



Organ Donation

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- ◆ Donation is the giving of a tissue or organ to a person who needs a transplant.
- ◆ A transplant is when an organ or tissue donated by someone else is placed into a patient to replace an organ or tissue that isn't working.
- ◆ A recipient is a person who receives the transplanted organ or tissue.
- ◆ Organ donation has religious, cultural, ethical and legal dimensions

Terminology used for different types of transplants

- ◆ Autograft: Tissue is taken from one part of the body and transplanted into another part of the same body
- ◆ Allograft: This type of transplant is a human to human
- ◆ Isograft: This type of transplant is done between a genetically identical donor and a recipient, such as an identical twins
- ◆ Xenograft: This type of transplant is between different species.

Organ Procurement Organization (OPO)

- ◆ There are 58 organ procurement organizations (OPOs) in the United States.
- ◆ OPOs are responsible for working with donor hospitals to help place donor organs for transplant
- ◆ all hospitals must have an agreement with (OPOs)

(United Kingdom National Health Service)

- ◆ The NHS Organ Donor Register is a confidential and secure database that records the decision of everyone who does or does not want to donate their organs and/or tissue after they die.

<https://www.organdonation.nhs.uk/register-your-decision/donate/>

A hand is holding a bright pink NHS Organ Donor Card. The card features a white heart icon in the center. The text on the card is white and includes the title 'NHS Organ Donor Card' at the top, the slogan 'Yes I donate' in a larger font in the middle, and 'ORGAN DONATION' in a smaller font at the bottom. The background is a soft, out-of-focus gradient.

NHS Organ Donor Card

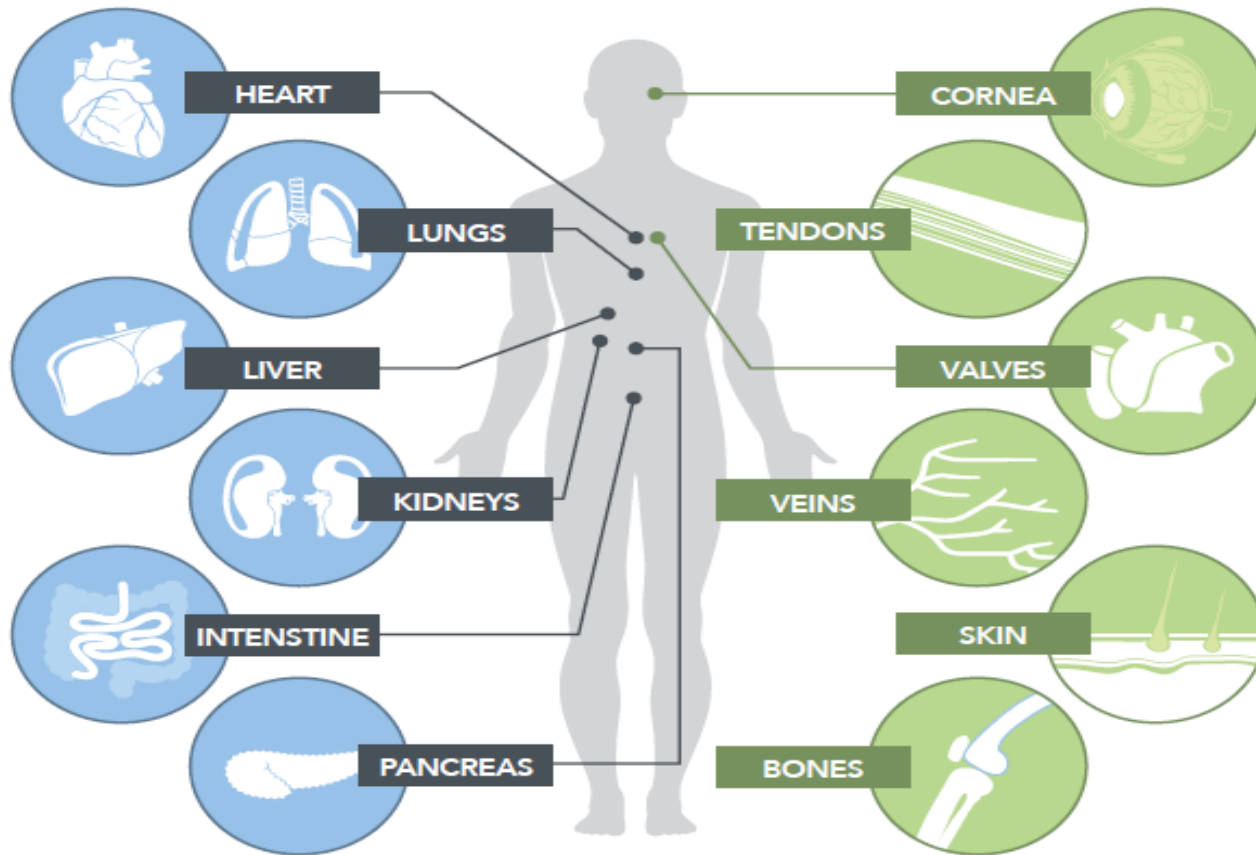
Yes I donate
ORGAN DONATION

- ◆ The organs that can be donated include kidney, liver, heart, pancreas, uterus, lungs, and small bowel and tissues such as corneas, heart valves, skin and bone.
- ◆ One donor can save or transform up to nine lives.
- ◆ On average ten people die every day in need of a transplant because there aren't enough organ donors.
- ◆ It's also vital to tell your family about your decision
- ◆ USA (2015) 78,241 active waiting list candidates ,2577 Transplants

Mechanisms of death in potential organ donors

- ◆ Asphyxiation
- ◆ Blunt injury
- ◆ Cardiovascular events
- ◆ Drowning
- ◆ Drug intoxication
- ◆ Intracranial hemorrhage or stroke
- ◆ Stab wounds

LIFESAVING & HEALING ORGANS & TISSUES



Types of organ donation

- ◆ Living donor
- ◆ Brain dead donor
- ◆ Organ donation after circulatory death

Living donor

- ◆ Kidney and liver transplants are the most common types of living-donor organ procedures
- ◆ Living people may also donate tissues for transplantation, such as skin, bone marrow and blood-forming cells (stem cells) that have been damaged or destroyed by disease, drugs or radiation
- ◆ Donor must be free from HTN, DM, CA
- ◆ Age between 18 and 60

Brain dead donor

- ◆ A complete ,irreversible cessation of the function of the brain and the brain stem
- ◆ Determination of brain death by clinical evaluation and neurodiagnostic studies (EEG, cerebral angiography)
- ◆ Organ donated Heart, lungs ,kidney pancreas ,liver

ADULT BRAIN DEATH DETERMINATION

BRAIN DEATH CRITERIA

- **Definition:** "Irreversible cessation of all brain function, including the brain stem"
- Evaluate and correct potentially reversible causes of abnormal neurological evaluation:
 - Absence of hypotension/shock, hypothermia, metabolic disturbances, significant drugs or medications known to cause CNS unresponsiveness
- Determination is to be made by a physician specialist during a recommended observation period of at least 6 hours
- Confirmatory studies and apnea test must be performed by a specialist
- Injuries or injuries that may result in non-survivable neurological injuries:
 - Head Trauma
 - Cerebrovascular accident (embolic or hemorrhagic)
 - Localized brain tumor
 - Cerebral anoxia 2° drowning, smoke inhalation, or prolonged cardiac arrest



BRAIN STEM REFLEX TESTING

- No Pupillary reflex
- No Corneal reflex
- No Oculocephalic (doll's eyes) reflex
- No Oculovestibular (cold or iced calorics) reflex
- No Pharyngeal and laryngeal reflexes (cough and gag)
- No Response to painful stimuli (*excluding spinal cord reflexes*)

APNEA TESTING

- Pre-oxygenate with 100% FIO₂ for 20 minutes
- Normalize PaCO₂, draw baseline ABG
- Disconnect ventilator and provide passive O₂ via cannula @ 8-12 L/min-Observe for spontaneous breathing
- Draw ABG at 5 and 10 minute intervals; conclude test when a PaCO₂ ≥ 60 mmHg is obtained or if patient becomes hemodynamically unstable*
- Reconnect the ventilator. Test is consistent with brain death if PaCO₂ ≥ 60 mmHg (or 20 mmHg greater than baseline), and there is no breathing.

*If patient becomes hemodynamically unstable, immediately draw ABG and reconnect the ventilator. Consider other confirmatory tests.

Organ donation after circulatory death

- ◆ Patient has an illness from which no recovery is expected ,does not meet brain death criteria and depends on life sustaining (MV, vasoactive and inotropic medication medications)
- ◆ Donated organs are Kidney ,liver and lungs

Focus of donor management

- ◆ Maintain blood pressure
- ◆ Maintain glucose level
- ◆ Maintain normothermia
- ◆ Treat anemia
- ◆ Provide appropriate MV
- ◆ Maintain Fluid ,acid- base balance and electrolyte levels
- ◆ Treat coagulopathy and thrombocytopenia

Organ recovery

- ◆ thoracic organs like the heart and lungs, can only remain viable for transplant after being outside of the body for four to six hours, while the liver can function for up to 12 hours and kidneys up to 36 hours

ORGAN TIMEFRAMES

Each organ has a different timeframe between recovery and recipient transplant.

**4-6
HOURS**

HEART

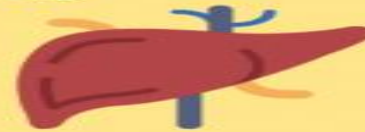


LUNGS

**4-6
HOURS**

**8-12
HOURS**

LIVER



KIDNEY

**24-36
HOURS**

ADDITIONAL TIMEFRAMES:

CORNEA - 48 HOURS
INTESTINES - 8-16 HOURS
PANCREAS - 12-18 HOURS
TISSUE - STORED UNTIL NEEDED

To reduce the chances of transplant rejection and loss of a transplant, the following steps are taken **before transplantation occurs**:

- ◆ Ensure recipient and donor have compatible blood types
- ◆ Perform genetic testing to ensure compatible recipient and donor matches
- ◆ In the case of living donors, donor organs from relatives are preferred

The following steps can be taken after transplantation occurs:

- ◆ Lab results should be monitored frequently during the first year after transplant
- ◆ Anti-rejection medications should be taken consistently, at the direction of the transplant team
- ◆ A mix of different medications may be prescribed to reduce adverse side effects
- ◆ Organ recipients should also be educated of the possible signs of organ rejection and alert their healthcare provider if they experience any symptoms

Symptoms vary depending on the kind of organ transplant.

General signs include:

- ◆ Pain at the site of the transplant
- ◆ Feeling unwell
- ◆ Flu-like symptoms
- ◆ Fever
- ◆ Weight changes
- ◆ Swelling
- ◆ Change in heart rate
- ◆ Urinating less often