergo major surgery and long-term treatment. Assessment usually includes heart and lung testing, blood tests, infection screening, cancer screening, and a review of your medicines, nutrition, mental health, and practical support.

Blood group, body size, tissue compatibility, medical urgency, and waiting time can affect which donated organ is offered. Allocation rules differ by organ and location.

Transplantation is not right for everyone. It may be avoided or delayed when the risks are greater than the expected benefit. Reasons can include:

Some of these problems are temporary. Treatment, rehabilitation, smoking cessation, cancer follow-up, or improved control of another condition may allow reassessment. Each transplant program uses organ-specific criteria and considers your individual circumstances.

- An active, uncontrolled infection
- Certain active cancers or a high immediate risk of cancer returning
- Severe heart, lung, blood vessel, or other disease that makes surgery unsafe
- A health condition likely to severely limit survival despite a transplant

- Current substance use that would make surgery or aftercare unsafe
- Inability to take anti-rejection medicines or attend essential follow-up

How to prepare

Your treating facility's own instructions take priority because preparation differs by organ, donor type, and transplant centre.

Before surgery, you will usually have blood tests, scans, heart testing, and infection screening. Dental problems may need treatment because they can become a source of infection after immune-suppressing medicines begin.

Give the transplant team a complete list of medicines, supplements, allergies, and previous reactions to anaesthesia. Do not stop blood thinners or other prescribed medicines unless the team tells you to.

You will receive fasting instructions about when to stop eating and drinking. If a deceased-donor organ becomes available, you may need to reach the hospital quickly. Keep contact details current and have a transport and packing plan.

At the hospital, the team repeats tests to confirm that you are fit for surgery and that the organ is suitable. A final compatibility test may be required. Occasionally, surgery is cancelled because the organ is unsuitable or a new medical concern is found.

What happens during the procedure

You receive general anaesthesia, so you are unconscious and do not feel the operation. A breathing tube and monitoring lines are placed. You may also need a urinary catheter and tubes to drain fluid after surgery.

The surgeon makes an incision and connects the donated organ to your blood vessels. Other connections depend on the organ. For example, a transplanted kidney is connected to the bladder, while a transplanted liver is connected to the bile ducts.

Your original organ may be removed, but not always. Diseased kidneys are often left in place unless they cause a specific problem. A failing heart is usually removed before the donor heart is connected.

The operation generally takes several hours. Heart, lung, liver, and intestine procedures are usually longer and more complex than kidney transplantation.

Recovery and what to expect afterward

Pain and soreness are expected around the incision. Your team will provide pain relief and adjust it according to your needs. Tell them if pain suddenly worsens or is not controlled.

Eating usually starts with fluids, then progresses as your stomach and bowel begin working normally. Some people need temporary nutrition through a tube or vein, particularly after more complex surgery.

At first, nurses and physiotherapists help you sit up, breathe deeply, and walk. Gradual movement lowers the risk of chest infections and blood clots. You will receive specific limits on lifting and exercise while the incision heals.

Do not drive home. You must not drive while taking medicines that impair alertness or until you can safely control a vehicle and perform an emergency stop. Your transplant team will tell you when driving can resume.

Returning to work may take several weeks or months. Timing is influenced by the transplanted organ, complications, healing, your type of work, and your general fitness.

Hospital recovery may last several days after a kidney transplant and longer after heart, lung, liver, or intestine surgery. Early follow-up is frequent and includes blood tests, medication changes, and checks of organ function.

Risks and possible complications

Organ transplantation is major surgery. Possible surgical complications include bleeding, blood clots, infection, wound problems, and injury to nearby structures. Connections between blood vessels, bile ducts, airways, bowel, or the bladder can leak or become narrowed.

The donated organ may not work immediately or may stop working. Some organs recover with temporary support; others may require another transplant or a return to treatment such as dialysis.

Rejection can occur when your immune system recognizes the organ as foreign. It may cause few or no obvious symptoms, so regular tests are important. Rejection can often be treated, but it can sometimes permanently damage the organ.

Anti-rejection medicines increase vulnerability to infection and some cancers. They can also affect the kidneys, blood pressure, cholesterol, blood sugar, bones, or blood cell counts. Your team balances these risks against the need to protect the transplant.

The condition that damaged your original organ can sometimes affect the donated organ as

well.

Results and follow up

The team begins checking the transplanted organ during and immediately after surgery. Blood tests, urine output, scans, heart monitoring, breathing tests, or biopsies may be used, depending on the organ.

Some organs work straight away. Others take days or weeks to reach their expected function. Your team will explain early results and any temporary support you need.

Follow-up continues for life. At first, appointments and blood tests are frequent. They usually become less frequent once your condition and medicine levels are stable.

Take anti-rejection medicines exactly as prescribed. Missing doses can increase the risk of rejection. Before starting a new prescription, over-the-counter medicine, supplement, or vaccine, check with your transplant team because interactions can alter anti-rejection medicine levels.

Alternatives

Alternatives depend on which organ is failing and how advanced the condition is.

For kidney failure, dialysis can remove waste and extra fluid without transplant surgery. It avoids transplant risks and anti-rejection medicines, but requires continuing treatment and does not replace every kidney function.

For advanced heart failure, medicines, implanted devices, or a mechanical heart pump may provide support. A pump can be a bridge to transplantation or a longer-term treatment, but requires major surgery and ongoing device care.

For liver, lung, pancreas, or intestine disease, medicines, nutrition support, oxygen, surgery, or other specialist procedures may control selected problems. These treatments may ease symptoms without replacing the organ and may become less effective as failure advances.

Supportive or palliative care is also an option. It focuses on comfort, function, and your priorities rather than transplantation. Choosing it does not mean care stops.

A living-donor transplant may shorten waiting time for some organs, but it exposes a healthy donor to surgery. Remaining on the deceased-donor list avoids that donor risk but may involve a long or uncertain wait.

When to call your healthcare team

Contact your transplant team promptly for a fever, increasing wound redness or drainage, vomiting or diarrhoea that prevents you taking medicines, reduced urine, new swelling, unusual fatigue, or a change in symptoms your team has asked you to monitor. These concerns need timely assessment but are not always signs of rejection.

Seek emergency help for:

Use the emergency contact plan provided by your transplant centre.

- Severe difficulty breathing or sudden chest pain
- Fainting, confusion, or inability to wake normally
- Heavy bleeding
- Sudden severe abdominal pain
- Signs of stroke, such as facial drooping or one-sided weakness

Common questions

Will I be asleep?

Yes. Organ transplantation is performed under general anaesthesia. You will be unconscious throughout the operation.

Can I drive home?

No. You will remain in hospital after surgery and need someone else to drive when you are discharged. Resume driving only when your transplant team says it is safe.

How painful is an organ transplant?

You can expect incision pain and soreness, especially during movement, coughing, or deep breathing. Pain medicines and positioning support usually help. Sudden or increasing pain needs assessment.

When will I know if the transplant worked?

Monitoring begins immediately. Some organs work at once, while others recover gradually. Your team will discuss blood tests, scans, and other results during your hospital stay.

How long will the donated organ last?

There is no fixed lifespan. It is influenced by the organ, donor and recipient factors, rejection, infection, other health conditions, and how consistently medicines and follow-up are managed.

Will I need anti-rejection medicines forever?

Most organ recipients need them for as long as the transplanted organ is functioning. Do not reduce or stop them without instructions from your transplant team.

Sources

- Health Resources and Services Administration: The transplant process
- Organ Procurement and Transplantation Network: About transplantation
- National Institute of Diabetes and Digestive and Kidney Diseases: Kidney transplant
- National Heart, Lung, and Blood Institute: Heart transplant
- NHS: Liver transplant
- Centers for Disease Control and Prevention: Transplant safety