



# Kidney Transplant Chain:

## An Innovative Solution for India

### Introduction

Two months ago, as President of the Rotary Club of Organ Donation International, I encouraged our members to introduce exceptional candidates for membership. Rtn Sunil Gupta, a kidney recipient through a living donation from his wife, Rtn Regina Panikar Gupta, responded by introducing Mr. Allan Soriano and Ms. Josephine Soriano. Rtn Allan Soriano, the first kidney transplant recipient from the Bay Area, USA, to participate in a Kidney Transplant Chain, and Rtn Josephine Soriano, also a donor within this chain, exemplify the power of this innovative system. Their remarkable journey inspired me to explore the Kidney Transplant Chain and its potential impact in India.

### Background

Kidney disease is a growing public health crisis in India, with over 200,000 individuals needing a kidney transplant annually. However, the gap between demand and available kidneys remains daunting. The Kidney Transplant Chain offers a promising solution by maximising transplant opportunities through coordinated exchanges between donors and recipients, particularly benefiting those with willing but incompatible donors.

### The Challenge of Compatibility and Organ Shortage in India

Successful kidney transplants hinge on compatibility between donor and recipient, especially regarding blood type and tissue matching. In India, although many patients with kidney failure have willing family donors, incompatibility often prevents these transplants. As a result, patients are placed on waiting lists, hoping for a kidney from a brain-dead donor—a process that can take years.

Unfortunately, India's organ donation rate remains low, with approximately 0.8 donors per million people, compared to countries like Spain or the USA.

The reliance on dialysis as a stopgap solution exacerbates the situation. Dialysis is expensive and inaccessible in many rural areas, forcing patients with end-stage kidney disease to endure long waiting periods or rely on family members for donations. The Kidney Transplant Chain can transform this scenario by linking incompatible donor-recipient pairs into a larger exchange pool, thereby increasing transplant opportunities.

### How the Kidney Transplant Chain Works in India

The Kidney Transplant Chain is initiated by an altruistic donor—someone who donates a kidney without a specific recipient in mind. This altruistic act triggers a chain where incompatible donor-recipient pairs can participate. For example, if a donor is incompatible with their intended recipient, they can donate to another recipient in the chain. In return, the original recipient's incompatible donor contributes to another patient, creating a series of exchanges that benefit multiple individuals.

A typical case in India might involve the following scenario: Donor A wants to donate to Recipient A but is incompatible. However, Donor A is compatible with Recipient B, and Donor B is compatible with Recipient C. Through the chain system, Donor A's kidney is transplanted into Recipient B, Donor B's kidney is given to Recipient C, and Donor C's kidney is transplanted into Recipient A. This interconnected system allows multiple transplants to occur, significantly expanding the number of patients who can receive life-saving kidneys.



Rtn LAL GOEL



## **Benefits of Kidney Transplant Chains in India**

### **1. Addressing the Shortage of Deceased**

**Donors:** India's low rate of brain-dead organ donations can be offset by kidney transplant chains, which maximise living donor transplants, reducing the pressure on brain-dead donor waiting lists.

### **2. Expanding the Donor Pool:**

Families with willing but incompatible donors now have an opportunity to participate in a larger exchange system, increasing the chances of finding a suitable match within the transplant chain.

### **3. Reducing Dialysis Dependency:**

Given the disparities in healthcare infrastructure, particularly in rural India, kidney transplant chains can help patients receive a transplant sooner, thus reducing reliance on dialysis and significantly improving quality of life.

### **4. Boosting National Organ Donation**

**Campaigns:** Rotary Clubs, NGOs, and healthcare institutions can promote kidney transplant chains as part of broader campaigns, such as National Organ Donation Day. With greater visibility, the kidney transplant chain model could become a standard option for patients across India.

## **Challenges in Implementation**

Implementing kidney transplant chains on a large scale in India comes with logistical and ethical hurdles. Transplant centers must be equipped to handle complex, multi-hospital coordination, as these chains often involve multiple surgeries across different locations. Regulatory bodies like the National Organ and Tissue Transplant Organization (NOTTO) must also streamline policies to support cross-state exchanges and address legal and ethical concerns.

Trust is another critical issue. In India's socio-cultural context, trust is paramount, particularly in organ

donation. If a donor backs out, it could disrupt the entire chain, leading to delays or cancellations. Introducing "bridge donors"—donors who agree to initiate a future chain—can help mitigate this risk, ensuring the continuity of the exchange process.

## **The Role of Technology and Partnerships**

To make kidney transplant chains viable in India, technology and partnerships are essential. Advanced matching algorithms and real-time coordination tools can facilitate seamless exchanges between donors and recipients across states. Partnerships between public healthcare bodies, private hospitals, and international organisations can accelerate the adoption of this model. Educational campaigns leveraging digital platforms can also raise awareness about organ donation and the benefits of kidney transplant chains. Involving stakeholders like healthcare professionals, policymakers, NGOs, and religious leaders will help address cultural and religious concerns, fostering greater acceptance of organ donation.

## **Conclusion**

In a country where kidney disease is a major health challenge and organ donation rates are critically low, the Kidney Transplant Chain offers a transformative solution. By enabling incompatible donor-recipient pairs to participate in coordinated exchanges, this model can dramatically increase transplant opportunities, reduce waiting times, and improve patient outcomes. While challenges remain, including logistical complexities and the need for increased public awareness, the benefits of kidney transplant chains are immense. By fostering public understanding and strengthening healthcare infrastructure, India can make significant progress in addressing its organ transplant crisis and saving countless lives through this innovative approach.

---

## **About the Author**

*Rtn Lal Goel is a visionary leader and a driving force in Organ Donation advocacy. As Charter President of the Rotary Club of Organ Donation International and Chairman of the Organ Donation India Foundation & GYAN, he has been pivotal in raising awareness about Organ Donation across India. He serves on the National Committee for the National Campaign for Body-Organ Donation (NCBOD) and has been recognised globally for his efforts. His accolades include the Rajiv Gandhi Businessman of the Year Award, Tyag Murti Mata Ramai Ambedkar Samman, Icons of India Award, World Parliament International Award and the White Coat Ceremony honour by Donate Life, USA. In recognition of his outstanding contributions, Mangalore University awarded him the distinguished title of One in Millions.*