

**NHS BLOOD AND TRANSPLANT  
ORGAN DONATION AND TRANSPLANTATION DIRECTORATE**

**KIDNEY ADVISORY GROUP**

**KIDNEY OFFERING SCHEME TIER A SIMULATIONS**

**Lay summary:**

Kidneys are offered to patients through an algorithm that was updated in 2019. This algorithm prioritises patients who wait the longest, have antibodies to 100% of kidney donors or are difficult to match (Tier A recipients). The definition of how difficult a patient is to match was updated in 2024 (matchability score). Since then, some patients have been rapidly transplanted above other longer waiting or more disadvantaged patients. This paper explores the demographics of patients transplanted in Tier A since the changes to the matchability score and updates members on the steps being taken to potentially rebalance the offering scheme since these changes.

**BACKGROUND**

- 1 The current Kidney Offering Scheme was introduced on 11<sup>th</sup> September 2019 and comprises of two tiers of patients – Tier A and B. Tier A is the priority tier which includes the more difficult to match or long waiting patients. The current criteria for Tier A is patients who have a matchability score of 10, a cRF of 100% or have been waiting for 7 years or more. All other patients form Tier B.
- 2 A pool of 10,000 recent donors with HLA data recorded is used to calculate matchability score. Firstly, the number of blood group identical and HLA compatible (level 1 and 2 mismatches) matches each recipient on the active waiting list has with the pool of 10,000 deceased donors is calculated – see Appendix 1 for mismatch levels. This ‘number of matches’ with the donor pool is used to create deciles for each blood group and recipients are categorised into ten equally sized groups based on their number of matches with the donor pool. It is these deciles which are used to define the bandings for the matchability scores (1-10).
- 3 Following discussion and approval at KAG in 2023, the pool of 10,000 deceased donors was updated so that the matchability scores are calculated using a more recent pool of donors. This change was implemented in February 2024. Prior to this, the 10,000 donor pool had not been updated since the introduction of the scheme in 2019. As the scheme was successful in reducing the proportion of difficult to match recipients on the waiting list, the update to the matchability bands may result in less difficult to match patients receiving higher matchability scores than previously.
- 4 There has been some concern since the change was implemented that there has been an increase in the number of Tier A patients with a matchability score of 10 and a low cRF, who are receiving transplants very rapidly.
- 5 This paper summarises the characteristics of Tier A transplant recipients between 11 September 2019 and 20 February 2024, before the update to the donor pool was implemented. Data from this time period are compared to the characteristics of the more recent Tier A transplant recipients, between 20 February 2024 and 31 December 2025.

## DATA AND METHODS

- 6 Data were extracted from the UK Transplant Registry on all deceased donor kidney transplants in the UK between 11 September 2019 and 31 December 2025. The update to the 10,000 donor pool was implemented on 20 February 2024. This paper compares Tier A transplant activity pre and post this change.

## RESULTS

- 7 Table 1 shows the characteristics of Tier A transplant recipients in the period before and after the 10,000 donor pool update.

**Table 1:** Characteristics of Tier A transplant recipients before and after the update to the 10,000 donor pool.

Characteristic	Level	Sep 19 – Feb 24		Feb 24 – Dec 25	
		N	%	N	%
Number of transplants		911	100	1026	100
cRF group	0-9	161	18	220	21
	10-39	45	5	56	5
	40-59	26	3	68	7
	60-84	51	6	123	12
	85-94	68	7	148	14
	95-99	245	27	289	28
	100	315	35	122	12
Matchability score	1	20	2	15	1
	2	30	3	19	2
	3	26	3	19	2
	4	35	4	13	1
	5	45	5	10	1
	6	41	5	23	2
	7	47	5	20	2
	8	72	8	17	2
	9	198	22	39	4
	10	397	44	851	83
Waiting time points	<1 month	17	2	98	10
	1 - <6 months	19	2	87	8
	6 - <12 months	25	3	96	9
	1-3 yrs	149	16	285	28
	3-5 yrs	114	13	111	11
	5-7 yrs	62	7	77	8
	>=7 yrs	525	58	272	27
Active waiting time (days)	<1 month	212	23	393	38
	1 - <6 months	110	12	193	19
	6 - <12 months	78	9	112	11
	1-3 yrs	248	27	205	20
	3-5 yrs	114	13	57	6
	5-7 yrs	72	8	32	3
	>=7 yrs	77	8	34	3

- 8 In the 53 months prior to the donor pool update, there were 911 Tier A transplants. In the 22 months since the update, 1026 Tier A transplants have been performed.
- 9 83% of Tier A transplant recipients since the update are matchability score 10, compared to 44% prior to the change. Despite a higher proportion of Tier A transplant recipients being matchability score 10 since the update, a lower proportion of recipients are 100% sensitised, 12% compared to 35%.
- 10 There has been an increase in the proportion of Tier A recipients receiving a transplant with less than 30 waiting time points, from 2% prior to the change compared to 10% post change. When looking at active waiting time, the proportion of Tier A patients receiving a transplant with less than 30 active waiting days has also increased, from 23% prior to the change to 38% post change.
- 11 Table 2 shows the sensitisation of matchability score 10 transplant recipients, by period. Since February 2024 there has been an increase in the proportion of matchability score 10 transplant recipients who are not highly sensitised (cRF<85%), 38% compared to 12%. In particular, there has been an increase in the proportion with 0-9% sensitisation, 14% compared to 5%.

**Table 2:** Sensitisation of Tier A transplant recipients with a matchability score 10

Characteristic	Level	Sep 19 – Feb 24		Feb 24 – Dec 25	
		N	%	N	%
Number of transplants		397	100	851	100
cRF group	0-9	20	5	123	14
	10-39	8	2	40	5
	40-59	2	1	55	6
	60-84	16	4	109	13
	85-94	32	8	140	16
	95-99	135	34	262	31
	100	184	46	122	14

- 12 Table 3 shows the matchability score and cRF of Tier A transplant recipients with a total waiting time to transplant of less than 1 year, by period.

**Table 3:** Characteristics of Tier A transplant recipients who had a total waiting time to transplant of less than 1 year

Characteristic	Level	Sep 19 – Feb 24		Feb 24 – Dec 25	
		N	%	N	%
Number of transplants		61	100	281	100
cRF group	0-9	9	15	70	25
	10-39	4	7	19	7
	40-59	1	2	29	10
	60-84	6	10	46	16
	85-94	6	10	49	17
	95-99	22	36	57	20
	100	13	21	11	4
Matchability score	9	5	8	0	.
	10	56	92	281	100

- 13 Between 20 February 2024 and 31 December 2025, there have been 281 transplants to Tier A patients with less than 1 year of waiting time points. All of these patients had a matchability score of 10 and only 24% of these recipients had a cRF  $\geq$  95%.
- 14 This compares to 61 transplants to Tier A patients with less than 1 year of waiting time points between 11 September 2019 and 20 February 2024. 92% of these recipients had a matchability score of 10 and 57% had a cRF  $\geq$  95%.

## SUMMARY OF TIER A SIMULATIONS

- 15 At previous KAG meetings in 2025, there were discussions on potential changes to the Tier A definition within the kidney offering scheme that could be made to address this issue. Six simulations of Tier A were discussed and are outlined below:

Current scheme	Current Tier A definition: matchability score 10, cRF of 100% or a waiting time $>$ 7 years
S1	Removing matchability score 10 from the Tier A definition
S2a	Linking matchability score 10 with a cRF $\geq$ 85%
S2b	Linking matchability score 10 with a cRF $\geq$ 95%
S2c	Linking matchability score 10 with a cRF $\geq$ 98%
S3	Including level 3 HLA mismatches in the matchability score calculation and keeping the Tier A definition as per the current scheme.

- 16 Work on simulating these different scenarios has been ongoing since the last KAG meeting. However multiple challenges have arisen during this process, particularly around defining the best way to approach incorporating the changes made to the 10,000 donor pool in 2024 to these simulations and the impact this has on the ability to analyse the output from the simulations. In particular, challenges have arisen in ensuring the current algorithm simulation is reflective of the real data, given the change to the donor pool in 2024 and the short time period since this change.

- 17 Work is ongoing to address these issues and compare the output from the above simulations.

### **SUMMARY AND ACTIONS**

- 18 There have been a higher number of Tier A transplants in the 22-months since the update to the 10,000 donor pool and matchability score bandings, compared to the 53 months prior.
- 19 Since February 2024, there has been an increase in Tier A transplants which have occurred within a short time of listing. There has also been an increase in matchability score 10 recipients with a sensitisation <85%.
- 20 Simulation work is ongoing to address the issues identified to date. It is suggested that a fixed time working group is set up to continue taking this work forwards.

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## Appendix 1 – HLA Mismatch levels for HLA A, B and DR.

<b>Level</b>	<b>HLA mismatch summary</b>	<b>HLA mismatch combinations included</b>
1	000	000
2	[0 DR and 0/1 B] or [1 DR and 0 B]	100, 010, 110, 200, 210, 001, 101, 201
3	[0 DR and 2 B] or [1 DR and 1 B]	020, 120, 220, 011, 111, 211
4	[1 DR and 2 B] or [2 DR]	021, 121, 221, 002, 102, 202, 012, 112, 212, 022, 122, 222