

## **ALLOCATION CRITERIA FOR HEART, LUNG & HEART-LUNG**

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In India, the incidence and prevalence of end-stage heart failure and respiratory failure requiring transplant surgery is high. Heart transplant is possible from brain dead donors only. There is great paucity of donor organs. Presently there are only a few centres having capability and license to perform these transplant surgeries. Currently the scenario is changing with increased diagnosis, gradually increasing donor organ availability and increasing use of LVADs in maintenance of patients with chronic heart failure. An appropriate policy for equitable and judicious allocation of any available donated organ (heart and lungs) is mandatory. In order to promote the heart transplant programme it is advisable to have a dedicated heart failure clinic.

The present draft discusses the allocation policy of donated heart and lungs under the following heads -

- A. Registration of potential recipients
- B. Criteria for suitable donors for Heart and Lung
- C. Criteria for allocation of Heart, Lung and Heart-Lung
- D. Details to be recorded on the web site
- E. Post-operative update.
- F. Donor harvesting charges and charges to recipients
- G. Recognition of hospitals for organ transplantation

These are guidelines for the present. As the transplant programme picks up further modifications will be done as per the need by the sub-committee.

## **A. REGISTRATION OF POTENTIAL RECIPIENTS FOR HEART, LUNG AND HEART-LUNG TRANSPLANTATION:**

1. All hospitals should do all necessary investigations needed for their potential patients waiting for heart, lung and heart-lung transplantations and then register them with NOTTO portal. Patient is to be registered by the concerned hospital through online registration form on website [www.notto.gov.in](http://www.notto.gov.in)
2. Only those patients for whom all the necessary data is provided and registration charges are paid will be considered in the active waiting list.
3. The registrations for transplantation will have to be updated and re-registered every month. Status of patient must be updated regularly by the hospital to one of the following status:
  - Active
  - Unfit
  - Recipient frequently refused
  - Lost to follow-up
  - Transplant done
  - Death
4. At any time one patient can register only with one transplantation center. In case he/she wants to shift to some other center, they need to deregister with first center and then only register with second center. There should be at least 72 hours of gap before the next deceased donor's organ retrieval.
5. Registration of Heart and Heart-Lung recipients:  
3 categories are proposed:
  - Priority 1 (emergency):** These are patients on ventricular assist devices, but still critical, Intra aortic balloon pump (IABP) waiting for heart/heart lung transplantation. These recipients will get priority based on blood group and size matching. Their status need to be confirmed on weekly basis.
  - Priority 2 (semi emergency):** These are patients in intensive care unit depending on inotropic supports for at least a week and not maintaining hemodynamics if inotropes are being weaned off. Their category needs to be updated every 48 hours. Based on their progress they may stay in priority 2 or change to other priorities. If a deceased donor organ is available, their status need to be confirmed by 3 members of the heart subcommittee as appointed by the chairman of the subcommittee.
  - Priority 3 (elective):** These are patients electively waiting for transplantation. Their status need to be confirmed or changed as per their progress on monthly basis.

The concerned hospital needs to be given a username and password to enable them to register the recipients and enter data. They can see only *their* waiting patients. The subcommittee

members to be given a separate username and password and they should be able to see *all* the waiting list members for heart, lung and heart lung transplantation and their details.

## **B.CRITERIA FOR SUITABLE DONORS FOR HEART AND LUNGS:**

Apart from the general criteria for donors, the following criteria are needed:

### 1. Heart:

- a) Age less than 60 years. If donor is more than 40 years, coronary angiogram is desirable to exclude asymptomatic coronary artery disease.
- b) No history of heart disease and echo-cardiogram showing good cardiac function and no anatomical abnormalities.
- c) Maintaining good haemodynamics and not on high doses of inotropes (dopamine less than 10 micrograms /kg/min; epinephrine, nor epinephrine less than 0.1 micrograms/kg/mn, dobutamine less than 10 micrograms/kg/mn)
- d) Cardiac arrest – Donors revived after a brief cardiac arrest must be assessed extra carefully; but can be considered if the cardiac function is absolutely normal.

### 2. Lung:

- a) Age less than 55 years
- b) No active sepsis / malignancy in the lungs and outside
- c) No history of significant chronic obstructive pulmonary disease
- d) Chest X ray shows clear lung fields without any evidence of trauma to lungs
- e) Arterial Blood gases: On 100% oxygen and PEEP of 5 mm of Hg. after 5 mn, PaO<sub>2</sub> should be more than 300 mm of HG
- f) If smoker, a smoking history of  $\leq 20$  pack-years

## **C. CRITERIA FOR ALLOCATION OF HEART, LUNG AND HEART-LUNG:**

Matching of heart and Lungs are done based on

Blood group matching and

Size matching

Geographical distance

**Blood Group Matching-** O group donor organ is matched with O first. If no O group recipient is available, then it can be given to other group recipients as per the following criteria. Once a deceased donor heart and lungs are available, the hospital/s with first two recipients in the order of allocation will be informed. If the first recipient is not confirmed in 2 hours after that, the organ will go to the next recipient in the list and so on.

**Size and weight mismatch -** There should not be more than 20 percent size mis-match between the donor and the recipient heart / lung. Larger hearts can go to smaller patients and more mismatch is acceptable but problems can occur with small hearts in large recipients. In children more mismatch is acceptable.

**Distance** – The donated heart should be allocated to a hospital which is well within the geographical limit of cold-ischemia time for heart / lung

For a heart / lung donated at a government hospital, the first priority for allocation should be for a recipient registered with a government hospital.

If any controversies arise in allocation, the decision of the Advisory sub-committee is final.

1. Heart and Heart-Lung:

- a. If deceased donor organs are harvested in an Organ Transplantation center, heart will go to that center. One lung will go to that centre (both lungs may be used in one patient at the discretion of Transplant team) and the other lung will go to the general pool. If the hospital does not have recipients, then the heart and both lungs will go to the general pool.
- b. If deceased donor organs are harvested in a center recognized only for organ harvesting, heart and both lungs will go to the general pool.

General pool organs will be distributed first to patients in the priority1, then to priority2 and then to priority 3. If multiple patients are there in each category, then heart will be distributed in the chronological order of patient's registration with NOTTO portal. If donor is CMV positive, and there is a recipient who is CMV positive, they will be matched provided there is no waiting patient in priority 1 and 2.

2. Lung:

- a. If deceased donor organs are harvested in an Organ Transplantation center, one lung will go to that center (both lungs may be used in one patient at the discretion of Transplant team) and the other lung will go to the general pool. If the hospital does not have recipients, then the heart and both lungs will go to the general pool.
- b. If deceased donor organs are harvested in a center recognized only for organ harvesting, both lungs will go to the general pool.

**D. DETAILS TO BE RECORDED ON THE WEB SITE:**

The Following details should be available on the web site regarding the patients waiting for heart, lung and heart-lung transplantation:

First name:		Last name:
Age:	Sex:	Height:
Weight:	Diagnosis:	
Hospital where registered:		Date registered:
Diabetic: Y/N		
Blood Group:		Rh typing:
CMV IgG:		

positive/negative	
PRA I: percentage	Positive/negative
PRA II: percentage	positive/negative
HbsAg:	
positive/negative	Hep C: positive/negative
HIV: positive/negative	
For heart recipients:	
PVR:	Transpulmonary gradient:

For Lung recipients:

Room air ABG report  
6 min walk test results:

PLAN: Heart/single lung/bilateral lung/heart-lung transplantation. Priority: 1/2/3

#### **E. POST-OPERATIVE UPDATE:**

It is the responsibility of the hospital to update about the recipient condition on a monthly basis in the first 6 months, then once in 2 months for the next 2 months and then every 6 months and whenever patient is readmitted.

#### **I. RECOGNITION OF HOSPITALS FOR ORGAN TRANSPLANTATION:**

It is noted that some hospitals have applied for transplantation permission at multiple branches. It is recommended that only those hospitals/branches which have in-house full time transplantation team are to be permitted to enable round the clock care.

Appropriate recognition of a centre should be in-place as either a “harvest” centre or as a “harvest plus transplant” centre.

##### **List of Government hospitals in Delhi-NCR recognized for retrieval and transplant**

1. AIIMS, Ansari Nagar, New Delhi-110029(Lung & Heart Lung)

##### **List of Private sector hospitals in Delhi-NCR recognized for retrieval and transplant**

1. Fortis Escort Heart Institute & Research Centre, Okhla Road, New Delhi-110025
2. Fortis Memorial Research Institute, Sector - 44, Opposite HUDA City Centre, Gurgaon, Haryana 122002
3. Max Devki Devi Heart & Vascular Institute, 2 Press Enclave Road, Saket, New Delhi-110017
4. Medanta-The Med City, Sector – 38, Gurgaon, Haryana 122 001, India
5. Sir Ganga Ram Hospital, Sir Ganga Ram Hospital Marg, Old Rajinder Nagar, New Delhi-110060

The above guidelines are subject to change in the future consequent to changing patterns of patient management; and are to be changed after adequate consultation with the stakeholder.