

BRITISH TRANSPLANTATION SOCIETY / UK TRANSPLANT

THE NATIONAL MATCHING SCHEME FOR PAIRED DONATION

THE MATCHING PROCESS

All incompatible couples wishing to pursue the option of paired donation must be registered with UK Transplant for the national matching scheme. 'Matching runs' will be carried out at intervals determined by the rate at which incompatible couples join the paired donation list. There are three key stages in the matching process to identify suitable pairs for transplant.

Firstly, all matching pairs must be identified. Secondly, all possible combinations of these pairs must be determined. The final stage is then to identify the optimal combination of matching pairs from all of those possible. It is important to consider not only which couples are involved but also the nature of the exchanges involved (ie who donates to whom). This part of the process is carried out using optimal matching algorithms, in collaboration with a team of researchers from the University of Glasgow (for further details see <http://www.optimalmatching.com>)

A number of criteria have been agreed to identify the most appropriate combination of matching pairs. These are local exchange, sensitisation, HLA match, age difference between two donors in a matching pair (donor-donor age difference) and blood group match.

THE NATIONAL MATCHING SCHEME

A scoring system has been agreed to identify the most suitable combination of matching pairs using the five criteria above. A score is calculated for each of the two potential transplants in a matching pair. For each possible combination of matching pairs a total score is then calculated and the highest scoring combination identifies the set of proposed transplants.

Scores for individual possible transplants are as follows:

Location points

20 points – if the couple who are a match are at the same centre or at another centre within the same area as defined below

0 points – if the matching couple are in another area

Area	Centres
London & Cambridge	Guy's, St George's, Royal London, Royal Free, West London Renal & Transplant Centre, Cambridge
South, West & Wales (SW2)	Bristol, Cardiff, Oxford, Plymouth, Portsmouth
Trent & Midlands	Leicester, Nottingham, Sheffield, Birmingham, Coventry
North of England	Leeds, Liverpool, Manchester, Newcastle
Scotland & NI	Edinburgh, Glasgow, Belfast

Sensitisation points

0-50 points based on calculated sensitisation (%) divided by 2.

Using a pool of 10,000 donors, sensitisation levels (%) will be calculated by UK Transplant by determining the percentage of blood group identical donors to which the recipient is sensitised (ie the percentage of blood group identical donors having antigens which are declared unacceptable for the recipient).

HLA mismatch points

These are based on HLA mismatch levels developed for the 2006 deceased donor kidney allocation scheme:

HLA mismatch level of possible transplant	Points
1 000 mismatch (mm)	15
2 [0 DR and 0/1 B] mm	10
3 [0 DR and 2 B] or [1 DR and 0/1 B] mm	5
4 [1 DR and 2 B] or [2 DR] mm	0

Note – HLA mismatch requirements for an individual recipient can be specified at time of registration.

Donor-donor age difference

3 points - if donor-donor age difference \leq 20 years

0 points - if age difference $>$ 20 years

Note - maximum donor age acceptable for an individual recipient can be specified at time of registration.

Final discriminator

If required, the sum of the age differences between the two donors in each pair in a combination of matching pairs will act as a final discriminator between combinations.

Blood group matching

All blood group compatible matches will be considered with the exception that blood group O donors will only be matched with blood group O recipients. This will minimise the disadvantage to group O patients.