



***UK Transplant***

**Donor Organ  
Sharing Scheme**

**Operating Principles for  
Cardiothoracic Transplant Units  
in the UK and Republic of Ireland**

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**Prepared by the UKT Cardiothoracic Advisory Group**

**A SPECIAL HEALTH AUTHORITY OF THE NATIONAL HEALTH SERVICE**  
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## UK Transplant

### UK Transplant Donor Organ Sharing Scheme Operating Principles for Cardiothoracic Transplant Units in the UK and Republic of Ireland

#### Changes to Donor Organ Sharing Scheme Operating Principles

CHANGE No.	ADVISORY GROUP REF:	DATE OF CHANGE	DETAILS OF CHANGE
1	CTAG(M)(99)2	Sept 1999	A-2 Group 1 and Group 2 Recipients Paragraph 2.2
			A-5 Contraindications Paragraph 5.4
			C-2 Paediatric Allocation Priority
			Paragraphs 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.1.7 & 2.1.8
			D-2 Fast Track Scheme Paragraphs 2.3, 2.5 & 2.6
2	CTAG(M)(00)1	March 2000	A-3 Paediatric Cases Paragraph 3.2
			C-2 Paediatric Allocation Priority
			C-3 Paediatric Transplant Centre Rotas
3	CTAG(M)(00)2	Sept 2000	A-5 Contraindications Paragraph 5.5
			B-2 Allocation Priority - Adult Donor Organs
			Paragraph 2.1
4	CTAG(M)(02)2	Sept 2002	B Adult Urgent Heart Allocation Scheme
			C Paediatric Urgent Heart Allocation Scheme
			D, E, F – previously Sections B, C, D
			D-2 Allocation Priority – Adult Donor Organs

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			D-3 Transplant Centre Rotas, Paragraph 3.4.2
			D-6 Local Allocation of Donor Organs
			E-2 Allocation – Paediatric Donor Organs
			F-2 Fast Track Scheme, Paragraphs 2.4
5	CTAG(M)(04)1	March 2004	A-7 Other considerations, Paragraph 7.2
6	CTAG(M)(04)2	Sept 2004	A-6 Offering time, Paragraph 6.2
			D-6 Blood Group Restrictions, Paragraph 6.1
7	CTAG(M)(05)2	Sept 2005	B-5 Annual Allocation of Adult Urgent Heart Registrations, Paragraph 5.1
			A-7 Other considerations, Paragraph 7.4
8	CTAG(M)(06)1	March 2006	B-5 Annual Allocation of Adult Urgent Heart Registrations, Paragraph 5.1
			D-6 Blood Group Restrictions, Paragraph 6.1
9	CTAG(M)(06)2	Sept 2006	A-7 Other considerations, Paragraph 7.3
			B-6 Payback Scheme, Paragraph 6.9
			A-6 Offering Time, Paragraph 6.6
10	CTAG(M)(07)1	March 2007	B-5 Annual Allocation of Adult Urgent Heart Registrations, Paragraph 5.1
			A-7 Other considerations, Paragraph 7.1
			A-7 Other considerations, Paragraph 7.4

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**Annex A:** Direction of the Secretary of State for Health: 1 October 2005 – The NHS Blood and Transplant (Gwaed a Thrawsblaniadau'r GIG) (England) Directions 2005 - Guidance.

**Annex B:** Cadaveric Donor Assurances and Damage Reporting, Updated April 2002 - Protocol prepared by the British Transplantation Society, the UK Transplant Co-ordinators' Association and UK Transplant.

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**UK Transplant  
Donor Organ Sharing Scheme Operating Principles  
Cardiothoracic Transplant Units in the UK and Republic of Ireland**

**A GENERAL**

The Donor Organ Sharing Scheme principles set out below are those specified by Cardiothoracic Transplant Unit Directors for the UK and Republic of Ireland. The Scheme is administered on the transplant community's behalf through UK Transplant (UKT).

**A.1 REGISTRATION OF NEW RECIPIENTS**

- 1.1 All patients awaiting a transplant must be registered on the National Transplant Database (NTxD) at UKT.
- 1.2 A standard registration form must be completed and sent to UKT via the UK National Transplant Network (UKNTN), UKT on-line or by post. Patients will be placed on the waiting list on the day on which details are received at UKT. Discrepancies or missing information will be followed up with the local unit and might cause a delay.

**A.2 GROUP 1 AND GROUP 2 RECIPIENTS**

- 2.1 Recipients are categorised as Group 1 or Group 2 (as defined by Direction of the Secretary of State for Health: 1 October 2005 – The NHS Blood and Transplant (Gwaed a Thrawsblaniadau'r GIG) (England) Directions 2005 - Guidance, copy at **Annex A**). Nationals of a non-UK country may only be registered on a transplant waiting list after they have been accepted by a consultant as suitable for treatment. It is the responsibility of the consultant registering such a patient on the waiting list to confirm that they have been accepted under E112 or similar arrangements.
- 2.2 Group 1 patients have priority for available organs above Group 2 patients. No organ should be offered to a Group 2 patient in the UK or Republic of Ireland if there is a clinically suitable Group 1 patient in the UK or Republic of Ireland.

**A.3 PAEDIATRIC CASES**

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- 3.1** Paediatric recipients, defined as patients either with a body weight of 30kg or less, or aged under 16 years at the time of offer, will receive priority within the offering sequence for any organs available from a paediatric donor. For the purposes of these Operating Principles, a paediatric donor is defined as a patient aged 14 years or under at the time of death.
- 3.2** A unit may register a small adult, weighing 40kg or less, as paediatric at their discretion. Such patients will have equal priority with paediatric recipients in the offering sequence.
- 3.3** Paediatric donor organs will be offered first to paediatric recipients, including registered small adults, then to adult recipients before being offered to European Organ Exchange Organisations. No paediatric organ should be offered to a Group 2 patient in the UK or Republic of Ireland if there is a clinically suitable Group 1 patient in the UK or Republic of Ireland.

### **A.4 DONOR INFORMATION**

- 4.1** All potential heart, heart/lung or lung donors in the UK or Republic of Ireland must be reported prospectively to the UKT Duty Office by telephone at the earliest possible opportunity.
- 4.2** The Core Donor Data Form and Cardiothoracic Donor Information Form contain the information required for all cardiothoracic donors and must be used when reporting the case to UKT.

### **A.5 CONTRAINDICATIONS**

- 5.1** Potential donors found to be positive for HIV antibody are an absolute contraindication to organ donation.
  - 5.2** Neither donor units nor UKT will offer cardiothoracic organs from donors who have not been tested for Hepatitis B surface antigen, Hepatitis C antibody or HIV antibody.
  - 5.3** Cardiothoracic organs from donors found to be positive for Hepatitis B surface antigen, or for Hepatitis C antibody will be offered by UKT to transplant units for exceptional cases. The final decision whether or not to accept the organs lies with the transplant surgeon.
  - 5.4** Where a donor is found to fall into any of the risk categories defined by the Chief Medical Officer as contraindications to donation for organ transplantation, UKT will actively seek, record and pass on **all** donor information for the transplant unit to make the decision on the suitability of the donor organs.
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- 5.5** Fuller information regarding cadaveric donor assurances and damage reporting is contained in the protocol prepared by the British Transplantation Society, the UK Transplant Co-ordinators' Association and UK Transplant - 'Cadaveric Donor Assurances and Damage Reporting, updated December 2002' (copy at **Annex B**). Definitive guidance is contained in the document prepared by the Advisory Committee on Microbiological Safety of Blood and Tissue for Transplantation (MSBT) - 'Guidance on the Microbiological Safety of Human Organs, Tissues and Cells Used in Transplantation, August 2000'.

### **A.6 OFFERING TIME**

- 6.1** Offers will be made in accordance with the cardiothoracic centre rotas for offering donor hearts or lungs, on the basis of a firm offer to the first centre and a provisional offer to the second in line.
- 6.2** For all cases, centres to which a firm offer has been made must advise UKT within 45 minutes whether they wish to accept or decline the offer. If the organ is declined, it will be offered to the second in line as a firm offer and to the third in line as a provisional offer, and so on throughout the rotational sequence. An offer will automatically be withdrawn by UKT after 60 minutes if a response is not made.
- 6.3** For firm offers made to a centre previously advised provisionally, UKT must be advised within 30 minutes whether they wish to accept or decline the firm offer.
- 6.4** Only once all centres have declined a donor for a Group 1 patient will Group 2 patient requirements be considered.
- 6.5** A centre to which an offer has been made will retain its place on the rota while a decision is pending, although the UKT Duty Office will use discretion in offering a second time to centres which are currently considering an offer. A centre declining an offer will retain its place on the rota.
- 6.6** A kidney can be accepted with a cardiothoracic organ and has primacy over any kidney allocation scheme. The acceptance of a kidney with a cardiothoracic organ must be made in the original 45 minute offering time.
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**A.7 OTHER CONSIDERATIONS**

- 7.1 If the zonal retrieval team consider the cardiothoracic organs to be not suitable, they must be offered to 2 more cardiothoracic transplant units (not including Great Ormond Street) for non-urgent patients before they are deemed untransplantable.
- 7.2 In exceptional circumstances (i.e. extreme weather conditions), should a zonal team be unable to retrieve organs, an offer could be made to a nearby cardiothoracic unit before being offered via the national offering sequence.
- 7.3 If a single lung is to be offered to cardiothoracic units via the national offering sequence, the offering centre must state which lung is to be offered to allow due consideration.
- 7.4 From March 2006, Manchester will receive the first national offer of lungs declined by Birmingham from the northern part of Birmingham's retrieval zone in an attempt to redress apparent lung shortages at Manchester. Lungs will be offered using this arrangement from donors in the following hospitals/ITU's:

**HM1601** - Birmingham, City Hospital

**HM1301** - Birmingham, Heartlands Hospital

**HM1202** - Birmingham, Queen Elizabeth Hospital

**HM1501** - Birmingham, Selly Oak Hospital

**HM0501** - Shrewsbury, Royal Shrewsbury Hospital

**HM0701** - Stoke, North Staffs Royal Infirmary

**HM0540** - Telford, Princess Royal Hospital

**HM2102** - Walsall, Walsall Manor Hospital

**HM2203** - Wolverhampton, New Cross Hospital

**HW1241** - Wrexham, Maelor General Hospital

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## **B ADULT URGENT HEART ALLOCATION SCHEME**

### **B.1 DESIGNATION OF ADULT URGENT HEART PATIENTS**

- 1.1** Adults may be registered as urgent at the discretion of the local transplant unit director. Patients meeting the following criteria will not be eligible:
- 1.1.1 patients from countries outside Group 1;
  - 1.1.2 patients who are on LVADs who are in acute phase. However, patients who are on LVADs and who are stable and registered on the routine heart transplant waiting list may be registered as urgent;
  - 1.1.3 patients on bypass (i.e. not within 24 hours of bypass and unstable);
  - 1.1.4 patients who are ventilated and on dialysis (including filtration);
  - 1.1.5 patients within 3 months of a previous transplant (including acute cases);
  - 1.1.6 patients who have had an identifiable new neurological event.

### **B.2 ADULT URGENT HEART SCHEME REGISTRATION**

- 2.1** Eligible patients must be registered with the UKT Duty Office, and may be registered simultaneously on the National Transplant Database.
- 2.2** Urgent patients will remain on the list until they are either transplanted, removed at the request of the registering unit or die.
- 2.3** Patients registered for an urgent heart transplant may need to be suspended from that list if they subsequently become unfit for transplant. However, they may be reactivated on the urgent list if they recover sufficiently, within a maximum period of two weeks.

### **B.3 NOTIFICATION OF REGISTRATIONS**

- 3.1** Each day, the UKT Duty Office will circulate a list of patients, including the date and time of registration, registered as requiring an urgent heart transplant, to all heart transplant unit directors and cardiothoracic transplant co-ordinators.
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## B.4 OFFERING HEARTS TO URGENT PATIENTS

- 4.1** Donor organs will be offered preferentially to patients registered on the urgent heart scheme. Hearts offered through the Fast Track Scheme may be used for urgent patients. The routine order of offering shall be first by blood group and then by size, with blood group identical having priority over compatible matches thus:

4.1.1	<b>Blood Group</b>	<div style="display: inline-block; vertical-align: middle;">         Blood group identical          Blood group compatible       </div> <div style="font-size: 3em; vertical-align: middle; margin-left: 5px;">}</div>	Organs from blood group O donors may be used for patients from groups O and B. Patients with blood group A will not be eligible to receive organs from blood group O donors unless they are the <b>only</b> registered urgent patient at that time.
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4.1.2	<b>Size</b>	Donor height $\pm$ 15% of patient height. The heart will not be offered if the difference between donor and patient height is outside this range.
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4.1.3 These criteria may be overridden in cases where a local centre retains a local heart for a local urgent patient.

- 4.2** Where two patients of the same blood group and size are registered on the Adult Urgent Heart Scheme, the patient who was registered first with the UKT Duty Office will have priority.

- 4.3** A centre with a local donor may retain the heart for an urgent patient of the same size and identical blood group even if another similar patient is waiting elsewhere.

- 4.4** A centre with a local donor and a pre-registered urgent patient with compatible blood group and same size ( $\pm$ 15%) can retain a heart even if there is a patient of the same size and identical blood group registered at another centre.

- 4.5** If an organ is accepted by a centre for a patient on the urgent scheme, the organ cannot be used for a different patient; similarly, the centre may not export a heart which is ABO compatible and the donor height is  $\pm$  15% of the recipient height in that period.

- 4.6** Where two patients, of the same size but of different blood groups, are registered on the urgent scheme the blood group identical patient will have priority.

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- 4.7** When a blood group O donor heart is available for two urgent patients, with blood group B and AB, the organ will be allocated to the first patient to be registered.
- 4.8** Adult donor hearts may be offered for paediatric patients registered on the Paediatric Urgent Heart Scheme.
- 4.9** If an organ is accepted for a patient on the urgent scheme, no further offers will be made for that patient unless the transplant is not undertaken.
- 4.10** A patient registered for an urgent heart will have precedence over a non-urgent patient waiting for a heart/lung block.

### **B.5 ANNUAL ALLOCATION OF ADULT URGENT HEART REGISTRATIONS**

- 5.1** Each designated transplant centre may register one patient at a time on the adult urgent heart allocation scheme, up to a maximum number each year. Numbers are equalised currently, each adult centre can register 6 adult patients per financial year. Great Ormond Street can register one adult a year for the occasional large adolescent.
  - 5.2** If a patient is temporarily suspended on the urgent list, due to poor health, the patient will count as only one of the unit's annual allocation. If a centre wishes to register an additional urgent patient, only one urgent patient can be active at any one time.
  - 5.3** A local heart used for an adult urgent patient will count as one of the urgent allocation for that centre.
  - 5.4** If a paediatric donor heart is not required for a paediatric urgent patient and is of a suitable size for an adult patient, it may be offered for patients registered on the Adult Urgent Heart Scheme. In such instances, the transplant will count against the unit's adult allocation for the year.
  - 5.5** Urgent patients who die whilst awaiting an urgent transplant count against the centre's annual allocation.
  - 5.6** A centre may borrow up to two urgent allocations from the following year's number in the last three months of the year of operation, but unused options in any one year cannot be carried over into the next.
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## **B.6 PAYBACK SCHEME**

- 6.1** The payback scheme compensates for the reduction in the number of organs available for non-urgent patients and provides a disincentive to register patients inappropriately as urgent.
  - 6.2** After a patient has been transplanted with an imported heart, the centre must donate to the national pool a heart from within its zone. The centre cannot designate another urgent patient until a local heart has been donated to the national pool. This “payback” can be any useable adult heart and will count from the time when an organ is accepted and **transplanted**. The payback may include a heart used for an urgent category patient at another centre.
  - 6.3** No payback is required when an urgent patient is transplanted with a zonal heart, regardless of whether there is another patient registered on the urgent list.
  - 6.4** Payback into the national pool will not have priority over use of a heart/lung block for a suitable local recipient: precedence should be given to the patient requiring a heart/lung block. However, resulting domino hearts may be used for payback.
  - 6.5** No payback is required when an adult heart is used for a child registered on the Paediatric Urgent Heart Scheme, by either of the designated paediatric centres: Great Ormond Street, London and Freeman, Newcastle.
  - 6.6** No payback is required when an adult urgent patient is transplanted with a paediatric donor heart.
  - 6.7** No payback is required to the national pool if an organ imported from Europe is used for a registered urgent patient.
  - 6.8** No payback is required for patients registered but not transplanted.
  - 6.9** A heart is not deemed to have been ‘paid back’ if a heart is offered through the national allocation sequence and ultimately transplanted in Europe.
  - 6.10** If a heart is offered to all centres in the UK for transplantation and ultimately transplanted at the zonal retrieval centre then a ‘pay back’ is deemed to have been made.
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## **C PAEDIATRIC URGENT HEART ALLOCATION SCHEME**

### **C.1 DESIGNATION OF PAEDIATRIC URGENT HEART PATIENTS**

- 1.1** An unrestricted urgent category operates for children awaiting a heart transplant based on the premise that there are more paediatric offers than paediatric transplants. An urgent category sets out to achieve an improvement in survival of patients who may die whilst awaiting a transplant by improving the use of previously unused paediatric donor organs; but not to the detriment of stable patients on the waiting list.
- 1.2** Paediatric patients may be registered as urgent at the discretion of the local transplant unit director. No strict criteria will apply.

### **C.2 PAEDIATRIC URGENT HEART SCHEME REGISTRATION**

- 2.1** Paediatric Urgent Heart Scheme registration is restricted to the two designated paediatric transplant centres (Great Ormond Street and Freeman Hospital).
- 2.2** Eligible patients must be registered with the UKT Duty Office, and may be registered simultaneously on the National Transplant Database.
- 2.3** One patient may be registered on the Paediatric Urgent Heart Scheme by any one unit at any time.
- 2.4** No upper annual limit to the number of paediatric urgent registrations will be applied to either of the designated paediatric transplant centres.
- 2.5** Paediatric centres do not have to pay back a paediatric heart before registering another urgent paediatric patient.

### **C.3 NOTIFICATION OF REGISTRATIONS**

- 3.1** Each day, the UKT Duty Office will circulate a list of patients, including the date and time of registration, registered as requiring an urgent heart transplant, to all heart transplant unit directors and transplant co-ordinators.
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### **C.4 DONOR HEARTS**

- 4.1** Donors will usually be those aged 14 years or under.
- 4.2** Adult donor hearts may be offered for paediatric patients registered on the Paediatric Urgent Heart Allocation Scheme. In such instances, payback into the adult donor pool is not required.
- 4.3** Hearts offered through the Fast Track Scheme may be used for urgent patients.

### **C.5 ALLOCATION OF HEARTS TO PAEDIATRIC URGENT PATIENTS**

- 5.1** Allocation of paediatric donor organs to paediatric urgent patients is usually to the patient who has been registered for the longest period of time, subject to individual negotiation between centres.
  - 5.2** Identical and compatible blood group recipients registered on the Paediatric Urgent Heart Scheme will be prioritised above those with incompatible blood groups, regardless of time spent on the waiting list.
  - 5.3** Recipients of hearts from paediatric donors will usually be those under the age of 16. If a paediatric donor heart is not required for a paediatric urgent patient and is of a suitable size for an adult recipient, it may be offered for patients registered on the Adult Urgent Heart Scheme.
  - 5.4** The criterion of donor height  $\pm$  15% of recipient height, applicable to adults, does not apply to paediatric patients.
  - 5.5** Older recipients at the Freeman Hospital may be placed in the adult urgent category as appropriate. Great Ormond Street may register and transplant one "adult" urgent patient per year, for the occasional large adolescent.
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### **D ADULT DONOR ORGANS**

#### **D.1 DONOR DEFINITION**

- 1.1** An adult donor for cardiothoracic organs is defined as being aged over 14 years at the time of death.

#### **D.2 ALLOCATION PRIORITY - ADULT DONOR ORGANS**

- 2.1** After reporting the potential donor details to the UKT Duty Office, the regional transplant co-ordinator will offer all cardiothoracic organs donated in the UK or Republic of Ireland to the designated zonal retrieval centre. If not to be used locally, organs from donors up to the age of 65 will then be offered through UKT using the relevant Cardiac or Lung Centre Rota.
- 2.2** Offers will be made to centres in the following priority order for Group 1 patients at:
- 2.2.1 adult urgent patients, nationwide
  - 2.2.2 paediatric urgent patients, nationwide
  - 2.2.3 the designated zonal retrieval centre;
  - 2.2.4 the Royal Hospital for Sick Children, Great Ormond Street - (for paediatric recipients);
  - 2.2.5 designated centres in the UK or Republic of Ireland;
  - 2.2.6 Organ Exchange Organisations in EC and other Group 1 countries.
- 2.3** Offers will then be made to centres in the following priority order for Group 2 recipients at:
- 2.3.1 the designated zonal retrieval centre;
  - 2.3.2 designated centres in the UK or Republic of Ireland;
  - 2.3.3 Organ Exchange Organisations in Group 2 countries.

#### **D.3 TRANSPLANT CENTRE ROTAS**

- 3.1** As cardiothoracic transplants encompass heart only, some heart/lung and some lung only transplants, two rotas have been established: the Cardiac Centre Rota for heart only and heart/lung recipients; the Lung Centre Rota for lung only recipients.
- 3.2** Each rota will be maintained separately for referral of adult donor organs. The adult rota will comprise first the designated centres,
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always headed by the local zonal retrieval centre, and secondly the non-designated centres currently transplanting cardiothoracic organs in the UK and Republic of Ireland.

- 3.3** All donors identified within the Royal Hospital for Sick Children, Great Ormond Street, will automatically be offered to the Great Ormond Street Transplant Unit before reverting to the local zone which would have first refusal in the normal way.
- 3.4** Donor organ offers for adult heart or heart/lung patients will be in accordance with the Cardiac Centre Rota current at the time of offer; offers for adult lung recipients will be in accordance with the Lung Centre Rota current at the time of offer. These rotas will be activated as follows:
  - 3.4.1** The offer sequence will be in reverse-chronological order of last transplant date for, non-urgent patients when organs are accepted outside of their own retrieval zone. A centre does not move position on the rota should they accept an organ from within their own zone. As each centre carries out a transplant using an organ(s) donated from within the UK or Republic of Ireland and imported from another zone, it will be placed at the bottom of the appropriate rota. However, a centre carrying out a heart/lung block transplant, will be rotated to the bottom of both the Cardiac and Lung Centre Rotas.
  - 3.4.2** Following a transplant for an urgent patient, the unit will rotate to the bottom of the cardiac rota in the usual way.
  - 3.4.3** The rota will be used to advise designated units of the availability of donor organs regardless of whether or not a patient of the appropriate blood group is registered from their unit on the National Transplant Database at the time.

### **D.4 EXCEPTIONS**

- 4.1** Exceptions will be made to the strict reverse-chronological rota in the following cases:
    - 4.1.1** An organ donated from within a designated centre's zone will be offered first to that unit regardless of that unit's current place on the rota. If the organ is used, that unit will retain its place and not be rotated to the bottom of the relevant rota.
    - 4.1.2** A centre transplanting an organ donated from outside the UK or Republic of Ireland will retain its former place and not be moved to the bottom of the rota.
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4.1.3 Where a heart/lung block is exported from a zone, and the exporting zonal retrieval centre receives back in exchange a domino heart, neither the zonal retrieval centre nor the centre importing the heart/lung block will be rotated on the Cardiac Centre Rota. However, the centre importing the heart/lung block will be rotated on the Lung Centre Rota.

4.1.4 Where a centre transplanting an imported heart/lung block donates a domino heart to a centre - other than the zonal retrieval centre exporting the heart/lung block - the centre donating the domino heart will be rotated on the Lung Centre Rota only, and the centre receiving the domino heart will be rotated on the Cardiac Centre Rota.

### **D.5 OFFERING HEART/LUNG BLOCKS, AND THEIR DIVISION**

5.1 When a heart/lung block is available for donation, the organs will first be offered using the Cardiac Centre Rota. If part of a block is accepted for transplant, the remainder will be offered on, using the rota appropriate to the remaining organ(s).

### **D.6 BLOOD GROUP RESTRICTIONS**

6.1 If a heart from an 'O' blood group donor is offered 'out-of-zone' to centres for non-urgent patients via the national allocation sequence, consideration must be given for 'O' and 'B' blood group patients nationally before any other blood group.

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## **D.7 LOCAL ALLOCATION OF DONOR ORGANS**

**7.1** Factors to be considered when allocating hearts within a local zone may include:

### **7.1.1 Blood Group**

Identical

Compatible

Preferably, O donors should go to O recipients

Prospective cross-match

### **7.1.2 Size**

This is important for intra-thoracic transplantation as the power output of the transplanted heart has to match the recipient. Small female hearts will not necessarily have the power for average size males.

### **7.1.3 Logistics**

Given the consideration of ischaemic time and occasional short notice, the logistics of recipient transplantation may come into play in the choice of potential recipient.

### **7.1.4 Physiology**

Particularly with reference to the pulmonary vascular resistance or the pressure drop across the lungs, which might be important in placing marginal donor organs.

### **7.1.5 CMV Status**

Wherever possible, organs from donors who are CMV positive should not be transplanted into patients who are CMV negative.

### **7.1.6 Prognostic “Priority”**

All patients on the heart transplant list are, by definition, in end stage heart failure. However, units may prioritise their patients according to stability; for instance, either “in hospital”, or “home”. Rate of deterioration may also be of importance.

Paradoxically, moribund patients may not be selected for transplantation as although the individual potential “gain” may be high, the overall use of organs may be embarrassed.

### **7.1.7 Recipient and Donor Age Matching**

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There has been a recent tendency to put older donor material into older recipients, although this discriminatory factor only comes into play if all other factors are equal.

### **7.1.8 Waiting Time**

If all other things are equal, preference may be given to patients who have been on the waiting list longest.

### **7.1.9 HLA Compatibility**

To be considered where practicable and where all other criteria are equal.

- 7.2** Such issues as staff availability, operation availability and concomitant transplant activity and so on, may come into play, perhaps choosing between a “simple” procedure on a patient who may have had no previous surgery versus a patient who has perhaps had one or two previous open heart operations.
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## **E PAEDIATRIC DONOR ORGANS**

### **E.1 DONOR DEFINITION**

- 1.1** A paediatric donor for cardiothoracic organs is defined as being aged 14 years or under at the time of death.

### **E.2 ALLOCATION PRIORITY - PAEDIATRIC DONOR ORGANS**

- 2.1** All paediatric cardiothoracic organs in the UK or Republic of Ireland will be offered first for paediatric recipients and then for adults in the following priority order for Group 1 recipients at:

- 2.1.1 urgent paediatric patients, nationwide
- 2.1.2 urgent adult patients, nationwide
- 2.1.3 designated paediatric transplant centres and those centres with small adults registered as paediatric recipients in the UK or Republic of Ireland;
- 2.1.4 the designated zonal retrieval centre for adult patients;
- 2.1.5 designated centres in the UK or Republic of Ireland for adult patients;
- 2.1.6 Organ Exchange organisations in EC and other Group 1 countries.

- 2.2** Offers will then be made to centres in the following priority order for Group 2 recipients at:

- 2.2.1 designated paediatric transplant centres and those centres with small adults registered as paediatric recipients in the UK or Republic of Ireland;
- 2.2.2 the designated zonal retrieval centre for adult recipients;
- 2.2.3 designated centres in the UK or Republic of Ireland for adult recipients;
- 2.2.4 Organ Exchange Organisations in Group 2 countries.

### **E.3 TRANSPLANT CENTRE ROTAS**

- 3.1** As cardiothoracic transplants encompass heart only, some heart/lung and some lung only transplants, two rotas have been established: the Paediatric Cardiac Centre Rota for heart only and heart/lung recipients; the Paediatric Lung Centre Rota for lung only recipients.
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## **UK Transplant**

- 3.2** The paediatric rotas will comprise the two designated paediatric transplant units and adult transplant units with small adults registered as paediatric recipients in the UK and Republic of Ireland. The adult rota will comprise first the designated centres, headed by the zonal retrieval centre, and secondly the non-designated centres currently transplanting cardiothoracic organs in the UK and Republic of Ireland.
  - 3.3** All donors identified within the Royal Hospital for Sick Children, Great Ormond Street, will automatically be offered to the Great Ormond Street Transplant Unit before reverting to the Paediatric Cardiac Centre Rota or the zone which would have first refusal.
  - 3.4** Paediatric donor organ offers for heart or heart/lung recipients will be in accordance with the Cardiac Centre Rota current at the time of offer; offers for lung recipients will be in accordance with the Lung Centre Rota current at the time of offer.
  - 3.5** The Cardiac and Lung rotas used for paediatric donor organs will comprise first paediatric recipients followed by adult recipients. These rotas will be activated as follows:

    - 3.5.1** The offer sequence will be in reverse-chronological order of last transplant date. As each paediatric centre or adult centre with a small adult registered as a paediatric recipient carries out a paediatric transplant using an organ(s) donated from within the UK or Republic of Ireland, it will be placed at the bottom of the appropriate paediatric rota. However, a centre carrying out a heart/lung block transplant will be rotated to the bottom of both the Cardiac and Lung Centre Rotas. An adult centre registering a small adult as a paediatric recipient will start at the bottom of the paediatric rotation;
    - 3.5.2** As each adult centre carries out an adult transplant using an organ(s) donated from a paediatric donor within the UK or Republic of Ireland and imported from another zone, it will be placed at the bottom of the appropriate adult rota. However, a centre carrying out a heart/lung block transplant will be rotated to the bottom of both the adult Cardiac and Lung Centre Rotas;
    - 3.5.3** Offers will be made to non-designated units in accordance with the offer rota only if a suitable blood group recipient is registered from their unit on the National Transplant Database at the time.
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**E.4 EXCEPTIONS**

- 4.1** Exceptions will be made to the strict reverse-chronological rota in the following cases:
  - 4.1.1 A centre transplanting an imported organ donated from outside the UK or Republic of Ireland will retain its former place and not be moved to the bottom of the rota;
  - 4.1.2 Where a centre transplanting a heart/lung block donates a domino heart to another centre, the centre donating the domino heart will be rotated on the lung centre rota only, and the centre receiving the domino heart will be rotated on the cardiac centre rota.

**E.5 OFFERING HEART/LUNG BLOCKS, AND THEIR DIVISION**

- 5.1** When a heart/lung block is available for donation, the organs will first be offered using the Cardiac Centre Rota. If part of a block is accepted for transplant, the remainder will be offered on, using the rota appropriate to the remaining organ(s).

**E.6 BLOOD GROUP RESTRICTIONS**

- 6.1** If a heart from an 'O' blood group donor is offered 'out-of-zone' to centres via the national allocation sequence, consideration must be given for 'O' and 'B' blood group patients nationally before any other blood group.
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## **F FAST TRACK OFFER SCHEMES**

### **F.1 FAST TRACK OFFER SCHEME - OFFERS FROM THE UK**

Designated cardiothoracic units may register with the UKT Duty Office to receive offers of hearts or lungs which are available at short notice from another unit in the UK. The Scheme will come into play for any hearts or lungs referred to UKT which are:

to be removed within 90 minutes of the referral to UKT;  
already removed or in the process of removal.

### **F.2 OPERATING THE UK SCHEME**

The Scheme will operate as follows:

- 2.1** Offers of hearts and lungs meeting the fast track offer scheme criteria will be made only to centres registered in the Scheme.
  - 2.2** Offers will be made by UKT by simultaneous facsimile transmission of donor information.
  - 2.3** In all cases, centres must respond by telephone to **all** fast track offers within 30 minutes of the facsimile offer whether they wish to accept or decline the offer. UKT will follow-up those centres failing to respond within this time.
  - 2.4** Hearts offered through the Fast Track Scheme may be accepted for patients registered for an urgent heart transplant. In such instances priority will go to the urgent patient.
  - 2.5** If an organ is accepted by more than one centre, it will be allocated to the centre placed highest on the rota at the time of offering the organ. Group 1 patients will be allocated organs before Group 2 patients.
  - 2.6** In cases where a centre has not received a fast track offer, offers will still be allocated to the centre placed highest on the rota at the time of offering the organ.
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## ***UK Transplant***

- 2.7** Within 45 minutes of receiving the referral, UKT will advise the offering centre of the outcome.

### **F.3 FAST TRACK OFFER SCHEME - OFFERS FROM EUROPE**

Designated Cardiothoracic Units may register with the UKT Duty Office to receive offers of organs which are available from other units in Europe. The Scheme will come into play for:

all offers of hearts and lungs from European Organ Exchange Organisations.

### **F.4 OPERATING THE EUROPEAN SCHEME**

The Scheme will operate as follows:

- 4.1** Offers of cardiothoracic organs meeting the fast track offer scheme criteria will be made only to centres registered in the Scheme.
  - 4.2** Offers will be made by UKT by simultaneous facsimile transmission of donor information.
  - 4.3** For all cases, acceptance will be on a first come first served basis. Centres not responding will be deemed to have declined the offer.
  - 4.4** Within 45 minutes of receiving the referral, UKT will advise the offering European Organ Exchange Organisation of the outcome.
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