Organ Transplantation in India

For Prelims:

Organ Transplantation Programme, Ayushman Bharat, Transplantation of Human Organs and Tissues Act, 1994, World Health Organization (WHO), National Organ and Tissue Transplant Organization (NOTTO).

For Mains:

Status of organ transplant in India and associated challenges, Steps needed for promoting organ transplantation.

Source: TH

Why in News?

A recent **report** by the **Union Ministry of Health and Family Welfare** has exposed **severe gaps** in **India's organ transplantation programme**, raising concerns over the country's ability to meet the growing demand for **life-saving procedures**.

- With only **13,476 kidney transplants** performed in 2024—far below the recommended **1 lakh**—the findings underscore an urgent need for **systemic reforms** to improve access to **organ transplants** for thousands of **patients**.

What is Organ Transplantation?

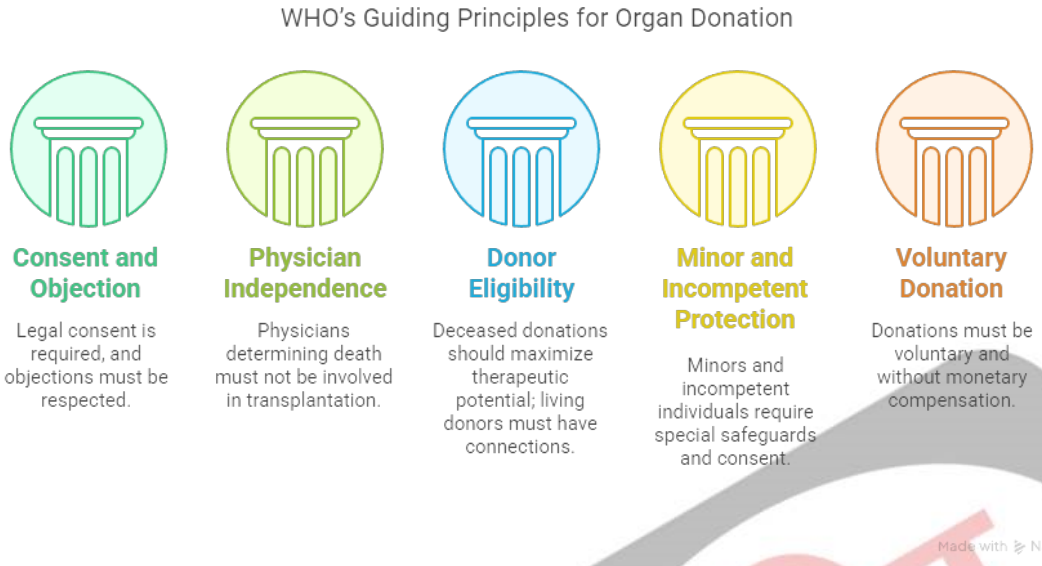
- **Definition: Organ transplantation** is a life-saving procedure where a **failing organ** (kidney, liver, heart, lung) is replaced with a **healthy organ** from a **living donor** (e.g., kidney, partial liver) or a **deceased donor** (brain-dead or after cardiac death) to restore function in **end-stage organ failure**. Common transplants include the **kidney**, **liver**, **heart**, **lungs**, **pancreas**, and **intestines.**
- **Status:** India is the **3rd country** in the world after the **USA and China**, in terms of the total number of transplants done in a year.
    - **Growing Demand and Persistent Shortage:** Of **1.8 lakh renal failure cases** annually, only **6,000 transplants** occur, with a donation rate under **1 per million** versus a need for **65 per million.**
    - **Slow Growth in Donor Numbers: Donor numbers, including living and deceased donors, grew modestly from 6,916 in 2014 to about 16,041 in 2022.**
        - The **deceased organ donation rate** has stayed below **one donor per million population** for over a **decade.**
    - **Regional Variations: Telangana**, **Tamil Nadu**, **Karnataka**, **Gujarat**, and **Maharashtra** lead in **deceased donors**, while **Delhi-NCR**, **Tamil Nadu**, **Kerala**, **Maharashtra**, and **West Bengal** report the most **living donors**.
- **Rules and Regulations:**
    - **Transplantation of Human Organs and Tissues Act, 1994 (amended in 2011):** It regulates **organ and tissue transplantation** in India, covering **post-death donation**, setting rules for **healthcare providers**, and prescribing **penalties** for violation.

        - The **2023 revised guidelines** removed the **65-year upper age limit** for registering to receive **deceased donor organs** and ended the **state domicile requirement** for such registrations.
    - **National Organ Transplant Program (NOTP):** It is being implemented by the **Central Government** to promote **organ donation** and **transplantation** across all **States** and **Union Territories**. Under this, several bodies have been established:
    - **National Organ and Tissue Transplant Organization (NOTTO):** The **NOTTO**, under the **Ministry of Health**, was set up as per the **Transplantation of Human Organs (Amendment) Act, 2011.**
        - Its **National Network division** serves as the **apex centre** for **coordination**, **procurement**, **distribution**, and maintaining the **registry of organ and tissue donation and transplantation** in India.
        - **5 Regional Organ and Tissue Transplant Organizations (ROTTOs)** and **14 State Organ and Tissue Transplant Organizations (SOTTOs)** were established to strengthen the network at the **regional and state levels**.
    - **NOTTO-ID:** The **Union Health Ministry** has directed states/UTs to allocate a unique **NOTTO-ID** for all **organ transplants**. It is **mandatory** for **deceased donor organ allocation** and must be generated within **48 hours** of a **living donor transplant surgery.**

What are the Gaps in India's Organ Transplantation Programme?

- **Infrastructural Deficiencies:** Many **government hospitals** lack **dedicated infrastructure** for **organ retrieval** and **transplantation**, and face a severe shortage of **ICU beds** crucial for maintaining **brain-stem dead (BSD) donors** and **post-operative care.**
    - **Operation theatres (OTs)** and **ICUs** are **overburdened** with general **patient loads**, while several centres, including some **AIIMS branches**, lack **in-house Human Leukocyte Antigen (HLA) cross-matching labs**, causing **delays**.
- **Shortage of Skilled Transplant Professionals: Government hospitals** face a **critical shortage** of **trained transplant surgeons**, **nephrologists**, **urologists**, **anaesthetists**, **neurologists**, **neurosurgeons**, and **intensivists**.
    - **Frequent transfers**, absence of **dedicated teams**, and **lack of incentives** for **transplant staff** disrupt **continuity**, lower **motivation**, and hinder the **expansion of organ transplantation.**
- **Procedural Bottlenecks: Delays in approval** and formation of **Brain-Stem Dead (BSD) Committees**, essential for **deceased organ donation**, remain a major hurdle.
    - **Cumbersome handling** of **medico-legal cases**, especially involving **trauma patients**, and the absence of a **streamlined process** contribute to significant **procedural delays** and discourage **organ donation.**
- **Financial Strain: Insufficient funding** blocks the initiation or revival of specialised programmes like **lung transplantation**, while the **high cost of immunosuppressant drugs** imposes a heavy burden, as most schemes cover only the **first year** of medication.
    - **Liver** and **heart transplants** and their **lifelong follow-up costs** are excluded from major health schemes like **Ayushman Bharat**, limiting access for **poor patients.**
- **Peri-Transplant Donor Tissue Damage**: **Aging** and **diseases** reduce **donor organ quality**, leading to **Ischemia-Reperfusion Injury (IRI)**. Many **organs are discarded** due to **inferior quality**, impacting **transplant success rates.**
- **Chronic Rejection in Organ Transplantation**: **Long-term survival rates** for **transplanted organs** have not significantly improved over the past **20 years**. Current **anti-rejection therapies** remain largely unchanged, with only **modest improvements** in **survival rates.**
- **Access and Awareness Gaps: India's organ transplantation programme** is challenged by the **dominance of the private sector**, limiting affordable access for **poor patients**; the **absence of green corridors** hampers **swift organ transport**; and **low awareness,** along with **misconceptions** about organ donation, discourage public participation.
- **Ethical and Legal Challenges: Organ trafficking, commercialisation of organ donation, and a black market for organs persist despite strict laws like the** Transplantation of Human Organs and Tissues Act, 1994 **(THOT Act, 1994).**

- **Consent issues** in **brain-death certification** and **criminal activities** exploiting organ demand undermine **legitimate donation processes.**



What Strategies can be Adopted to Enhance the Organ Transplantation Framework in India?

- **Enhancing Infrastructure: Upgrade ICU and transplant facilities in government hospitals with dedicated Transplant ICUs (TICUs) and operation theatres, adopt advanced preservation technology like hypothermic/normothermic machine perfusion, and standardize organ procurement and transport protocols to reduce delays and wastage.**
  - **Fast-track BSD committee approvals** through **digital systems** and **trained personnel**, and **simplify medico-legal procedures** for **trauma cases** to enable timely **organ retrieval.**
- **Financial Support and Policy Reforms: Include liver and heart transplants under Ayushman Bharat, covering lifelong immunosuppressant costs, along with increased funding for transplant programs in government hospitals, especially for costly procedures like lung transplants.**
  - **Provide a subsidy for immunosuppressant drugs** and **performance-linked incentives** for **transplant teams** to reduce **patient burden** and boost **motivation.**
- **Addressing Manpower Shortages: Adopt recruitment and retention policies for transplant specialists (including surgeons, nephrologists, intensivists) and reduce frequent transfers to ensure program continuity.**
  - **Specialized training programs** for **organ retrieval**, **transplantation**, and **post-op care**, with **collaborations** with **AIIMS** and **medical colleges** to expand **transplant education.**
- **Promoting Research and Ethical Practices: Invest in bioengineered organs, xenotransplantation, and AI-driven organ matching, while developing ethical guidelines for equitable organ allocation and transparent consent processes.**
  - Promote **public-private partnerships** to drive **innovation** in **transplant technology.**
- **Emphasising Broader Benefits: A robust organ and tissue transplant ecosystem can boost medical tourism, enhance India's soft power, promote inter-state coordination through efficient sharing networks, and strengthen the health budget by generating revenue and reducing long-term healthcare costs.**
- **Strengthening Public Awareness:** Launch **nationwide awareness campaigns** using **social media**, **TV**, and **celebrity endorsements**, along with **school and college education**, **community engagement** with **survivor and donor family testimonials**, and

partnerships with **religious leaders** to promote **organ donation** and dispel **myths.**
    - Introduce **public recognition initiatives** like **certificates**, **plaques**, and **memorials** to honour **donors** and encourage greater **participation.**

Conclusion

India's organ transplantation crisis demands urgent **reforms**—boosting **infrastructure**, **funding**, and **awareness** while addressing **ethical** and **procedural gaps**. Expanding **Ayushman Bharat coverage**, **incentivizing specialists**, and leveraging **technology** can bridge the **demand-supply gap**. A **multi-stakeholder approach** is vital to **save lives** and build an **efficient**, **ethical transplant ecosystem.**

Drishti Mains Question:

Q. "India's organ transplantation programme faces systemic challenges, from infrastructural deficits to ethical concerns." Critically analyse the issues and suggest reforms to strengthen the ecosystem.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. Consider the following statements: (2020)

1. Genetic changes can be introduced in the cells that produce eggs or sperms of a prospective parent.
2. A person's genome can be edited before birth at the early embryonic stage.
3. Human induced pluripotent stem cells can be injected into the embryo of a pig.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 2 only
(d) 1, 2 and 3

Ans: (d)

Q.With reference to the scientific progress of ancient India, which of the statements given below are correct? (2012)

1. Different kinds of specialised surgical instruments were in common use by the 1st century AD.
2. Transplant of internal organs in the human body had begun by the beginning of the 3rd century AD.
3. The concept of sine of an angle was known in 5th century AD.
4. The concept of cyclic quadrilaterals was known in 7th century AD.

Select the correct answer using the codes given below:

(a) 1 and 2 only
(b) 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2, 3 and 4

Ans: (c)

Mains

Q. Stem cell therapy is gaining popularity in India to treat a wide variety of medical conditions including Leukaemia, Thalassemia, damaged cornea and several burns. Describe briefly what stem cell therapy is and what advantages it has over other treatments? (2017)