NHS BLOOD AND TRANSPLANT

PAEDIATRIC SUB GROUP OF THE KIDNEY ADVISORY GROUP

AUDITING THE USE OF NON-FAVOURABLY HLA-MISMATCHED GRAFTS IN PAEDIATRIC PATIENTS

LAY SUMMARY:
This paper monitors the HLA-mismatch of kidney transplants for paediatric recipients in the past two financial years, identifying less favourable mismatches and compares the maximum HLA mismatch grade a recipient would accept at time of listing and time of reporting by centre.

There were 14 transplants with “non-favourable” matches in the past two financial years. Two were within a year of listing and are highlighted for centres to review. There is some variation in centre practice of acceptable mismatch grade at listing.

1 Children with end stage renal disease are often likely to require more than one kidney transplant throughout their lifetime. It is therefore particularly important to minimise their exposure to foreign HLA through transplantation. Since July 2001 it has been recommended that children who are defined as ‘easy to HLA match’ (i.e. having a matchability score of 5 or less) should not receive kidneys from non-favourably HLA-mismatched donors within their first year of listing. Non-favourable mismatch grades are defined as all grades excluding 000, 100, 010 and 110.

2 With the intention of moving away from the terminology “favourable” and “non-favourable” mismatch grades, the HLA mismatch levels have been presented alongside the match grades in table 1. For the purpose of this paper, HLA mismatch group Level 2 has been split into two subgroups, separating those with/without a DR mismatch.

Table A HLA mismatch groups

Level	HLA mismatch summary	HLA mismatch combinations included
1	000	000
2a	[0 DR and 0/1 B]	100, 010, 110, 200, 210
2b	[1 DR and 0 B]	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

3 **Table 1** lists all paediatric non-favourably HLA-mismatched kidney transplants performed in the UK between 1 April 2024 – 31 March 2026 for recipients with a matchability score of 5 or less. In 12 of the 14 cases, the child had waited for more than 365 days prior to transplant and therefore are compliant with the recommendation. In two cases the wait time was less than 365 days.

Table 1 **Non-favourably HLA-mismatched kidney transplants in paediatric patients 1 April 2024 to 31 March 2026**

Transplant date	Age (years) Recip	Donor	Match points	HLA mismatch level	Match grade	Waiting time	Time on dialysis	Donor type	Kidneys grafted	Compliant ?
July 2024	10	25	2	2b	101	613	466	DBD	Kidney	Yes
August 2024	17	16	2	3	111	298	295	DCD	Kidney	No
September 2024	16	31	4	3	211	2317	2315	DCD	Kidney	Yes
January 2025	17	29	4	2a	200	600	599	DCD	Kidney	Yes
January 2025	17	22	5	3	011	1479	1478	DBD	Kidney	Yes
February 2025	13	45	5	2a	210	806	805	DBD	Kidney	Yes
May 2025	7	32	4	2b	101	929	927	DBD	Kidney	Yes
July 2025	17	55	4	2a	210	886	886	DCD	Kidney	Yes
August 2025	16	32	3	2a	210	614	613	DCD	Kidney	Yes
August 2025	9	14	3	2a	200	972	972	DCD	Kidney	Yes
August 2025	16	31	1	2a	210	638	638	DBD	Kidney	Yes
August 2025	8	20	3	2b	101	776	768	DBD	Kidney	Yes
October 2025	13	31	2	2b	001	1200	1200	DBD	Kidney	Yes
February 2026	9	56	4	3	211	335	334	DBD	Kidney	No

4 For reference the following information has been extracted from the recipient registration form and details how the HLA mismatch grade is defined for patients listed on the kidney transplant waiting list:

For each of the A, B and DR loci, the greatest extent of mismatching that is acceptable for this recipient should be indicated. The asterisk character may be used to combine loci. The total box is the sum of the asterisks only and is therefore left blank when no asterisk characters are used.

Enter the greatest extent of mismatching acceptable for this recipient (enter 222 if no limit is to be set)

A	B	DR		Total (* only)
			=	

Mismatch example 1
Two mismatches are allowed at each of the A and B loci but no more than one mismatch is allowed at the DR locus. Note: no asterisk characters are used, so the total box is left blank.

A	B	DR		Total (* only)
2	**2**	**1**	=	

Mismatch example 2
Again, no more than one mismatch is allowed at the DR locus but in this example no more than three mismatches over the A&B loci combined will be acceptable. Note: the total box is to be completed only when the asterisk is used to combine loci.

A	B	DR		Total (* only)
*****	*****	**1**	=	**3**

5 **Table 2a and 2b** show a summary of mismatch grades for all patients aged under 18 on the kidney transplant waiting list as at 8 April 2026. **Table 2a** shows the mismatch grades of the patients at the time of registration, whereas **Table 2b** shows their current mismatch grades.

Table 2a **Mismatch grades at listing for all paediatric patients on the kidney transplant waiting list, as at 8 April 2026**

Transplant centre	Mismatch grade (at registration) ***3 N	***3 %	**02 N	**02 %	**13 N	**13 %	110 N	110 %	020 N	020 %	221 N	221 %	222 N	222 %	All N
Belfast	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
Newcastle	-	-	-	-	-	-	-	-	5	100	-	-	-	-	**5**
Leeds	1	8	7	7	-	-	3	25	-	-	-	-	1	8	**12**
Nottingham	-	-	21	21	-	-	-	-	-	-	-	-	-	-	**21**
Evelina	-	-	13	13	1	7	-	-	-	-	-	-	1	7	**15**
Bristol	-	-	-	-	-	-	3	75	-	-	-	-	1	25	**4**
Birmingham	-	-	23	23	-	-	-	-	-	-	1	4	-	-	**24**
Manchester	-	-	17	17	-	-	-	-	-	-	-	-	2	11	**19**
Glasgow	-	-	-	-	-	-	3	100	-	-	-	-	-	-	**3**
GOSH	-	-	-	-	5	31	11	69	-	-	-	-	-	-	**16**
Adult	-	-	-	-	-	-	1	33	-	-	-	-	2	67	**3**
All	**1**	**1**	**81**	**81**	**6**	**5**	**21**	**17**	**5**	**4**	**1**	**1**	**7**	**6**	**122**

Table 2b **Current mismatch grades for all paediatric patients on the kidney transplant waiting list, as at 8 April 2026**

Transplant centre	Mismatch grade (as at 8 April 2026) ***3 N	***3 %	**02 N	**02 %	**03 N	**03 %	**12 N	**12 %	**13 N	**13 %	110 N	110 %	111 N	111 %	120 N	120 %	111 N	111 %	211 N	211 %	221 N	221 %	222 N	222 %	All N
Belfast	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0**
Newcastle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	100	-	-	-	-	-	-	**5**
Leeds	4	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	8	1	8	6	50	**12**
Nottingham	-	-	12	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	43	-	-	**21**
Evelina	-	-	4	27	-	-	-	-	10	67	-	-	-	-	-	-	-	-	-	-	-	-	1	7	**15**
Bristol	-	-	-	-	-	-	-	-	-	-	2	50	1	25	-	-	-	-	-	-	1	25	-	-	**4**
Birmingham	1	4	4	17	10	42	7	29	1	4	-	-	-	-	-	-	-	-	-	-	1	4	-	-	**24**
Manchester	2	11	9	47	1	5	5	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	11	**19**
Glasgow	-	-	-	-	-	-	-	-	-	-	1	33	-	-	1	33	-	-	-	-	1	33	-	-	**3**
GOSH	-	-	-	-	-	-	-	-	10	63	5	31	-	-	-	-	-	-	-	-	-	-	1	6	**16**
Adult centres	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	100	**3**
All	**7**	**6**	**29**	**11**	**11**	**9**	**12**	**10**	**21**	**17**	**8**	**7**	**1**	**1**	**1**	**1**	**5**	**4**	**1**	**1**	**13**	**11**	**13**	**11**	**122**

SUMMARY

6 There has been 8 non-favourably HLA-mismatched kidney transplants in paediatric patients with matchability scores less than 6 in the 2025/26 financial year; one patient had a waiting time of 335 days at point of transplant whilst the seven had waited more than 365 days.

7 At registration, majority of patients were listed with a HLA-mismatch grade of **02 or 110. Over the course of patients' time on the list, HLA-mismatch grades were relaxed to also include more patients listed with **13, 221 and 222 mismatch grades.

Maria Jacobs
Statistics and Clinical Research **April 2026**