

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

**KIDNEY ADVISORY GROUP**

2019 NATIONAL KIDNEY OFFERING SCHEME

SUMMARY

- 1 On 11<sup>th</sup> September 2019 a new kidney offering scheme was introduced in the UK to reflect the changing donor pool which has led to a higher rate of offer declines and an increasing use of DCD donors. The scheme has been designed to meet several key objectives identified through reviewing the current Kidney Allocation Scheme introduced in April 2006, comparing alternative schemes across the world and looking at the philosophies in allocation, and understanding whether improvements can be made in histocompatibility and immunogenetics. Input was received from clinicians, patient groups and lay members across the UK.
- 2 All deceased donors are now offered using national rules through a new two-tier offering sequence
  - Tier A – Patients with a matchability score = 10\*, 100% cRF or ≥7 years waiting time
  - Tier B – All other patients

Tier A patients are prioritised by matchability score and waiting time and Tier B patients are prioritised by a point score including:

  - donor-recipient risk index combinations
  - Waiting time from earliest of dialysis or activation on the list
  - tissue match and age combined
  - location
  - matchability score
  - total mismatch
  - blood-group match
  - donor-recipient age match
- 3 As with all changes to allocation protocols, the national Kidney Offering Scheme will be carefully monitored for effectiveness and any unforeseen consequences. A full report will be carried out after 6 months and discussed at the Spring Kidney Advisory Group Meeting and an update also presented at the Renal Transplant Services Meeting next year. A 2-month review is presented for information in this paper.
- 4 Following the implementation of the new Kidney Offering Scheme, three issues were identified with the IT system which have since been resolved.
- 5 The first issue was identified the day after the scheme went live. There are 4 satellite centres in the UK that can register patients, three of which are linked with Guy's and one linked with St George's. In the IT system all four satellite centres were linked by mistake to Guy's. This was very quickly rectified by Friday 13<sup>th</sup> September 2019.
- 6 The second issue was identified as a problem in the way matchability score was calculated for patients that had a tissue type of HLA-DR6. The new scheme matches recipients at the split level for DR6 and although this was correctly being calculated in the matching algorithm

it was not correct in the matchability calculation. This issue was corrected on 23<sup>rd</sup> September 2019.

- 7 The final issue was related to the calculation of the recipient risk score for paediatric patients and young adults aged under 25 years. An error was identified in the equation which was calculating the recipient risk score for these patients as higher than expected. This issue was corrected on 18<sup>th</sup> October 2019.
- 8 A full review of each of the issues has been conducted and in all cases no patients were found to be disadvantaged in the new scheme.

**Lisa Mumford**  
**Statistics and Clinical Studies**

**11 November 2019**

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**2 MONTH REVIEW**

**11 SEPTEMBER 2019 TO 31 OCTOBER 2019**

**Lisa Mumford  
Statistics and Clinical Studies**

**11 November 2019**

**Key points:**

- 1 The number of kidney only transplants performed under the new scheme is 361. 226 have been from DBD donors and 135 have been from DCD donors.
- 2 There has been an increase in the proportion of highly sensitised patients receiving a transplant from 11% in the previous year to 27% during the first two months of the scheme. 4% of transplants were performed in 100% cRF patients compared with 2% in the previous year.
- 3 During the first two months of the scheme 58% of transplants were performed in difficult to match patients (37% in previous year) and 45% in BAME patients (32% in previous year)
- 4 The kidney waiting list has continued to fall since the introduction of the 2019 scheme. Most recipient characteristics have remained equivalent; however, there has been a reduction in the proportion of difficult to match patients on the waiting list from 33% at 1 September 2019 to 29% at 1 November 2019.
- 5 There has been an increase in the number of offers being declined due to recipient reasons in the first two months of the new scheme. The majority of these are cited as recipient did not need a transplant. This is mainly where recipients have received multiple offers of a kidney transplant having already accepted a previous offer.

## KIDNEY OFFERING SCHEME (2019)

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# TRANSPLANTATION

**Table 1.1 Overview of transplant activity**

Donors type:	1 Sep 2018 - 31 Aug 2019				11 Sep – 31 Oct 2019			
	DBD		DCD		DBD		DCD	
	N	%	N	%	N	%	N	%
Single kidney	1358	90	946	93	221	92	132	94
Dual kidney	14	1	23	2	4	2	3	2
En-bloc kidney	3	<1	4	<1	1	<1	0	0
SPK	105	7	47	5	11	5	5	4
SIK	9	1	0	0	0	0	0	0
Liver/Kidney	15	1	0	0	3	1	0	0
Other	2	<1	0	0	0	0	0	0
<b>TOTAL</b>	<b>1506</b>	<b>100</b>	<b>1020</b>	<b>100</b>	<b>240</b>	<b>100</b>	<b>140</b>	<b>100</b>

**Table 1.2 Overview of kidney only transplant activity**

Donors type:	1 Sep 2018 - 31 Aug 2019				11 Sep – 31 Oct 2019			
	DBD		DCD		DBD		DCD	
	N	%	N	%	N	%	N	%
Local	202	15	439	45	17	8	23	17
Regional	534	39	406	42	65	29	44	33
Rest of UK	639	46	128	13	144	64	68	50
<b>TOTAL</b>	<b>1375</b>	<b>100</b>	<b>973</b>	<b>100</b>	<b>226</b>	<b>100</b>	<b>135</b>	<b>100</b>

**Table 1.3 Centre specific kidney only activity**

Donors type:	1 Sep 2018 - 31 Aug 2019				11 Sep – 31 Oct 2019			
	Transplants				Transplants			
	DBD		DCD		DBD		DCD	
Edinburgh	52	4	26	3	4	2	3	2
Glasgow	63	5	38	4	16	7	8	6
Leeds	85	6	56	6	7	3	11	8
Liverpool	52	4	28	3	9	4	6	4
Manchester	97	7	66	7	16	7	14	10
Newcastle	51	4	22	2	5	2	5	4
<b>North Region</b>	<b>400</b>	<b>29</b>	<b>236</b>	<b>24</b>	<b>57</b>	<b>25</b>	<b>47</b>	<b>35</b>
Belfast	27	2	25	3	3	1	2	1
Birmingham	86	6	47	5	20	9	7	5
Cambridge	56	4	100	10	10	4	8	6
Coventry	23	2	16	2	1	0	2	1
Leicester	52	4	45	5	8	4	4	3
Nottingham	30	2	41	4	7	3	1	1
Sheffield	37	3	13	1	2	1	3	2
<b>Midlands Region</b>	<b>311</b>	<b>23</b>	<b>287</b>	<b>29</b>	<b>51</b>	<b>23</b>	<b>27</b>	<b>20</b>
Bristol	62	5	40	4	4	2	2	1
Cardiff	38	3	34	3	6	3	1	1
Oxford	68	5	74	8	13	6	16	12
Plymouth	21	2	21	2	5	2	1	1
Portsmouth	45	3	30	3	6	3	3	2
<b>South West Region</b>	<b>234</b>	<b>17</b>	<b>199</b>	<b>20</b>	<b>34</b>	<b>15</b>	<b>23</b>	<b>17</b>
GOSH	13	1	0	0	0	0	0	0
Guy's	102	7	78	8	17	8	10	7
The Royal Free	47	3	19	2	11	5	6	4
The Royal London	105	8	55	6	19	8	10	7
St George's	86	6	43	4	15	7	4	3
WLRTC	77	6	56	6	22	10	8	6
<b>London Region</b>	<b>430</b>	<b>31</b>	<b>251</b>	<b>26</b>	<b>84</b>	<b>37</b>	<b>38</b>	<b>28</b>
<b>TOTAL</b>	<b>1375</b>	<b>100</b>	<b>973</b>	<b>100</b>	<b>226</b>	<b>100</b>	<b>135</b>	<b>100</b>



Table 1.4		all patients – transplant demographics by donor type							
Factor	Level	1 Sep 2018 - 31 Aug 2019				11 Sep – 31 Oct 2019			
		DBD		DCD		DBD		DCD	
Number of transplants		1375		973		226		135	
		N	%	N	%	N	%	N	%
HLA mismatch	1	170	12	31	3	9	4	2	1
	2	496	36	259	27	34	15	23	17
	3	673	49	576	59	85	38	50	37
	4	36	3	107	11	97	43	60	44
Highly sensitised	Yes	190	14	73	8	71	31	25	19
Sensitisation At tx	0-9	855	62	675	69	93	41	77	57
	10-39	132	10	100	10	18	8	12	9
	40-59	84	6	59	6	17	8	11	8
	60-84	117	9	67	7	27	12	10	7
	85-94	70	5	30	3	28	12	9	7
	95-99	88	6	34	3	36	16	10	7
	100	29	2	8	1	7	3	6	4
Waiting time	<1 year	233	17	202	21	34	15	22	16
	1-3 years	513	37	489	50	86	38	59	44
	3-5 years	351	26	221	23	64	28	34	25
	5-7 years	138	10	42	4	29	13	12	9
	>=7 years	140	10	19	2	13	6	8	6
Matchability	Easy (1-3)	158	12	104	11	40	18	34	26
	Moderate (4-7)	666	49	538	55	49	22	29	22
	Difficult (8-10)	547	40	330	34	137	61	70	53
Age (years)	<18	62	4	2	0	0	0	1	1
	18-29	102	7	47	5	15	7	7	5
	30-39	165	12	78	8	26	12	17	13
	40-49	274	20	169	17	40	18	17	13
	50-59	375	27	281	29	68	30	43	32
	60-69	291	21	293	30	40	18	37	27
	>=70	106	8	103	11	37	16	13	10
Blood group	O	607	44	401	41	82	36	63	47
	A	505	37	398	41	96	42	50	37
	B	187	14	111	11	37	16	17	13
	AB	76	6	63	6	11	5	5	4
Graft number	1	1126	82	848	87	164	73	110	81
	2	202	15	111	11	53	23	22	16
	3	41	3	9	1	8	4	3	2
	4	6	0	5	1	1	0	0	0
Diabetic	Yes	156	11	125	13	25	11	19	14
Donor-recipient age difference	<15 years	884	64	715	73	158	70	106	79
	15-25 years	335	24	186	19	48	21	24	18
	>25 years	156	11	72	7	20	9	5	4

Gender	Male	860	63	638	66	120	53	82	61
Tier	A					51	23	29	21
	B					175	77	106	79
Ethnicity	White	892	66	676	70	123	55	73	55
	Asian	249	18	159	17	48	21	30	23
	Black	172	13	100	10	37	17	20	15
	Other	48	4	26	2	16	7	9	7
Risk Group	R1	396	29	213	22	52	23	31	23
	R2	294	21	251	26	54	24	31	23
	R3	351	26	291	30	55	24	38	28
	R4	334	24	218	22	65	29	35	26

<b>Table 1.5</b>		<b>All patients – transplant demographics</b>				
<b>Factor</b>	<b>Level</b>	1 Sep 2018 - 31 Aug 2019		11 Sep – 31 Oct 2019		Simulations 2 months
		<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	
Number of transplants		2348		361		
HLA mismatch	1	201	9	11	3	1
	2	755	32	57	16	5
	3	1249	53	135	38	25
	4	143	6	157	44	69
Highly sensitised	Yes	263	11	96	27	17
Sensitisation	0-9	1530	65	170	47	45
At tx	10-39	232	10	30	8	8
	40-59	143	6	28	8	8
	60-84	184	8	37	10	20
	85-94	100	4	37	10	12
	95-99	122	5	46	13	7
	100	37	2	13	4	0
Waiting time	<1 year	435	19	56	16	9
	1-3 years	1002	43	145	40	18
	3-5 years	572	24	98	27	25
	5-7 years	180	8	41	11	28
	>=7 years	159	7	21	6	19
Matchability	Easy (1-3)	262	11	74	21	28
	Moderate (4-7)	1204	51	78	22	45
	Difficult (8-10)	877	37	207	58	27
Age (years)	<18	64	3	1	0	0
	18-29	149	6	22	6	4
	30-39	243	10	43	12	13
	40-49	443	19	57	16	23
	50-59	656	28	111	31	31
	60-69	584	25	77	21	22
	>=70	209	9	50	14	8
Blood group	O	1008	43	145	40	35
	A	903	38	146	40	39
	B	298	13	54	15	19
	AB	139	6	16	4	8
Graft number	1	1974	84	274	76	
	2	313	13	75	21	
	3	50	2	11	3	
	4	11	0	1	0	
Diabetic	Yes	281	12	44	12	6
Donor-recipient age difference	<15 years	1599	68	264	73	53
	15-25 years	521	22	72	20	26
	>25 years	228	10	25	7	20
Gender	Male	1498	64	202	56	

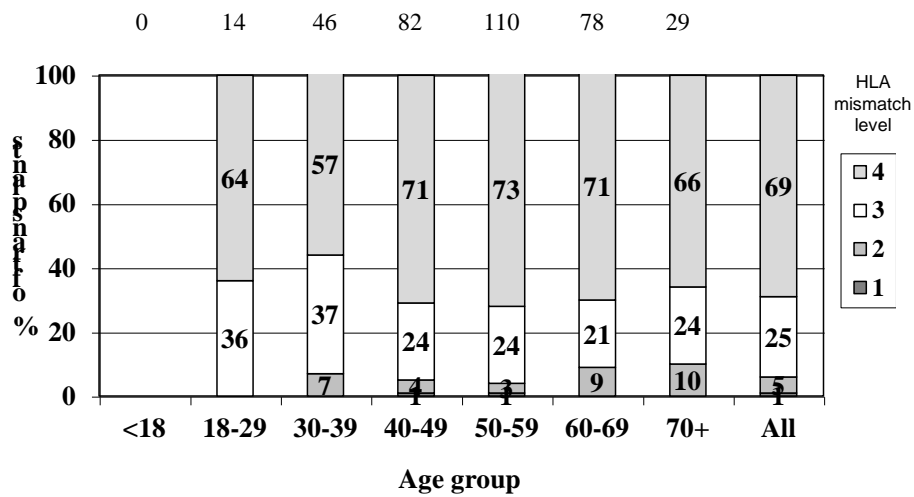
Tier	A			80	22	84
	B			281	78	16
Ethnicity	White	1568	68	196	55	64
	Asian	408	18	78	22	22
	Black	272	12	57	16	10
	Other	74	3	25	7	5
Risk Group	R1	609	26	83	23	3
	R2	545	23	85	24	9
	R3	642	27	93	26	23
	R4	552	24	100	28	65

**Table 1.6 Blood group matching, 11 Sep – 31 Oct 2019**

Donor blood group	Recipient blood group								TOTAL	
	O		A		B		AB		N	(%)
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
O	145	(84)	5	(3)	23	(13)			<b>173</b>	<b>(48)</b>
A			141	(96)			6	(8)	<b>147</b>	<b>(41)</b>
B					31	(100)			<b>31</b>	<b>(9)</b>
AB							10	(100)	<b>10</b>	<b>(3)</b>
<b>TOTAL</b>	<b>145</b>	<b>(40)</b>	<b>146</b>	<b>(40)</b>	<b>54</b>	<b>(15)</b>	<b>16</b>	<b>(4)</b>	<b>361</b>	<b>(100)</b>

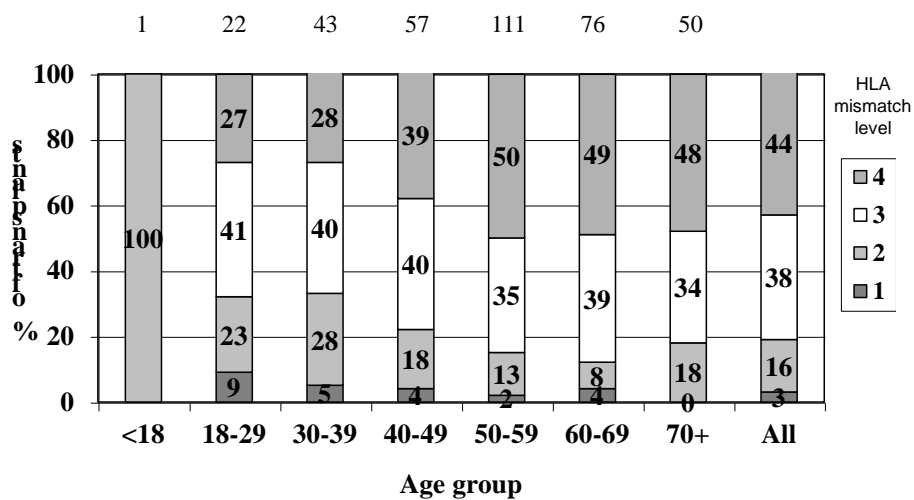
**Deceased donor kidney only transplants,  
11 September - 31 October 2019, by age group and HLA mismatch**

Fig 1.1a Age by mismatch of simulated transplants in 2019 scheme



Number of transplants in each age group are shown at the top of each column

Fig 1.1b Age by mismatch of actual transplants in 2019 scheme,  
11 September - 31 October 2019



Number of transplants in each age group are shown at the top of each column

# TRANSPLANT WAITING LIST

<b>Table 2.1 All patients – demographic summary of the transplant waiting list</b>					
Factor	Level	1 Sep 2019		1 Nov 2019	
		N	%	N	%
Number of patients		4923		4818	
Highly sensitised	Yes	1298	26	1191	25
Sensitisation	0-9	2509	51	2555	53
At listing	10-39	428	9	421	9
	40-59	288	6	280	6
	60-84	400	8	371	8
	85-94	292	6	252	5
	95-99	406	8	362	8
	100	600	12	577	12
Waiting time	<1 year	1581	32	1580	33
	1-3 years	2151	44	2094	44
	3-5 years	666	14	644	13
	5-7 years	239	5	217	5
	>=7 years	286	6	270	6
Matchability	Easy (1-3)	1348	28	1455	30
	Moderate (4-7)	1849	39	1966	41
	Difficult (8-10)	1580	33	1397	29
Age (years)	<18	94	2	101	2
	18-29	293	6	296	6
	30-39	545	11	536	11
	40-49	917	19	875	18
	50-59	1405	29	1398	29
	60-69	1202	24	1172	24
	>=70	467	9	440	9
Blood group	O	2646	54	2610	54
	A	1198	24	1135	24
	B	970	20	964	20
	AB	109	2	109	2
Diabetic	Yes	567	12	557	12
Gender	Male	2864	58	2843	59
Ethnicity	White	3028	62	2995	62
	Asian	972	20	958	20
	Black	613	12	568	12
	Other	310	6	297	6
Risk Group	R1	1640	34	1738	36
	R2	1315	28	1329	28
	R3	1011	21	1019	21
	R4	810	17	732	15

# **OFFERING, RETRIEVAL AND ORGAN USE**



**Table 3.1 Summary of kidney offers for named patients made through the 2019 scheme**

	Total offers		Offer accepted, used		Offer accepted, not used in intended patient		Offer declined	
	N	%	N	%	N	%	N	%
Edinburgh	31	3	8	2	11	4	12	2
Glasgow	72	6	29	9	15	6	28	5
Leeds	36	3	17	5	6	2	13	2
Liverpool	47	4	11	3	9	4	27	5
Manchester	68	6	23	7	17	7	28	5
Newcastle	48	4	15	5	9	4	24	4
<b>North Region</b>	<b>302</b>	<b>26</b>	<b>103</b>	<b>31</b>	<b>67</b>	<b>26</b>	<b>132</b>	<b>24</b>
Belfast	11	1	6	2	2	1	3	1
Birmingham	126	11	29	9	26	10	71	13
Cambridge	25	2	9	3	8	3	8	1
Coventry	15	1	3	1	6	2	6	1
Leicester	35	3	12	4	8	3	15	3
Nottingham	42	4	9	3	5	2	28	5
Sheffield	30	3	7	2	9	4	14	3
<b>Midlands Region</b>	<b>284</b>	<b>25</b>	<b>75</b>	<b>23</b>	<b>64</b>	<b>25</b>	<b>145</b>	<b>26</b>
Bristol	24	2	7	2	2	1	15	3
Cardiff	25	2	9	3	3	1	13	2
Oxford	37	3	13	4	13	5	11	2
Plymouth	10	1	5	2	0	0	5	1
Portsmouth	30	3	9	3	12	5	9	2
<b>South West Region</b>	<b>126</b>	<b>11</b>	<b>43</b>	<b>13</b>	<b>30</b>	<b>12</b>	<b>53</b>	<b>10</b>
GOSH	2	0	0	0	1	0	1	0
Guy's	71	6	17	5	17	7	37	7
St George's	70	6	19	6	18	7	33	6
The Royal Free	59	5	17	5	11	4	31	6
The Royal London	103	9	31	9	24	9	48	9
WLRTC	125	11	28	8	23	9	74	13
<b>London Region</b>	<b>430</b>	<b>38</b>	<b>112</b>	<b>34</b>	<b>94</b>	<b>37</b>	<b>224</b>	<b>40</b>
<b>TOTAL</b>	<b>1142</b>	<b>100</b>	<b>333</b>	<b>100</b>	<b>255</b>	<b>100</b>	<b>554</b>	<b>100</b>

<b>Table 3.2 All patients – Reason for decline of kidney offer, 11 September – 31 October 2019, by centre</b>										
Reason related to -										
	Donor		Recipient		Organ		Centre		Total declined offers	
	N	%	N	%	N	%	N	%	N	% of all offers
Belfast	2	67	1	33	0	0	0	0	3	1
Birmingham	30	42	24	34	3	4	1	1	71	13
Bristol	4	27	7	47	2	13	0	0	15	3
Cambridge	0	0	5	63	1	13	0	0	8	1
Cardiff	10	77	2	15	0	0	0	0	13	2
Coventry	2	33	1	17	0	0	0	0	6	1
Edinburgh	8	67	2	17	0	0	0	0	12	2
GOSH	1	100	0	0	0	0	0	0	1	0
Glasgow	8	29	10	36	2	7	0	0	28	5
Guy's	17	46	10	27	3	8	0	0	37	7
Leeds	8	62	2	15	0	0	0	0	13	2
Leicester	10	67	3	20	1	7	0	0	15	3
Liverpool	7	26	11	41	1	4	1	4	27	5
Manchester	12	43	9	32	1	4	1	4	28	5
Newcastle	12	50	7	29	2	8	0	0	24	4
Nottingham	20	71	6	21	0	0	0	0	28	5
Oxford	0	0	5	45	1	9	2	18	11	2
Plymouth	4	80	0	0	0	0	0	0	5	1
Portsmouth	5	56	1	11	0	0	0	0	9	2
Royal Free	17	55	9	29	0	0	0	0	31	6
Royal London	13	27	24	50	2	4	0	0	48	9
Sheffield	9	64	3	21	1	7	0	0	14	3
St George's	16	48	12	36	2	6	0	0	33	6
WLRTC	29	39	28	38	2	3	1	1	74	13
<b>TOTAL</b>	<b>244</b>	<b>44</b>	<b>182</b>	<b>33</b>	<b>24</b>	<b>4</b>	<b>6</b>	<b>1</b>	<b>554</b>	<b>100</b>

<b>Table 3.3</b>		<b>All patients - reasons for decline of named kidney offers through the 2019 scheme and between 1 Sep 18 – 31 Aug 19</b>			
<b>Reason</b>	<b>11 Sep – 31 Oct 2019</b>		<b>1 Sep 2018 – 31 Aug 2019</b>		
	<b>No. of declined offers</b>	<b>% of all declined offers</b>	<b>No. of declined offers</b>	<b>% of all declined offers</b>	
Donor unsuitable - cause of death	1	0	2	0	
Donor unsuitable - age	44	8	373	17	
Donor unsuitable - past history	124	22	840	38	
Donor unsuitable - size	5	1	14	1	
Donor unsuitable - virology	1	0	5	0	
Poor function	66	12	316	14	
Infection	2	0	8	0	
Tumour	1	0	3	0	
<b>All donor reasons</b>	<b>244</b>	<b>44</b>	<b>1561</b>	<b>71</b>	
Recipient died	0	0	1	0	
Recipient unfit	26	5	78	4	
No suitable recipient	1	0	3	0	
Recipient unavailable	4	1	22	1	
Recipient refused	13	2	72	3	
Recipient did not need transplant	120	22	136	6	
Better match required	10	2	7	0	
X match positive	3	1	7	0	
HLA/ABO type	5	1	15	1	
<b>All recipient reasons</b>	<b>182</b>	<b>33</b>	<b>341</b>	<b>15</b>	
Anatomical	6	1	24	1	
Poor perfusion	4	1	4	0	
Ischaemia time too long - cold	11	2	30	1	
Organ damaged	3	1	11	0	
<b>All organ reasons</b>	<b>24</b>	<b>4</b>	<b>69</b>	<b>3</b>	
Centre criteria not achieved	0	0	1	0	
Centre already retrieving/transplanting	2	0	24	1	
No beds	2	0	8	0	
No staff	1	0	1	0	
No theatre	0	0	1	0	
Other centre	1	0	3	0	
<b>All centre reasons</b>	<b>6</b>	<b>1</b>	<b>38</b>	<b>2</b>	
<b>Other</b>	<b>98</b>	<b>18</b>	<b>197</b>	<b>9</b>	
<b>TOTAL</b>	<b>554</b>	<b>100</b>	<b>2206</b>	<b>100</b>	