

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

KIDNEY ADVISORY GROUP

**2019 NATIONAL KIDNEY OFFERING SCHEME
THREE-YEAR ACTIVITY REVIEW**

SUMMARY

- 1 On 11th September 2019 a new kidney offering scheme was introduced in the UK to reflect the changing donor pool which had led to a higher rate of offer declines and an increasing use of DCD donors. The scheme was designed to meet several key objectives identified through reviewing the past Kidney Allocation Scheme introduced in April 2006, comparing alternative schemes across the world, looking at the philosophies in allocation, and understanding whether improvements could 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 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.
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. Activity over the first 3 years is presented here. The SARS coronavirus 2 (SARS-CoV-2) pandemic led to centre closures from March 2020. In response to the centre closures, the offering scheme was amended between 30 March and 16 June 2020 so that offers to Tier B patients would be centre choice. Named patient-based offering remained in Tier A. Data from this period is excluded from the analysis.

Key points:

- 1 There were 5139 kidney-only transplants performed during the first three years of the new scheme. Of these, 3226 were from DBD donors and 1913 from DCD donors.
- 2 There has been an increase in the proportion of highly sensitised recipients receiving any type of kidney transplant from 12% in the previous time period, to 19% during the first three years of the 2019 scheme. 4% of transplants were received by recipients with 100% cRF compared with 2% in a comparable period from the previous scheme.
- 3 During the first three years of the scheme, difficult to match recipients received 31% of transplants (37% in the previous three years), and 35% of transplants were to recipients in Black, Asian and Mixed Race and Minority Ethnic backgrounds (30% in previous three years)
- 4 On the transplant list, most recipient characteristics have remained unchanged since the introduction of the 2019 scheme; 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 21% at 1 December 2022.
- 5 Since the introduction of the new scheme there has been an increase in the number of offers being declined due to recipient reasons, 19% previously compared with 22% more recently. 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.
- 6 There was no statistical difference found in 3-month ($p=0.16$) or 1-year ($p=0.19$) patient survival following deceased donor kidney only transplant in the first three years of the scheme, compared with a comparable time period in the previous scheme.
- 7 The 3-month graft survival following deceased donor kidney only transplant was 97.4% in the first three years of the scheme compared to 96% in a similar three-year period of the previous scheme, this difference was statistically significant ($p=0.0002$).
- 8 There were statistically significant differences in the 1-year graft survival ($p=0.0015$) following deceased donor kidney only transplant in the first three years of the scheme compared with the most recent three years of the previous scheme.

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TRANSPLANTATION

Table 1.1 – Overview of transplant activity

Donors type:	11 Sep 2016 - 10 Sep 2019*				11 Sep 2019 – 10 Sep 2022*			
	DBD		DCD		DBD		DCD	
	N	%	N	%	N	%	N	%
Kidney	3534	90	2193	92	3192	91	1878	94
En-bloc kidney	12	0	18	1	7	0	10	0
Double kidney	18	0	44	2	27	1	25	1
Liver & kidney	44	1	.	.	21	1	.	.
Kidney & pancreas	320	8	127	5	236	7	83	4
Kidney & pancreas islets	8	0	3	0	8	0	5	0
TOTAL	3936	100	2384	100	3491	100	2001	100

*excluding 31 March – 15 June (for 2019 and 2020)

Table 1.2 - Overview of kidney only transplant activity

Donors type:	11 Sep 2016 - 10 Sep 2019*				11 Sep 2019 – 10 Sep 2022*			
	DBD		DCD		DBD		DCD	
	N	%	N	%	N	%	N	%
Local	564	15.8	1236	54.8	259	8.0	350	18.3
Regional	1430	40.1	965	42.8	953	29.5	735	38.4
Rest of UK	1570	44.1	53	2.4	2014	62.4	828	43.3
TOTAL	3564	100	2254	100	3226	100	1913	100

*excluding 31 March – 15 June (for 2019 and 2020)

Table 1.3 - Centre specific kidney only activity

Donors type:	11 Sep 2016 - 10 Sep 2019*				11 Sep 2019 – 10 Sep 2022*			
	DBD		DCD		DBD		DCD	
Edinburgh	133	4	73	3	118	4	46	2
Glasgow	193	5	121	5	154	5	129	7
Leeds	211	6	148	7	171	5	129	7
Liverpool	116	3	79	4	113	4	41	2
Manchester	274	8	193	9	268	8	182	10
Newcastle	126	4	69	3	153	5	72	4
North Region	1053	30	683	30	977	30	599	31
Belfast	84	2	68	3	46	1	28	1
Birmingham	267	7	129	6	240	7	111	6
Cambridge	119	3	180	8	85	3	92	5
Coventry	77	2	42	2	48	1	38	2
Leicester	115	3	70	3	94	3	79	4
Nottingham	105	3	114	5	85	3	57	3
Sheffield	92	3	57	3	75	2	57	3
Midlands Region	859	24	660	29	673	21	462	24
Bristol	176	5	115	5	143	4	91	5
Cardiff	68	2	82	4	82	3	41	2
Oxford	143	4	119	5	142	4	114	6
Plymouth	66	2	56	2	78	2	30	2
Portsmouth	129	4	86	4	88	3	69	4
South West Region	582	16	458	20	533	17	345	18
GOSH	28	1	0	0	18	1	5	0
Guy's	213	6	72	3	183	6	87	5
The Royal Free	150	4	57	3	153	5	80	4
The Royal London	240	7	88	4	205	6	88	5
St George's	193	5	105	5	184	6	85	4
WLRTC	246	7	131	6	300	9	162	8
London Region	1070	30	453	20	1043	32	507	27
TOTAL	3564		2254		3226		1913	

*excluding 31 March – 15 June (for 2019 and 2020)

Table 1.4 - All recipients – transplant demographics by donor type

Factor	Level	11 Sep 2016 - 10 Sep 2019*				11 Sep 2019 – 10 Sep 2022*			
		DBD		DCD		DBD		DCD	
		N	%	N	%	N	%	N	%
Number of transplants		3564		2254		3226		1913	
HLA mismatch	1	481	13	108	5	101	3	43	2
	2	1463	41	632	28	821	25	443	23
	3	1579	44	1325	59	1562	48	993	52
	4	41	1	189	8	742	23	434	23
Highly sensitised	Yes	563	16	163	7	620	19	357	19
Sensitisation At tx	0-9	2142	60	1578	70	1804	56	1103	58
	10-39	351	10	216	10	306	9	180	9
	40-59	223	6	147	7	211	7	124	6
	60-84	297	8	152	7	287	9	153	8
	85-94	193	5	73	3	210	7	112	6
	95-99	272	8	73	3	290	9	147	8
	100	86	2	15	1	118	4	94	5
Waiting time	<1 year	796	22	654	29	387	12	292	15
	1-3 years	1283	36	1000	45	1277	40	797	42
	3-5 years	805	23	470	21	1008	31	570	30
	5-7 years	328	9	80	4	354	11	148	8
	>=7 years	352	10	50	2	200	6	106	6
Matchability	Easy (1-3)	402	11	258	11	1030	32	649	34
	Moderate (4-7)	1743	49	1241	55	1158	36	680	36
	Difficult (8-10)	1408	40	751	33	1033	32	576	30
	Missing	11	0	4	0	5	0	8	0
Age (years)	<18	154	4	8	0	97	3	37	2
	18-29	308	9	106	5	292	9	118	6
	30-39	554	16	196	9	427	13	206	11
	40-49	750	21	397	18	513	16	280	15
	50-59	898	25	627	28	835	26	555	29
	60-69	683	19	679	30	732	23	513	27
	>=70	217	6	241	11	330	10	204	11
Blood group	O	1602	45	916	41	1346	42	790	41
	A	1295	36	947	42	1279	40	795	42
	B	465	13	269	12	439	14	236	12
	AB	202	6	122	5	162	5	92	5
Graft number	1	2904	81	2007	89	2592	80	1557	81
	2	544	15	219	10	540	17	303	16
	3	102	3	22	1	81	3	44	2
	4	13	0	5	0	11	0	6	0
	5	1	0	1	0	2	0	3	0
Diabetic	Yes	355	10	281	12	434	13	260	14
Donor-recipient age difference	<15 years	2276	64	1671	74	2412	75	1471	77
	15-25 years	868	24	420	19	623	19	336	18

	>25 years	420	12	163	7	191	6	106	6
Sex	Male	2195	62	1436	64	1907	59	1178	62
	Female	1365	38	818	36	1319	41	735	38
	Not reported	4	0						
Tier	A					359	11	215	11
	B					2867	89	1698	89
Ethnicity	White	2349	66	1622	72	2001	62	1249	65
	Asian	650	18	354	16	594	18	339	18
	Black	371	10	173	8	410	13	204	11
	Other	149	4	77	3	171	5	94	5
	Not reported	45	1	28	1	50	2	27	1
Risk Group	R1	1197	34	550	24	802	25	405	21
	R2	810	23	601	27	719	22	437	23
	R3	844	24	616	27	851	26	549	29
	R4	713	20	487	22	854	26	522	27
*excluding 31 March – 15 June (for 2019 and 2020)									

Table 1.5 - All recipients – transplant demographics

Factor	Level	11 Sep 2016 - 10 Sep 2019*		11 Sep 2019 – 10 Sep 2022*	
		N	%	N	%
Number of transplants		5818		5139	
HLA mismatch	1	589	10	144	3
	2	2095	36	1264	25
	3	2904	50	2555	50
	4	230	4	1176	23
Highly sensitised	Yes	726	12	977	19
Sensitisation	0-9	3720	64	2907	57
At tx	10-39	567	10	486	9
	40-59	370	6	335	7
	60-84	449	8	440	9
	85-94	266	5	322	6
	95-99	345	6	437	9
	100	101	2	212	4
Waiting time	<1 year	1450	25	679	13
	1-3 years	2283	39	2074	40
	3-5 years	1275	22	1578	31
	5-7 years	408	7	502	10
	>=7 years	402	7	306	6
Matchability	Easy (1-3)	660	11	1679	33
	Moderate (4-7)	2984	51	1838	36
	Difficult (8-10)	2159	37	1609	31
	Missing	15	0	13	0
Age (years)	<18	162	3	134	3
	18-29	414	7	410	8
	30-39	750	13	633	12
	40-49	1147	20	793	15
	50-59	1525	26	1390	27
	60-69	1362	23	1245	24
	>=70	458	8	534	10
Blood group	O	2518	43	2136	42
	A	2242	39	2074	40
	B	734	13	675	13
	AB	324	6	254	5
Graft number	1	4911	84	4149	81
	2	763	13	843	16
	3	124	2	125	2
	4	18	0	17	0
	5	2	0	5	0
Diabetic	Yes	636	11	694	14
Donor-recipient age difference	<15 years	3947	68	3883	76
	15-25 years	1288	22	959	19

	>25 years	583	10	297	6
Sex	Male	3631	62	3085	60
	Female	2183	38	2054	40
	Not reported	4	0		
Tier	A			574	11
	B			4565	89
Ethnicity	White	3971	68	3250	63
	Asian	1004	17	933	18
	Black	544	9	614	12
	Other	226	4	265	5
	Not reported	73	1	77	1
Risk Group	R1	1747	30	1207	23
	R2	1411	24	1156	23
	R3	1460	25	1400	27
	R4	1200	21	1376	27
*excluding 31 March – 15 June (for 2019 and 2020)					

Table 1.6 - Blood group matching, 11 Sep 2019 – 10 Sep 2022*

Donor blood group	O		Recipient blood group				AB		TOTAL	
	N	%	N	%	N	%	N	%	N	%
O	2136	90	80	3	151	6	4	0	2371	(46)
A	.	.	1994	95	.	.	109	5	2103	(41)
B	.	.	.	.	524	100	.	.	524	(10)
AB	.	.	.	.	.	.	141	100	141	(2)
TOTAL	2136	42	2074	40	675	13	254	5	5139	(100)
*excluding 31 March 2020 – 15 June 2020										

TRANSPLANT WAITING LIST

Table 2.1 - All patients – demographic summary of the transplant waiting list

Factor	Level	1 Sep 2019		1 Dec 2022	
		N	%	N	%
Number of patients		4923		5240	
Highly sensitised	Yes	1298	26	951	18
Sensitisation	0-9	2509	51	3082	59
At listing	10-39	428	9	466	9
	40-59	288	6	347	7
	60-84	400	8	382	7
	85-94	292	6	202	4
	95-99	406	8	319	6
	100	600	12	430	8
	Missing	-	-	12	0
Waiting time	<1 year	1581	32	1672	32
	1-3 years	2151	44	2305	44
	3-5 years	666	14	866	17
	5-7 years	239	5	157	3
	>=7 years	286	6	229	4
Matchability	Easy (1-3)	1342	27	1788	34
	Moderate (4-7)	1847	39	2368	45
	Difficult (8-10)	1612	33	1084	21
	Missing	122	2	-	-
Age (years)	<18	94	2	113	2
	18-29	293	6	305	6
	30-39	545	11	607	12
	40-49	917	19	1056	20
	50-59	1405	29	1549	30
	60-69	1202	24	1233	24
	>=70	467	9	377	7
Blood group	O	2646	54	2819	54
	A	1198	24	1277	24
	B	970	20	1018	19
	AB	109	2	126	2
Diabetic	Yes	567	12	647	12
Sex	Male	2864	58	3160	60
	Female	2051	42	2065	39
Ethnicity	White	3028	62	3171	61
	Asian	972	20	1035	20
	Black	613	12	645	12
	Other	310	6	389	7
Risk Group	R1	1251	25	1954	37
	R2	1371	28	1496	29
	R3	1125	23	1071	20
	R4	1063	22	719	14
	Missing	113	2	-	-

OFFERING, RETRIEVAL AND ORGAN USE

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

	Total offers		Offer accepted, used		Offer accepted, not used in intended recipient		Offer declined	
	N	% of all offers	N	%	N	%	N	%
Edinburgh	766	5	155	3	117	4	494	6
Glasgow	781	5	244	5	159	5	378	4
Leeds	868	5	283	6	142	5	443	5
Liverpool	625	4	134	3	127	4	364	4
Manchester	1515	9	401	9	319	10	795	9
Newcastle	622	4	208	4	97	3	317	4
North Region	5177	32	1425	31	961	31	2791	33
Belfast	214	1	66	1	25	1	123	1
Birmingham	1566	10	349	7	290	9	927	11
Cambridge	386	2	144	3	75	2	167	2
Coventry	390	2	107	2	90	3	193	2
Leicester	708	4	154	3	119	4	435	5
Nottingham	609	4	127	3	107	3	375	4
Sheffield	465	3	128	3	113	4	224	3
Midlands Region	4338	27	1075	23	819	27	2444	29
Bristol	525	3	212	5	77	3	236	3
Cardiff	463	3	119	3	93	3	251	3
Oxford	502	3	191	4	135	4	176	2
Plymouth	250	2	99	2	28	1	123	1
Portsmouth	433	3	132	3	95	3	206	2
South West Region	2173	13	753	16	428	14	992	12
GOSH	40	0	24	1	8	0	8	0
Guy's	807	5	259	6	144	5	404	5
St George's	854	5	238	5	175	6	441	5
The Royal Free	643	4	216	5	104	3	323	4
The Royal London	930	6	267	6	174	6	489	6
WLRTC	1293	8	398	9	251	8	644	8
London Region	4567	28	1402	30	856	28	2309	27
TOTAL	16255		4655		3064		8536	

*excluding 31 March 2020 – 15 June 2020

Table 3.2 - Reason for decline of kidney offer, 11 September 2019 – 10 September 2022*, by centre

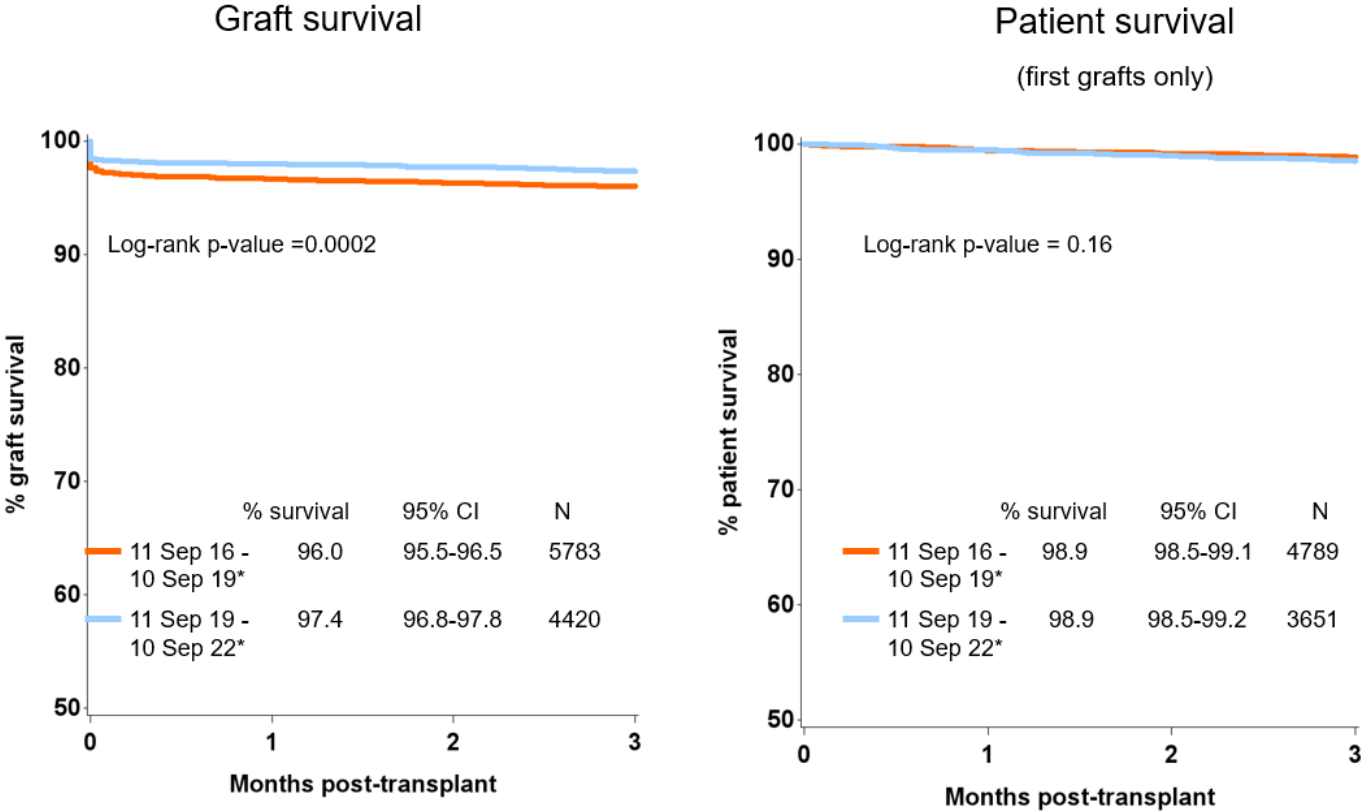
	Reason related to -									
	Centre		Donor		Organ		Recipient		Total declined offers	
	N	%	N	%	N	%	N	%	N	% of all offers
Belfast	32	6	18	0	1	0	15	1	66	1
Birmingham	94	19	484	11	25	8	135	7	738	10
Bristol	16	3	97	2	14	4	65	4	192	3
Cambridge	3	1	70	2	4	1	56	3	133	2
Cardiff	10	2	177	4	12	4	27	1	226	3
Coventry	18	4	98	2	5	2	35	2	156	2
Edinburgh	13	3	384	9	16	5	36	2	449	6
GOSH	.	.	4	0	1	0	.	.	5	0
Glasgow	6	1	182	4	12	4	111	6	311	4
Guy's	14	3	193	4	14	4	131	7	352	5
Leeds	16	3	288	6	24	8	62	3	390	5
Leicester	23	5	276	6	19	6	76	4	394	6
Liverpool	4	1	170	4	11	3	104	6	289	4
Manchester	137	27	266	6	34	11	155	8	592	8
Newcastle	10	2	205	5	15	5	55	3	285	4
Nottingham	5	1	251	6	18	6	63	3	337	5
Oxford	23	5	72	2	9	3	38	2	142	2
Plymouth	.	.	84	2	3	1	21	1	108	2
Portsmouth	2	0	140	3	4	1	40	2	186	3
Sheffield	26	5	116	3	16	5	31	2	189	3
St George's	9	2	258	6	16	5	100	5	383	5
The Royal Free	7	1	175	4	9	3	99	5	290	4
The Royal London	23	5	171	4	13	4	186	10	393	5
WLRTC	14	3	318	7	24		198	11	554	8
TOTAL	505		4497		319		1839		7160	
*excluding 31 March 2020 – 15 June 2020										

Table 3.3 - Reasons for decline of named kidney offers

Reason	11 Sep 2016 – 10 Sep 2019		11 Sep 2019 – 10 Sep 2022*	
	No. of declined offers	% of all declined offers	No. of declined offers	% of all declined offers
Clinical	1	0	3	0
Donor unsuitable - cause of death	30	0	26	0
Donor unsuitable - age	1001	15	554	6
Donor unsuitable - past history	2278	35	2828	33
Donor unsuitable - size	52	1	62	1
Donor unsuitable - virology	160	2	24	0
Donor unsuitable – medical reasons	.	.	3	0
Poor function	870	13	885	10
Medication	.	.	.	.
Infection	70	1	98	1
Tumour	13	0	12	0
Other disease	2	0	2	0
All donor reasons	4477	69	4497	53
Recipient died	6	0	4	0
Recipient unfit	313	5	345	4
No suitable recipient	14	0	4	0
Recipient unavailable	108	2	90	1
Recipient refused	301	5	300	4
Recipient did not need transplant	334	5	809	9
Better match required	33	1	226	3
X match positive	57	1	22	0
HLA/ABO type	47	1	38	0
Other recipient reason	.	.	1	0
All recipient reasons	1213	19	1839	22
Anatomical	84	1	135	2
Poor perfusion	19	0	52	1
Contamination	.	.	2	0
Ischaemia time too long - cold	63	1	97	1
Organ damaged	20	0	31	0
Organ unsuitable	.	.	2	0
All organ reasons	186	3	319	4
Centre criteria not achieved	3	0	2	0
Centre already retrieving/transplanting	66	1	232	3
No beds	16	0	159	2
No time	2	0	7	0
No staff	1	0	4	0
No theatre	1	0	46	1
Distance	.	.	1	0
Other centre reason	5	0	54	1
All centre reasons	94	1	505	6
Other	497	8	1376	16
TOTAL	6467		8536	
*excluding 31 March – 15 June (for 2019 and 2020)				

TRANSPLANT OUTCOME

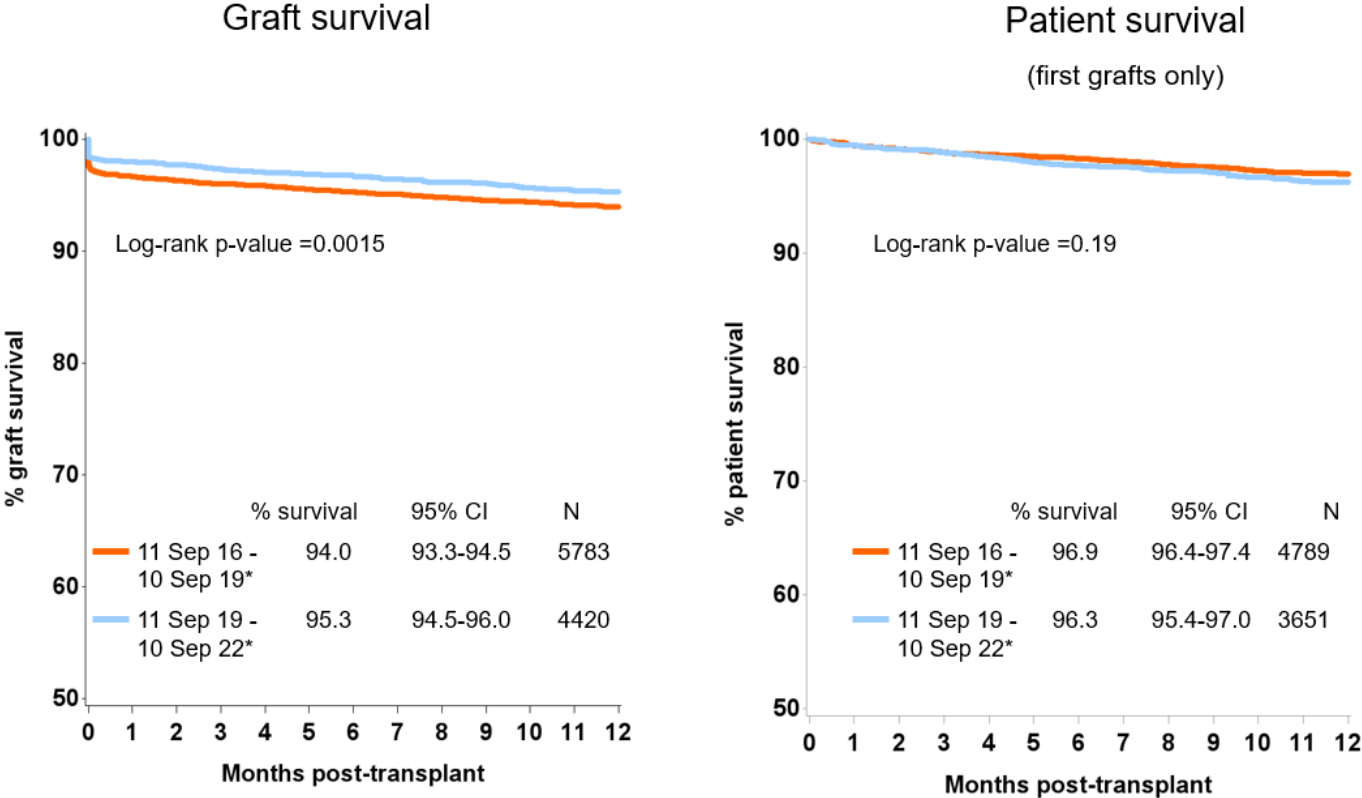
Figure 4.1 - 3-month graft and patient survival after first deceased donor kidney only transplant in the UK



*excluding 31 March – 15 June (for 2019 and 2020)

**Deaths within 28 days of a positive test for SARS-CoV-2 are removed from analysis of patient survival

Figure 4.2 – 1-year graft and patient survival after first deceased donor kidney only transplant in the UK



*excluding 31 March – 15 June (for 2019 and 2020)

**Deaths within 28 days of a positive test for SARS-CoV-2 are removed from analysis of patient survival