Organ Transplantation in India

Sunil Shroff

Managing Trustee, MOHAN Foundation
Editor, Indian Transplant Newsletter
Convener – Indian Transplant Registry
Member, Advisory Board Cadaver Transplant Programme, Tamil Nadu
President, Nephrology, Urology & Transplantation of SAARC

shroff@mohanfoundationiion.org, mohanfound@gmail.com

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Transplantation of Human Organs & Tissues Act (THOTA) – 1994 & 2011

- Accepted Brain death for organ donation
- Commerce in Organs – punishable offence
## THOA 1994 Vs 2011

<table>
<thead>
<tr>
<th></th>
<th>THOA, 1994</th>
<th>THOA, Amend. 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>Organs</td>
<td>Organs and <em>Tissues</em></td>
</tr>
<tr>
<td><strong>Transplant coordinator</strong></td>
<td>No Provision</td>
<td>Must for license</td>
</tr>
<tr>
<td><strong>Consent</strong></td>
<td>Donor / Next of kin</td>
<td>Added Required request</td>
</tr>
<tr>
<td><strong>Brain death Certification</strong></td>
<td>Medical board</td>
<td>Any Independent doctor not on transplant team</td>
</tr>
<tr>
<td><strong>Non-Transplant Retrieval Centres</strong></td>
<td>No Provision</td>
<td><em>Included</em></td>
</tr>
</tbody>
</table>
## THOA Amendments (2011)

<table>
<thead>
<tr>
<th>Offence</th>
<th>Imprisonment</th>
<th>Fine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of organs without authority</td>
<td>10 years</td>
<td>Rs. 20 Lakhs</td>
</tr>
<tr>
<td>Removal of organs without authority by RMP</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Offence: de-registration for 3 – years</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; offence: permanent de-registration</td>
</tr>
<tr>
<td>Commercial dealing in organs falsification of documents</td>
<td>5 – 10 years</td>
<td>Rs. 5lakhs – Rs. 1 Crores</td>
</tr>
<tr>
<td>Any violation of THOA</td>
<td>5 years</td>
<td>Rs. 5 Lakh</td>
</tr>
</tbody>
</table>
Kidney Transplantation in India

Our Requirement of Kidneys
175 per million population per year
But we do only
5.7 per million population per year

Deceased donor transplants
Live donor transplants


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Kidney Transplantation Surgery

• India has the largest experience with living kidney transplants.
• Second largest living Liver Tx program in the world

• Surgical Skills –
  • Technically over the last 45 years the Indian programme has performed well
  • Lap/Robotic donor nephrectomy/ slowly accepted norm, experience now of over 5,000 nephrectomies
Deceased Organ Transplant - India

First Kidney Transplant
August, 1994
Christian Medical College (CMC)
AIIMS, Delhi
Dr. Venugopal

First Heart Transplant
January, 1971
Vellore, Tamil Nadu
Liver Transplantation in India

Requirement of Liver over 100,000 a year

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Deceased Donor Renal Transplantation

- 2012: 352
- 2013: 548
- 2014: 720
- 2015: 1007
Deceased Donor Liver Transplantation

- 2012: 148
- 2013: 257
- 2014: 354
- 2015: 510
Heart Transplantation

![Heart Transplantation Chart](chart.png)

- 2012: 19
- 2013: 25
- 2014: 54
- 2015: 110

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Lung Transplantation

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Increase in Deceased Donation Rate

Note:
The no. of donors in the above graph for the year 2016 does not include deceased donations done in Andhra Pradesh.
2016 - Deceased Organ Donation in India

<table>
<thead>
<tr>
<th>State / UT</th>
<th>No. of Donors</th>
<th>Kidney</th>
<th>Liver</th>
<th>Heart</th>
<th>Lung</th>
<th>Pancreas</th>
<th>Intestine</th>
<th>Hand</th>
<th>Total Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil Nadu</td>
<td>180</td>
<td>340</td>
<td>169</td>
<td>79</td>
<td>50</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>648</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>132</td>
<td>204</td>
<td>126</td>
<td>47</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>379</td>
</tr>
<tr>
<td>Telangana</td>
<td>106</td>
<td>182</td>
<td>100</td>
<td>15</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>303</td>
</tr>
<tr>
<td>Kerala</td>
<td>72</td>
<td>112</td>
<td>64</td>
<td>19</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>199</td>
</tr>
<tr>
<td>Kerala</td>
<td>70</td>
<td>102</td>
<td>61</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>179</td>
</tr>
<tr>
<td>Karnataka</td>
<td>70</td>
<td>102</td>
<td>61</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>179</td>
</tr>
<tr>
<td>Gujarat</td>
<td>62</td>
<td>134</td>
<td>61</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>204</td>
</tr>
<tr>
<td>Delhi-NCR</td>
<td>28</td>
<td>44</td>
<td>26</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>79</td>
</tr>
<tr>
<td>Chandigarh</td>
<td>27</td>
<td>48</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>61</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>19</td>
<td>36</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>53</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>11</td>
<td>22</td>
<td>11</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>Puducherry</td>
<td>8</td>
<td>16</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>8</td>
<td>14</td>
<td>7</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>723</strong></td>
<td><strong>1254</strong></td>
<td><strong>651</strong></td>
<td><strong>208</strong></td>
<td><strong>56</strong></td>
<td><strong>22</strong></td>
<td><strong>1</strong></td>
<td><strong>2</strong></td>
<td><strong>2194</strong></td>
</tr>
</tbody>
</table>

Note:
The data projected in the above table is only provisional.
The data do not include deceased donations done in Andhra Pradesh.
The data for Gujarat, Delhi-NCR, Madhya Pradesh and Uttar Pradesh do not reflect all the deceased donations done in the region.
Human organ Retrieval Centre

Transplantation of Human Organs (Amendment) Act, 2011

“Human organ Retrieval Centre” - (i). which has adequate facilities for treating seriously ill patients who can be potential donors of organs in thy event of death;
Kerala Model - 2013

Total No. of Donors - 36

- 63% Transplant Centres
- 37% Non-Transplant Centres

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Deceased Organ Donation in India

The states / UTs that have contributed to the deceased donor transplant programme in 2016

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India – Deceased Donors & Transplants

• Majority of donors in the west - 50 plus Stroke, Brain haemorrhage, drug overdose and less than 20% from RTA
• Majority of our donors (almost 90%) – Young Male from RTA
• 90% Transplants done in Private Sector but 90% deceased or brain deaths in Govt or public hospital
Donation after circulatory death

• DCD has progressed in the last 5 years
• One-third donation in the UK is due to DCD – many are liver donation
• Cardiac death - Easier concept to accept by families
• In India – few hospitals have started doing DCD’s
• Requirement – to have a standard procedure from NOTTO
## Modified Maastricht Classification of DCD

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Type</th>
<th>Locations Practiced</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Dead on arrival</td>
<td>Uncontrolled</td>
<td>Emergency Dept in a Transplant centre</td>
</tr>
<tr>
<td>II</td>
<td>Unsuccessful Resuscitation</td>
<td>Uncontrolled</td>
<td>Emergency Dept in a Transplant centre</td>
</tr>
<tr>
<td>III</td>
<td>Anticipated cardiac arrest</td>
<td>Controlled</td>
<td>ICU and Emergency Dept</td>
</tr>
<tr>
<td>IV</td>
<td>Cardiac arrest in a brain-dead donor</td>
<td>Controlled</td>
<td>ICU and Emergency Dept</td>
</tr>
<tr>
<td>V</td>
<td>Unexpected arrest in ICU patient</td>
<td>Uncontrolled</td>
<td>ICU in a Transplant centre</td>
</tr>
</tbody>
</table>

First international workshop on NHB (non-heart beating) donors in Maastricht (March’ 95)
Organ Sharing System in the Country

TamilNadu Network for Organ Sharing
Share Organs Save Lives

Kerala Network for Organ Sharing
Mrithasanjeevani

Rajasthan Network for Organ Sharing
Share Organs Save Lives
National Organ and Tissue Transplant Organization (NOTTO)

National level organization set up under Directorate General of Health Service established in 2011 to oversee all donation & transplantation activity

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NATIONAL

NOTTO

REGIONAL

ROTTO

PGI MER CHANDIGARH
KEM HOSPITAL MUMBAI
IPGMER KOLKATA
RGGGH, CHENNAI
GUWAHATI MEDICAL COLLEGE

STATE LEVEL - SOTTO
NGOs that promotes deceased organ donation

- Deceased Organ Retrieval sharing Organization (DORSO) (Delhi)
- Ganadarpan, Kolkata
- Gift Your Organ (Bengaluru)
- Kidney Federation of India (Thrissur)
- Light A Life (Bengaluru)
- MOHAN Foundation (Chennai, Hyderabad, Delhi-NCR, Jaipur, Mumbai, Chandigarh & Nagpur)
- Narmada Kidney Foundation (Mumbai)
- National Kidney Foundation India
- Parashar Foundation (New Delhi)
- Multi Organ Transplantation and Human & Educational Research (MOTHER) (Bhubaneswar)
- National Network for Organ Sharing (Chennai)
- Shatayu (Ahmedabad)
- Society for Organ Retrieval & Transplantation (Kochi)
- Zonal Transplant Coordination Centre (Mumbai, Pune, Nagpur, Aurangabad)
- Amit Gupta Foundation (New Delhi)
Paradigm shift in attitude among the general public

- Small Paradigm shift in attitude to donation
- Donation requests comes from -15 to 20% of families
- Have had donors as young as 18 months where family wanted to donate
- Donations have come from all religions and all class of society
Public engagement yields fruitful results
Support from Police & Media

Traffic across 16 signals came to a halt in Chennai on June 16, 2014 to facilitate the movement of a donor heart from one hospital to another.

19 people die every day waiting for a transplant. 1 organ donor can save 8 lives.

Donate an organ and gift a life.

Sanjeevani
Still we have roadblocks ........
Brain Death Concept – Detractors Esply in the Medical Profession

- Awareness about Concept of brain death among doctors & Public low
- Poor Hospital infra-structure to support multi-organ donation
- Strong Cultural and Religious Beliefs
Brain Death from Road Traffic Accidents

In 2012 – 160,0000

• 67% Head Injury death
• 60% will have brain death
• 80 per million population/ year

Ministry of Road Transport and Highways, Government of India
Scandals keep spurting…..

Hiranandani kidney racket case: Hospital CEO, 4 other doctors sent to judicial custody till August 26

The rowai police investigating the racket informed the court that the investigation was complete and they don’t require additional days of custody.

Police arrested the hospital’s CEO Dr Sujit Chatterjee, Medical Director Dr Anurag Naik and three other doctors — Dr Prakash Shetty, Dr Mukesh Shah and Dr Mukesh Shete.

With police saying more arrests from the hospital were likely, Dr Suwin Shetty of the pathology department, and Dr Veena Salekar, a general surgeon, approached the Dindoshi Sessions court Friday with anticipatory bail applications, which were rejected.

Delhi Police had busted the kidney racket on June 2 and announced the arrest of two personal assistants of senior nephrologists and three suspected middlemen. Later, one more personal assistant of a senior nephrologist of the hospital was arrested in the case.

The alleged mastermind of the racket, T Raju Kumar Rao, was arrested later from Kolkata. Police also arrested three donors from Siliguri district, and some recipients.
Anand kidney selling racket: Doctor arrested from Delhi

TNN | Jul 31, 2016, 05:55 AM IST

Anand/Vadodara: Five months after a kidney racket was busted in Anand, the local crime branch (LCB) sleuths have arrested the doctor who conducted surgeries on the victims. Dr Ankit Ravat was arrested from New Delhi after the cops got information about his whereabouts.

He was brought to Anand and produced in Petlad court that remanded him in police custody for seven days on Saturday.

Delhi Apollo Hospital kidney racket: SIT gets approval to prosecute doctors

By the end of July, police had arrested 13 people, while four others surrendered.

Not now, doctors were in touch with me for over a year, says kidney racket whistle-blower

New Delhi: Kidney trade racket busted; three middlemen, three donors arrested
Religion and Organ Donation

Origin: Belief in Re-births or Reincarnation

- Hinduism
- Buddhism
- Jainism
- Sikhism

Cultural Reservation:

‘It is not Auspicious day for Funeral Arrangement’

‘If I donate organs it will cause delays to funeral arrangements’

‘I Maybe born in my next life blind if I donate my eyes’

Islam – Rate Low - God created us whole.

We prefer to return whole.

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Driver’s License with the clause on organ donation
Defining Requirement for Next 10 years

- Currently there are about 400 transplant centres in India.
- Requirement for about 1,500 transplant centres in India.
- 400 Transplant Nephrologists & Hepatologists
- 2,000 Transplant Nephrologists & Hepatologists
- 2,500 to 3,500 Transplant Surgeons
- 5,000 Well Trained Transplant Coordinators

Authorities, Hospitals and Associations Need to come up with structured training modules to attract young post-graduates into the programme.
The Way Forward for Deceased Donation & Transplantation Programme in India

Objective BY 2020 –
Increase DD rate to 1.5 per million donation rate – Increase the current Numbers by about 2 times i.e 1,600 donation a year
India by 2027

India will have the largest transplant programme in the world

India Factors
• The growth of health insurance – Private & Government will see rapid growth in the next 10 years
• Growth of Middle class

International Factor
• India remains an attractive destination due to low cost and high level of care for transplants especially from neighbouring SAARC & African Region
The Indian Organ Donation Taskforce

To identify barriers to donation and transplantation and recommend solutions

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Making donations happen

• Organ donation to be a **usual, not an unusual event**.
• **Discussions about donation** should be part of all end-of-life care when appropriate.
• Each hospital will need to have **clinical donation champions and their own SOPs**
• Early involvement of **trained requestors or counsellors**
THANK YOU