NHS BLOOD AND TRANSPLANT

NATIONAL LIVER OFFERING SCHEME

FORTY-EIGHT MONTH REVIEW

SUMMARY

1. BACKGROUND

1.1. The new National Liver Offering Scheme (NLOS) was introduced on 20 March 2018 for donation after brain death (DBD) donors and mainly for liver offers to named patients. Offering of livers from donors after circulatory death (DCD) has not changed and remains on a centre-specific basis rather than on a patient specific basis. This report examines the impact of the new DBD scheme on patients on the waiting list, livers offered and transplant activity.

1.2. It should be noted that this report may not include all data due to delays in reporting.

1.3. Updated Kidney Offering Scheme and Pancreas Offering Scheme were introduced on 11 September 2019. Unfortunately, an unexpected and untested change was introduced to the NLOS at the same time which affected the number of patients that appeared as named elective patients on matching run. This change was removed on the 19 September 2019 and this report includes this period in all analyses apart from in the flow chart in **Figure 9B**.

1.4. Due to the impact of COVID-19, it was agreed by OTDT Medical team and the Liver Advisory Group chair on 27 March 2020 that liver centres should consider an elective named patient offer for any patient when offered and not just the named patient. It was also agreed that a kidney would not be held back if a liver/kidney patient was in the top 3 named elective patients. There were no changes to the DCD offering scheme and the changes to the DBD offering scheme ceased on 9 July 2020 when named patient offering recommenced. This period is excluded from part of the liver offering section.

2. DATA AND METHODS

2.1. **Table S1** shows the time period and inclusion and exclusion criteria for the aspects of the offering scheme examined in this report. NHS Group 2 registrations and transplants were excluded throughout the report along with registrations, offers and transplants for intestinal patients not requiring a liver. Super-urgent and elective registrations were included in all aspects apart from the transplant list activity section as were adult and paediatric registrations and transplants. All year time periods are 20 March to 19 March.

Table S1	**Inclusion and exclusion criteria for the aspects of NLOS examined in this report**		
Section	**Time period**	**Inclusions**	**Exclusions**
Registration activity	• 20 March 2017 to 19 March 2018 (*Year prior*, N=1169) • 20 March 2018 to 19 March 2022 (*forty-eight months post*, N=4648)	• New active/suspended registrations	• Dublin registrations • NHS Group 2 registrations
One and three month post-registration outcome	• 20 December 2016 to 19 December 2017 (*Year prior*, N=945) • 20 March 2018 to 19 December 2021 (*forty-five months post*, N=3582)	• Active and suspended • Adult elective liver and liver/kidney registrations	• Dublin registrations • NHS Group 2 registrations • Intestinal registrations
Six months post-registration outcome	• 20 September 2016 to 19 September 2017 (*Year prior*, N=906) • 20 March 2018 to 19 September 2021 (*forty-two post*, N=3339)	• Active and suspended • Adult elective liver and liver/kidney registrations	• Dublin registrations • NHS Group 2 registrations • Intestinal registrations
Liver offering	• *Year prior*, N=1914 (962 DBD and 952 DCD) • *Forty-eight months post*, N=7051 (3594 DBD and 3457 DCD)	• UK deceased donors whose liver was offered for transplantation • Offers to Dublin for super-urgent patients	• Intestinal offers regardless of whether patients required a liver • Offers declined due to the patient accepting previously offered liver • Offers to Dublin for elective patients
Transplant activity	• *Year prior*, N=1017 (819 DBD and 198 DCD) • *Forty-eight months post*, N=3526 (2852 DBD and 674 DCD))	• UK transplants	• Transplants performed at Dublin • Intestinal transplants for patients not requiring a liver • NHS Group 2 transplants
Ninety-day post-transplant survival	• 20 March 2017 to 19 March 2018 (N=579 for DBD and 183 for DCD) • 20 March 2018 to 19 December 2021 (N=1833 for DBD and 557 for DCD)	• UK adult elective liver and liver/kidney transplants	• Transplants performed at Dublin • Intestinal transplants for patients not requiring a liver • NHS Group 2 transplants
One-year post-transplant survival	• 20 March 2017 to 19 March 2018 (N=578 for DBD and 183 for DCD) • 20 March 2018 to 19 March 2021 (N=1521 for DBD and 443 for DCD)	• UK adult elective liver and liver/kidney transplants	• Transplants performed at Dublin • Intestinal transplants for patients not requiring a liver • NHS Group 2 transplants

3. RESULTS

REGISTRATION ACTIVITY

3.1. There were 4648 new NHS Group 1 liver registrations in the UK in the first forty-eight months of the scheme. (**Table 1**)

3.2. There was an 8% increase (1035 to 1114) in elective and 25% decrease (134 to 109) in super-urgent registrations between the 2017/2018 pre NLOS time period and 2021/2022 post NLOS time period. The proportion of adult elective registrations with CLD has increased from 71% to 76% between the 2017/2018 pre NLOS time period and 2021/2022 post NLOS time period but the proportion of HCC registrations (including HCC downstaging) has decreased by 4%. The number of new variant syndrome registrations has decreased from 83 in the year prior to 62 between the 2017/2018 pre NLOS time period and 2021/2022 post NLOS time period. (**Table 3**)

3.3. Ninety-three percent of the new adult elective registrations in the 2021/2022 time period post NLOS were for first graft compared with 91% in the 2017/2018 time period prior. (**Table 4**)

3.4. There was no statistically significant increase in the median age of new adult elective registrations (55 in both 2017/18 and 2021/22 time periods). (**Table 5**)

POST-REGISTRATION OUTCOME

3.5. There were 3582 adult elective registrations in the subset of patients registered in the first forty-five months post-NLOS. The proportion of registrations who received a transplant within three months of registration ranged from 39% to 52% across the yearly time periods post NLOS. (Note 2021/2022 covers a nine-month period.) The corresponding three-month transplant rate for patients registered in the 12-month time period prior to NLOS (20 December 2016 – 19 December 2017) was 50%. (**Table 6**)

3.6. The proportion of patients who either died on the list or were removed due to condition deterioration in the first three months ranged from 3% to 5% in the time periods post NLOS compared to 6% in the time period prior. In the six-month registration outcome time periods, the proportion of patients who either died on the list or were removed due to condition deterioration ranged from 4% to 9% in the time periods post NLOS compared to 8% in the time period prior. (**Figures 3, 4 and 5**)

LIVER OFFERING

3.7. Overall, 3594 DBD livers and 3457 DCD livers were offered in the first forty-eight months of the scheme. For DBD donors, the proportion retrieved ranged between 85% and 89% in the 48 months post and 88% in the year prior to NLOS. The equivalent proportion for DCD was 26% to 37% for the 48 month post and 32% in the year prior to NLOS. (**Table 8**)

3.8. **Figures 9a** and 9**b** in the main paper show the number of DBD livers offered during the first forty-eight months at each stage of the liver offering pathway. Livers offered during COVID are included in **Figure 9a** but excluded at the elective stage of **Figure 9b**. Five hundred and sixteen livers were either accepted and transplanted or declined and not offered on prior to the elective section of the offering pathway.

3.9. Of the 2886 DBD livers offered to the elective section that were not offered only to paediatric centres and not offered during the first wave of COVID-19 in 2020, 2590 (90%) were allocated to the elective CLD/HCC pathway and 296 (10%) were randomly allocated to the variant syndrome pathway which is consistent with the percentages used in the probabilistic prioritisation of the elective list.

3.10. One thousand, three hundred and seventy one livers (not accepted by higher tiers) offered to named elective CLD/HCC were accepted and transplanted while 111 livers offered to the named elective variant syndrome pathway were accepted and transplanted.

3.11. One thousand, two hundred and thirty three livers declined by all stages were fast-tracked and 488 were accepted and transplanted.

3.12. 5816 (30%) of the 19572 offers made in the first 48 months post NLOS were to named recipients. All offers between 27 March and 9 July 2020 are excluded as centres were offered livers for any clinically urgent patient rather than named patients. 4030 of the named patient offers involved livers that were ultimately retrieved and transplanted.

3.13. The number of named patient offers per donor ranged between 1 and 10 with a median of one named patient offers per donor. The number of named offers per patient ranged between 1 and 27 with a median of two offers per patient. Thirty-three patients at 7 centres were offered 11 or more livers in the forty-eight month time period (13 were offered 11 livers, 6 were offered 12 livers, 4 were offered 13 livers, 3 were offered 14 livers, 1 was offered 15 livers, 1 was offered 16 livers, 1 was offered 17, 1 was offered 21, 1 was offered 22 livers and 1 was offered 27 livers).

TRANSPLANT ACTIVITY

3.14. The proportion of super-urgent transplants performed prior to NLOS implementation was similar to the proportion performed in the most time period 2021/22 (11% vs 12% respectively). However, there has been a 10% decrease in the number of DBD super-urgent transplants (108 and 97 respectively). (**Table 14**)

3.15. One hundred and forty of the 3676 adult elective liver and liver/kidney transplants were performed in the UK between 27 March 2020 and 9 July 2020. These transplants are **included** in the transplant section but note that DBD livers were not offered through the National Liver Offering Scheme due to COVID-19, and both DBD and DCD livers were offered to clinically urgent patients.

3.16. For DBD transplants, there was evidence of a statistically significant association between time period and age group (p=0.0008), disease group (p=0.0008), transplant centre (p=0.01), zonal (p<0.0001), type of patient (p<0.0001) and blood group compatibility (p<0.0002). (**Table 15**).

3.17. For DCD transplants, there was evidence of a statistically significant association between time period and disease group (p=0.0095), transplant centre (p<0.0001) and type of patient (p=0.01). There was borderline significance for blood group compatibility (p=0.05). There was no evidence of a statistically significant association for age group (p=0.14) and zonal transplants (p=0.77). (**Table 16**).

3.18. There was a statistically significant difference in cold ischaemia time for adult elective DBD transplants across the time periods of interest (p=0.0036). However, this may be due to the inclusion of periods of machine perfusion which is not currently collected on the liver transplant record form. (**Figure 15**)

3.19. There was no significant difference in ninety-day DBD and DCD patient survival (p-value=0.36 and 0.14 respectively). (**Figure 19**). There was no significant difference at a 5% significance level in ninety-day transplant survival for either DBD or DCD transplants (p-value=57 and 0.40 respectfully). (**Figure 20**).

3.20. There was no significant difference in one-year DBD and DCD patient survival (p-value=0.53 and 0.57 respectively). (**Figure 21**). There was no significant difference at a 5% significance level in one-year transplant survival for either DBD or DCD transplants (p-value=0.88 and 0.65 respectively). (**Figure 22**).

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NHS BLOOD AND TRANSPLANT

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1.2. It should also be noted that this report may not include all data due for the first forty-eight months due to delays in reporting.

1.3. The updated Kidney Offering Scheme and Pancreas Offering Scheme were introduced on 11 September 2019. Unfortunately, an unexpected and untested change was introduced to the NLOS at the same time which affected the number of patients that appeared as named elective patients on matching run. This change was removed on the 19 September 2019 and this report includes this period in all analyses apart from in the flow chart in **Figure 9B**.

1.4. Due to the impact of COVID-19, it was agreed by OTDT Medical team and the Liver Advisory Group chair on 27 March 2020 that liver centres should consider an elective named patient offer for any patient when offered and not just the named patient. It was also agreed that a kidney would not be held back if a liver/kidney patient was in the top 3 named elective patients. There were no changes to the DCD offering scheme and NLOS resumed on 9 July 2020.

1.5. Birmingham, Royal Free, Kings College and Cambridge temporarily closed for all adult transplants in December 2020/January 2021. Royal Free and Birmingham temporarily transferred some of their clinically urgent patients to other transplant centres who were open. Transplant centres reviewed their transplant lists in January 2021 and formally suspended non-urgent patients. Offering to named clinically urgent patients continued and centres could consider livers for non-urgent patients if declined for all clinically urgent patients.

1.6. All transplant centres other than Birmingham formally reactivated all non-urgent CLD and HCC patients on the 6th April 2021 while variant syndrome patients and patients at Birmingham were reactivated in late April 2021.

1.7. Birmingham closed for all DCD offers in January 2021 with Newcastle and Leeds receiving Birminghams zonal and linked offers on a rota basis. Birmingham reopened for DCD offers in late April 2021.

2. DATA AND METHODS

2.1. REGISTRATION ACTIVITY AND POST-REGISTRATION OUTCOME

2.1.1. Data on 5817 new active/suspended NHS Group 1 registrations on the UK liver transplant list between 20 March 2017 and 19 March 2022 were obtained from the UK Transplant Registry on 31 March 2022. Patients registered in Dublin or as NHS Group 2 were excluded as such elective patients would only be offered a liver if all UK transplant centres declined the offer.

2.1.2. One and three month registration outcome was examined for registrations either between 20 December 2016 and 19 December 2017 (N=945) or between 20 March 2018 and 19 December 2021 (N=3582).

2.1.3. Six month registration outcome was also examined for a subset registered either between 20 September 2016 and 19 September 2017 (N=906) or between 20 March 2018 and 19 March 2021 (N=3339).

2.2. LIVER OFFERING

2.2.1. Data on 8965 deceased donors (7051 DBD and 1914 DCD) from the UK whose liver was offered for transplantation between 20 March 2017 and 19 March 2022 were obtained from the UK Transplant Registry on 7 April 2022. Intestinal offers were excluded regardless of whether they required a liver or not. The data was split into five year periods.

2.3. TRANSPLANT ACTIVITY AND POST-TRANSPLANT SURVIVAL

2.3.1. Data on 4543 deceased donor liver transplants (3671 DBD and 872 DCD) performed in the UK between 20 March 2017 and 19 March 2022 were also obtained from the UK Transplant Registry on 31 March 2021. Intestinal transplants involving the liver were included.

3. RESULTS

3.1. REGISTRATION ACTIVITY - OVERALL

3.1.1. **Figure 1** shows the number of new NHS Group 1 registrations on the UK liver transplant list between 20 March 2017 and 19 March 2022 by quarter and urgency status while **Table 1** compares the twelve months pre the introduction of NLOS and the forty-eight months post the introduction of NLOS. There was no statistically significant association between the time of registration and registration type (Chi-squared p-value =0.2).

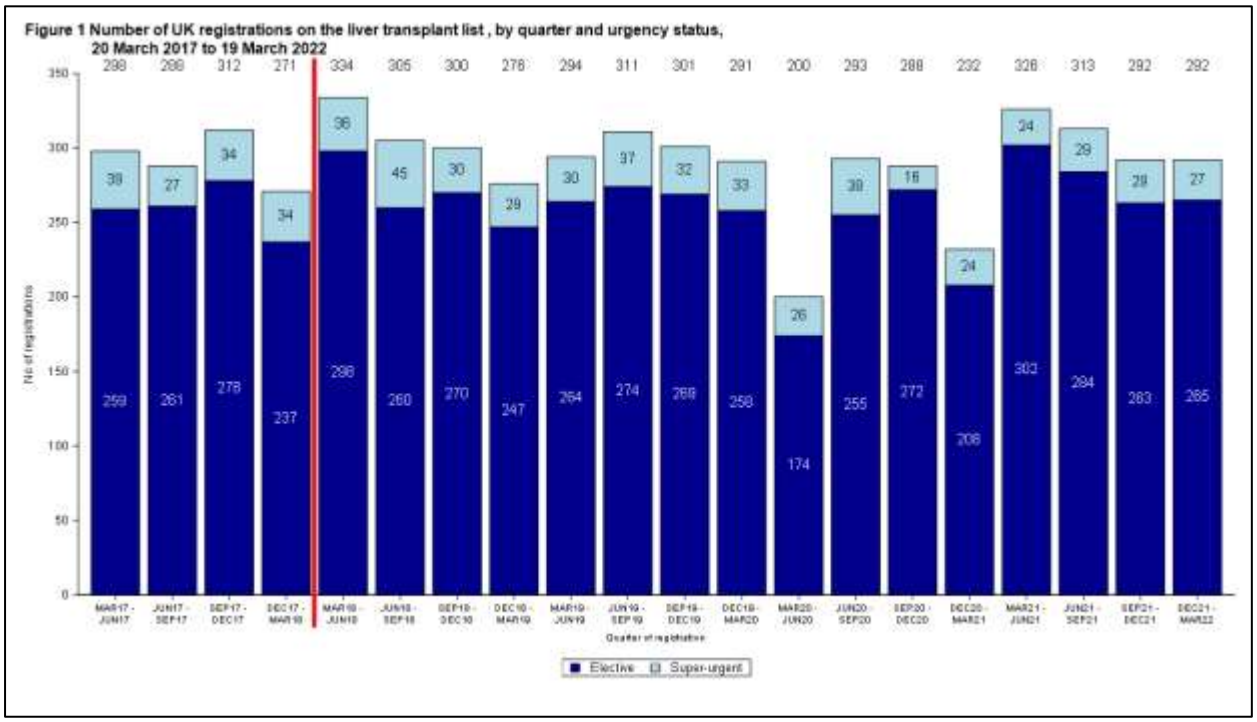


Table 1 Urgency status by time period for all NHS Group 1 liver registrations in the UK, 20 March 2017 to 19 March 2022

Urgency status	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
Elective	1035 (89)	1075 (88)	1065 (89)	909 (90)	1114 (91)	5198 (89)
Super-urgent	134 (11)	140 (12)	132 (11)	104 (10)	109 (9)	619 (11)
Total	**1169 (100)**	**1215 (100)**	**1197 (100)**	**1013 (100)**	**1223 (100)**	**5817 (100)**

3.2. REGISTRATION ACTIVITY - SUPER-URGENT

3.2.1. **Table 2** compares the twelve months pre the introduction of NLOS and the forty-eight months post the introduction of NLOS by super-urgent category. There was no significant association between super-urgent categories and the two time periods (Chi-squared p-value=0.42). The proportion of patients registered as either category 8 (HAT on days 0 to 21) or 9 (Early graft dysfunction on days 0 to 7) was 26% in the year prior and ranged between 18% and 28% in the years post NLOS. **Appendix A** shows the descriptions of each of the categories.

Table 2 Super-urgent category by time period for super-urgent registrations in the UK, 20 March 2017 to 19 March 2022

Super-urgent category	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
1	2 (1)	3 (2)	4 (3)	3 (3)	5 (5)	17 (3)
2	11 (8)	10 (7)	11 (8)	5 (5)	5 (5)	42 (7)
3	4 (3)	9 (6)	6 (5)	9 (9)	7 (6)	35 (6)
4	2 (1)	2 (1)	2 (2)	3 (3)	4 (4)	13 (2)
5	11 (8)	5 (4)	3 (2)	4 (4)	8 (7)	31 (5)
6	54 (40)	56 (40)	50 (38)	41 (39)	40 (37)	241 (39)
7	6 (4)	3 (2)	9 (7)	8 (8)	10 (9)	36 (6)
8	22 (16)	19 (14)	14 (11)	9 (9)	8 (7)	72 (12)
9	13 (10)	20 (14)	15 (11)	11 (11)	12 (11)	71 (11)
10	4 (3)	4 (3)	6 (5)	0 (0)	0 (0)	14 (2)
20	3 (2)	5 (4)	7 (5)	6 (6)	5 (5)	26 (4)
88	2 (1)	4 (3)	5 (4)	5 (5)	5 (5)	21 (3)
Total	**134 (100)**	**140 (100)**	**132 (100)**	**104 (100)**	**109 (100)**	**619 (100)**

3.3. REGISTRATION ACTIVITY - ELECTIVE

3.3.1. **Table 3** compares the twelve months pre the introduction of NLOS and the forty-eight months post the introduction of NLOS for NHS Group 1 elective registrations by age and type of patient. There was no statistically significant associations between patient age and the time period (Chi-squared p-value =0.49).

Table 3 Type of elective patient by time period for elective registrations in the UK, 20 March 2017 to 19 March 2022

Type of patient Overall	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
Adult elective[1]	951 (92)	990 (92)	980 (92)	826 (91)	1037 (93)	4784 (92)
CLD	674 (71)	721 (73)	740 (76)	638 (77)	790 (76)	3563 (74)
HCC/HCC downstaging	193 (20)	195 (20)	178 (18)	147 (18)	167 (16)	880 (18)
Variant syndrome	83 (9)	71 (7)	56 (6)	38 (5)	62 (6)	310 (6)
ACLF	0 (0)	1 (0)	1 (0)	1 (0)	12 (1)	15 (0)
Liver and cardiothoracic	1 (0)	2 (0)	5 (1)	2 (0)	6 (1)	16 (0)
Paediatric elective[2]	84 (8)	85 (8)	85 (8)	83 (9)	77 (7)	414 (8)
Hepatoblastoma/ Prioritised Paediatric	3 (4)	10 (12)	10 (12)	21 (25)	16 (21)	60 (14)
Non hepatoblastoma	81 (96)	74 (87)	75 (88)	62 (75)	59 (77)	351 (85)
Liver and cardiothoracic	0 (0)	1 (1)	0 (0)	0 (0)	2 (3)	3 (1)

[1] Includes 16 CLD, 1 HCC and 1 Variant syndrome patient aged 17 years or over and weighing 40kg or under (1 in the twelve months prior and 17 in the forty-eight months post); 12 were dual-listed as small adults (1 in the twelve months prior and 11 in the forty-eight months post)

[2] Includes 3 hepatoblastoma and 70 non hepatoblastoma patients aged less than 17 years and weighing 40kg or over (20 in the twelve months prior and 53 in the forty-eight months post); 52 were dual-listed as large paediatrics (5 in the forty-eight months prior and 47 in the forty-eight months post)

3.3.2. **Table 4** compares the twelve months pre and the forty-eight months post the introduction of NLOS for each type of adult patient registered over the last 60 months by transplant number. The majority of patients were registered for a first liver transplant and there were no statistically significant associations between graft number and the time period (Chi-squared p-value=0.37).

3.3.3. All but two of the HCC patients were registered for a first graft. Both patients registered for a second graft had a UKELD less than 49, encephalopathy grade 0 and no current ascites.

Table 4 Transplant number by time period for adult elective registrations in the UK, 20 March 2017 to 19 March 2022

	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
CLD[1] (Chi-squared p-value=0.41)						
1st graft	597 (89)	652 (90)	657 (89)	571 (89)	725 (92)	3202 (90)
2nd graft	64 (9)	57 (8)	70 (9)	57 (9)	48 (6)	296 (8)
3rd graft	9 (1)	12 (2)	11 (1)	9 (1)	15 (2)	56 (2)
4th graft	3 (0)	0 (0)	2 (0)	1 (0)	2 (0)	8 (0)
6th graft	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)
HCC/HCC downstaging[2] (Chi-squared p-value=0.64)						
1st graft	192 (99)	194 (99)	178 (100)	147 (100)	167 (100)	878 (100)
2nd graft	1 (1)	1 (1)	0 (0)	0 (0)	0 (0)	2 (0)
Variant syndrome (Chi-squared p-value=0.09)						
1st graft	73 (88)	61 (86)	55 (98)	35 (92)	58 (94)	282 (91)
2nd graft	10 (12)	10 (14)	0 (0)	3 (8)	3 (5)	26 (8)
3rd graft	0 (0)	0 (0)	1 (2)	0 (0)	1 (2)	2 (1)
Overall adult elective[3] (Chi-squared p-value=0.37)						
1st graft	863 (91)	910 (92)	896 (91)	756 (92)	967 (93)	4392 (92)
2nd graft	75 (8)	68 (7)	70 (7)	60 (7)	51 (5)	324 (7)
3rd graft	9 (1)	12 (1)	12 (1)	9 (1)	17 (2)	59 (1)
4th graft	3 (0)	0 (0)	2 (0)	1 (0)	2 (0)	8 (0)
6th graft	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)
Total	**951 (100)**	**990 (100)**	**980 (100)**	**826 (100)**	**1037 (100)**	**4784 (100)**

[1] One patient dual-listed was registered for a second graft in the twelve months prior whilst five were registered for a first graft and one for a second graft, three for a third graft and one for a fourth graft in the forty-eight months post
[2] One patient dual-listed was registered for a second graft in the forty-eight months post. Includes HCC downstaging all of whom were registered for first graft
[3] Includes liver and cardiothoracic patients all of whom were registered for first graft

3.3.4. **Table 5** shows compares the median and interquartile age at registration for the twelve months pre and the forty-eight months post the introduction of NLOS for each type of adult patient registered over the last 60 months. There were no statistically significant differences in the median recipient age (Kruskal-Wallis p-value≥0.24).

Table 5 **Median (IQR) age by time period for adult elective NHS Group 1 registrations in the UK, 20 March 2017 to 19 March 2022**

	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
CLD[1] (Kruskal-Wallis p-value=0.57)						
N	674	721	740	638	790	3563
Median (IQR)	53 (44 - 61)	54 (44 - 61)	54 (45 - 61)	54 (44 - 60)	53 (43 - 60)	54 (44 - 61)
Range	17 - 76	17 - 73	17 - 74	17 - 71	17 - 74	17 - 76
HCC/HCC downstaging (Kruskal-Wallis p-value=0.71)						
N	193	195	178	147	167	880
Median (IQR)	60 (55 - 65)	61 (56 - 65)	61 (55 - 66)	60 (56 - 64)	60 (56 - 66)	61 (56 - 65)
Range	20 - 75	21 - 73	21 - 72	19 - 73	43 - 73	19 - 75
Variant syndrome (Kruskal-Wallis p-value=0.68)						
N	83	71	56	38	62	310
Median (IQR)	49 (38 - 55)	51 (41 - 58)	48.5 (37.5 - 57.5)	48 (39 - 56)	48 (36 - 56)	48.5 (38 - 57)
Range	17 - 71	18 - 70	18 - 70	19 - 66	17 - 71	17 - 71
Overall adult elective[2] (Kruskal-Wallis p-value=0.25)						
N	951	990	980	826	1037	4784
Median (IQR)	55 (46 - 62)	56 (47 - 62)	55 (47 - 62)	55 (45 - 61)	54 (45 - 61)	55 (46 - 62)
Range	17 - 76	17 - 73	17 - 74	17 - 73	17 - 74	17 - 76

[1] There was one patient dual-listed in the twelve months prior and 11 in the forty-eight months post
[2] Includes liver and cardiothoracic patients

3.4. POST-REGISTRATION OUTCOME

3.4.1. **Table 6** shows the one and three-month registration outcome for adult elective NHS Group 1 liver patients registered during the forty-five months since the implementation of the NLOS, 20 March 2018 -19 December 2021, along with the prior twelve-month period, 20 December 2016 – 19 December 2017. Note that the 2021/2022 period covers 9 months due to time to follow-up. There were 791 adult elective registrations in the most recent 2021/2022 nine-month period post NLOS and 312 (39%) received a transplant within 3 months of registration. The corresponding three-month transplant rate for patients registered during the twelve months in 2016/2017 was 50%. There were statistically significant differences between the time periods and registration outcome at one month and three month (Chi-squared p-value<0.0001 for both).

3.4.2. **Table 6** also shows the six-month registration outcome for adult elective patients registered during the forty-five months since the implementation of the NLOS, 20 March 2018 -19 September 2021, along with the prior twelve-month period, 20 September 2016 – 19 September 2017. Note that the 2021/2022 period covers 6 months due to time to follow-up. There were statistically significant differences between the time periods and registration outcome at six months (Chi-squared p-value<0.0001). 285 (52%) of the 548 registrations were transplanted within 6 months in the 6-month 2021/2022 period compared with 62% in 2016/2017. The proportion of patients who either died on the list or were removed due to condition deterioration within six months was 6% in the 2021/2022 period post NLOS compared with 8% in the 2016/2017 period prior.

Table 6 Registration outcome for adult elective NHS Group 1 registrations on the UK liver transplant list, 20 September 2016 to 19 December 2021

Registration outcome	2016/2017	2018/2019	2019/2020	2020/2021	2021/2022
One-month outcome (Chi-squared p-value<0.0001)[1]					
Remained active/suspended	656 (69)	626 (63)	644 (66)	555 (67)	567 (72)
Died/ removed due to condition deterioration[3]	21 (2)	14 (1)	10 (1)	20 (2)	16 (2)
Removed due to other reasons	5 (1)	10 (1)	10 (1)	29 (3)	13 (2)
Transplanted	263 (28)	337 (34)	314 (32)	222 (27)	195 (25)
Total	**945 (100)**	**987 (100)**	**978 (100)**	**826 (100)**	**791 (100)**
Three-month outcome (Chi-squared p-value<0.0001)[1]					
Remained active/suspended	409 (43)	419 (42)	455 (47)	417 (51)	431 (54)
Died/ removed due to condition deterioration[3]	55 (6)	32 (3)	27 (3)	39 (5)	31 (4)
Removed due to other reasons	13 (1)	18 (2)	18 (2)	37 (4)	17 (2)
Transplanted	468 (50)	518 (52)	478 (49)	333 (40)	312 (39)
Total	**945 (100)**	**987 (100)**	**978 (100)**	**826 (100)**	**791 (100)**
Six-month outcome (Chi-squared p-value<0.0001)[2]					
Remained active/suspended	241 (27)	275 (28)	316 (32)	283 (34)	209 (38)
Died/ removed due to condition deterioration[3]	68 (8)	44 (4)	48 (5)	72 (9)	35 (6)
Removed due to other reasons	31 (3)	29 (3)	24 (2)	53 (6)	19 (3)
Transplanted	566 (62)	639 (65)	590 (60)	418 (51)	285 (52)
Total	**906 (100)**	**987 (100)**	**978 (100)**	**826 (100)**	**548 (100)**

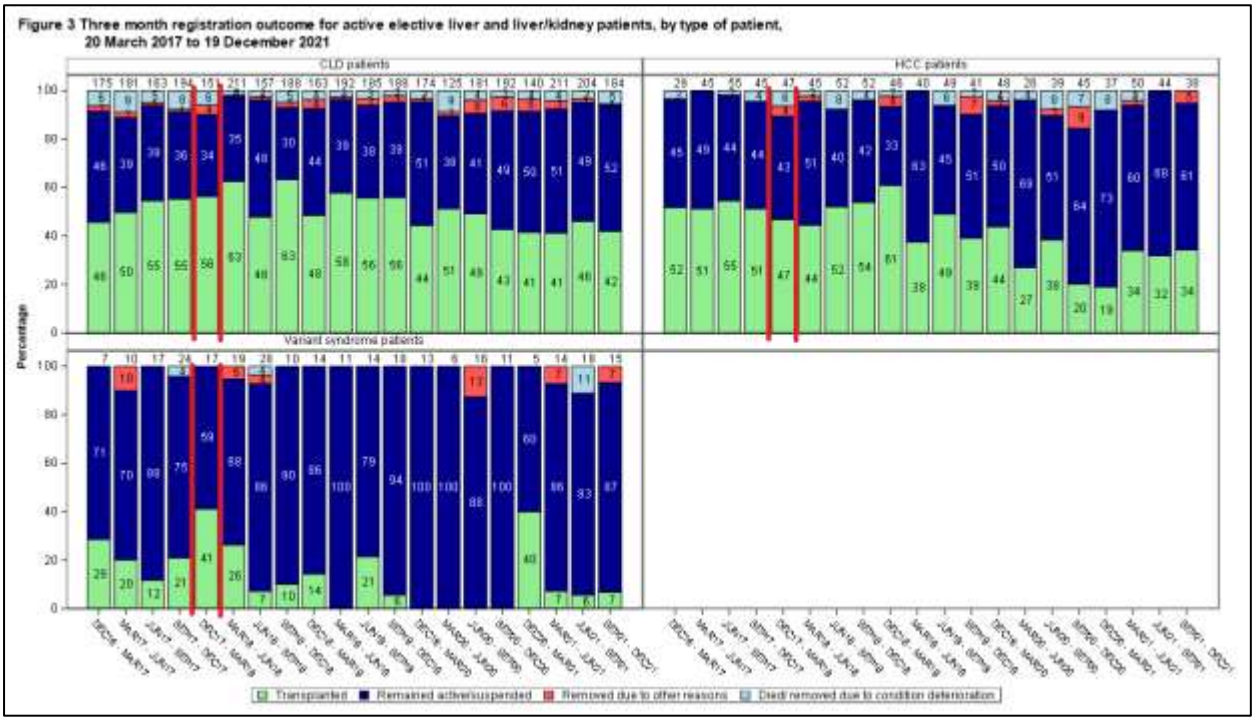
[1]20 December 2016 to 19 December 2017, 20 March 2018 to 19 March 2019, 20 March 2019 to 19 March 2020, 20 March 2020 to 19 March 2021, 20 March 2021 to 19 December 2021

[2]20 September 2016 to 19 September 2017, 20 March 2018 to 19 March 2019, 20 March 2019 to 19 March 2020, 20 March 2020 to 19 March 2021, 20 March 2021 to 19 September 2021

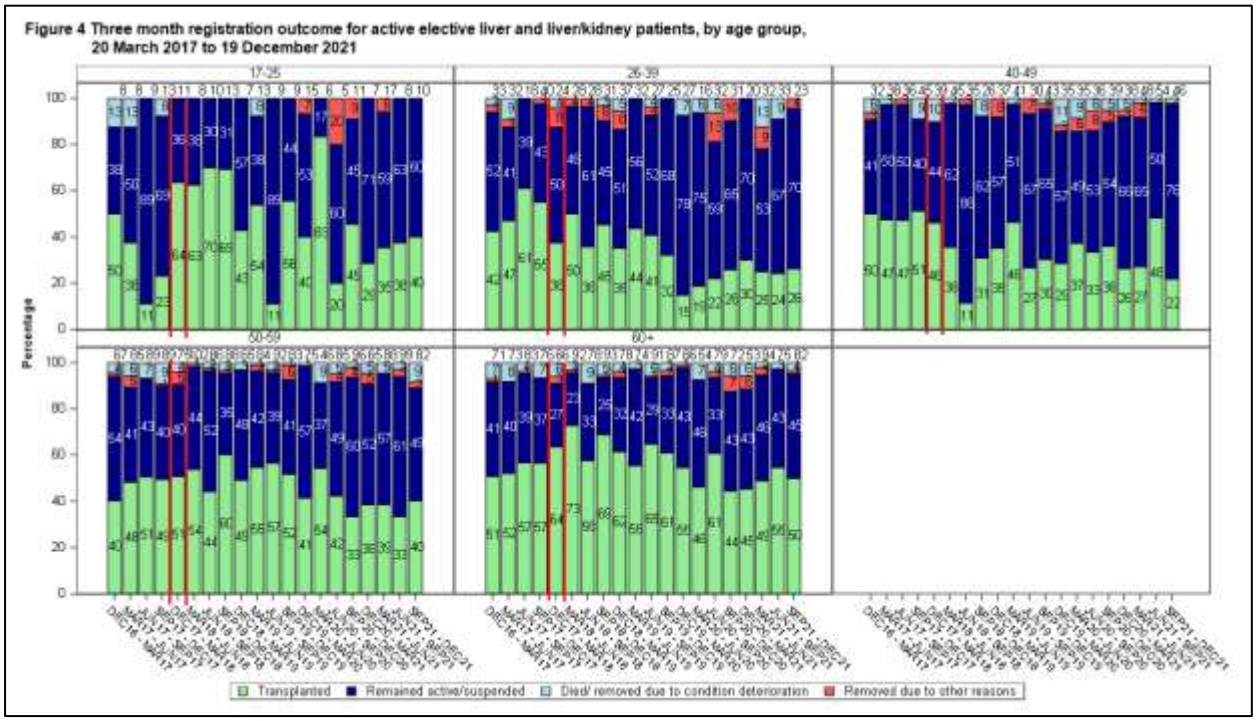
[3] Includes patients removed as registered onto super-urgent list

3.4.3. **Figure 3** shows the three-month registration outcome by quarter and type of adult elective patient. HCC downstaging registrations are included with HCC registrations. The proportion of CLD patients registered post NLOS and transplanted in the first three months post-registration ranged between 41 and 63% compared with 46 and 55% of registrations in the year prior. There was a statistically significant association between three-month registration outcome and time period of registration for CLD patients and HCC/HCC downstaging patients (Chi-squared p-value<0.01) but not variant syndrome patients (Chi-squared p-value≥0.1).

3.4.4. Equivalent charts for six-month are presented in **Figure B1** in **Appendix B** and show consistent results with the three-month outcome chart for CLD and HCC/HCC downstaging patients. There was a statistically significant association between six-month registration outcome and time period of registration for variant syndrome patients (Chi-squared p-value<0.03).



3.4.5. **Figure 4** shows the three-month registration outcome by quarter and age group. There was a statistically significant association between registration outcome and time period of registration for all age groups except for 17-29 years. Equivalent charts for six-month are presented in **Figure B2** in **Appendix B** and show consistent results with the three-month outcome chart for 17-25, 25-39, 50-59 and 60+ years. There was no statistically significant association between six-month registration outcome and time period of registration for 40-49 years.



3.4.6. **Figure 5** shows the three-month registration outcome by quarter and whether the patient was registered for a first graft or regraft. The proportion of first graft patients registered post NLOS and transplanted in the first three months post-registration ranges between 36 and 60% compared with 46 and 53% of registrations in the year prior. The proportion of re-graft patients registered post NLOS and transplanted in the first three months post-registration ranged between 14 and 50% compared with 25 and 53% of registrations in the year prior. There was a statistically significant association between registration outcome and time period of registration for patients registered for a first graft but not for regraft patients (Fishers exact p-value<0.01 and 0.41 respectively). Equivalent charts for six-month are presented in **Figure B3** in **Appendix B** and show consistent results with the three-month outcome chart.

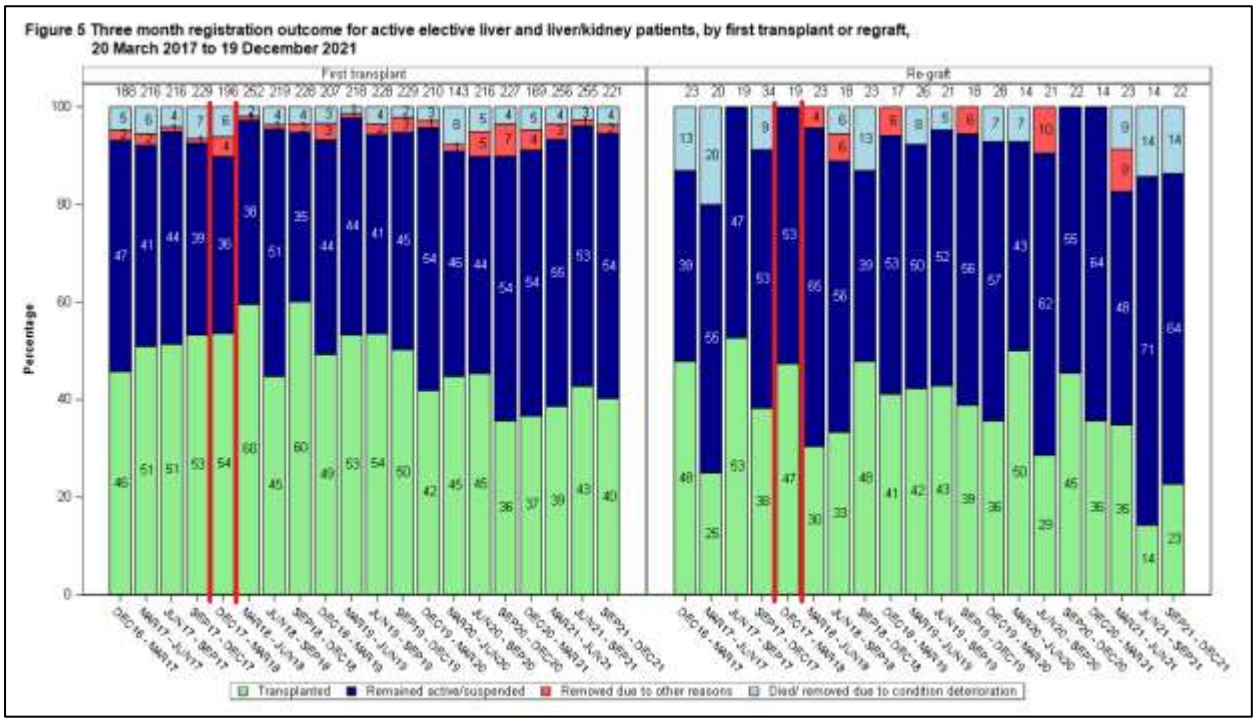
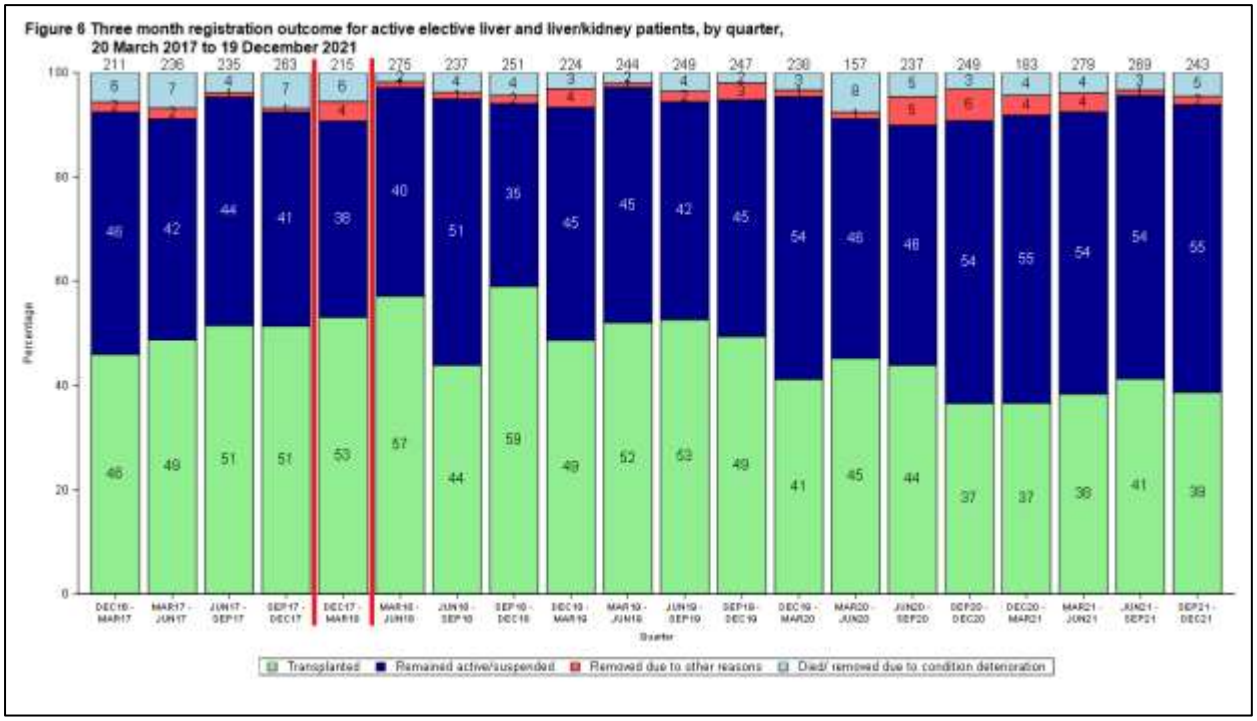


Figure 5 Three month registration outcome for active elective liver and liver/kidney patients, by first transplant or regraft, 20 March 2017 to 19 December 2021

3.4.7. **Figure 6** shows the three-month registration outcome by quarter. The mortality rate in the first three months ranged between 2% and 8% in the quarters since the introduction of NLOS compared with between 4% and 7% in the quarters prior. Equivalent charts for six-month are presented in **Figure B4** in **Appendix B** and show consistent results with the three-month outcome chart.



3.4.8. Forty-six patients listed for a regraft, either on the list on 20 March 2018 or registered during the forty-eight months post NLOS, were removed from the transplant list (regardless of reason). **Table 7** shows the other reasons for removal from the transplant list for each of the 46 patients.

Table 7 Reasons for removal for 46 regraft patients removed from the transplant list

Patient number	Centre	Month removed	Time from previous tx	Time on the list	Reason for removal	Other reasons given
1	6	March 2018	1940	2562	Condition deteriorated	Deterioration of Hocum therefore not fit for OLTX
2	6	April 2018	1245	2	Other	At patients request
3	5	May 2018	527	212	Condition deteriorated	
4	5	May 2018	1178	266	Condition improved	
5	6	July 2018	1106	247	Condition improved	
6	5	August 2018	480	596	Condition deteriorated	Awaiting cardiology review, episode of SVT yesterday
7	6	September 2018	1220	55	Condition deteriorated	Patient has developed lung cancer
8	6	December 2018	2799	24	Condition deteriorated	Has extra hepatic collections, needs addressing
9	3	February 2019	1903	337	Condition deteriorated	Further investigations required for anaemia and cardiac function
10	4	March 2019	2220	392	Condition improved	
11	5	April 2019	2736	6	Condition deteriorated	Patient has deteriorated and is no longer a transplant candidate.
12	6	June 2019	2564	74	Condition improved	
13	3	September 2019	158	150	Condition deteriorated	HCC in nodes outsides liver
14	5	October 2019	3351	66	Condition deteriorated	Patient has developed multi-organ failure, rising lactate in the context of sepsis.
15	6	November 2019	5275	879	Condition deteriorated	Pt requires full assessment for retransplant now, after a long period of suspension on the waiting list since Aug 2018. Deemed medically too high risk to receive a transplant
16	3	December 2019	49	13	Condition improved	Clinically improving. No longer has an indication for transplant
17	7	January 2020	179	117	Condition Deteriorated	HCC metastases
18	5	February 2020	7655	164	Condition Deteriorated	super urgent request sent through via National appeal.
19	5	February 2020	808	604	Condition deteriorated	Requires Haematology review and bone marrow biopsy due to neutropenia
20	4	February 2020	103	30	Condition improved	OPA 13.2.20
21	3	February 2020	645	93	Condition improved	
22	1	March 2020	6929	10	Condition deteriorated	
23	5	July 2020	2907	609	Condition deteriorated	
24	6	July 2020	5537	764	Other	Patient now for palliative care in their local hospital
25	3	September 2020	56	1	Condition improved	Not clinically urgent
26	5	March 2021	11009	927	Condition deteriorated	Awaiting Vascular review, lower limb numbness and pain, known SMV calcification
27	2	April 2021	62	15	Other	Moved to su waiting list
28	6	April 2021	710	3	Condition improved	Request made by Hepatologist to Suspend as improved
29	6	May 2021	5498	74	Condition deteriorated	
30	7	May 2021	11069	654	Condition deteriorated	Patient pyrexial; patient died
31	4	May 2021	26	0	Registered onto the super-urgent list	
32	4	June 2021	545	381	Condition deteriorated	Admitted to ITU. Aim to get patient off ITU and to discharge with palliative care
33	5	June 2021	6249	84	Condition improved	Clinical condition improved since listing
34	6	August 2021	128	11	Condition deteriorated	Patient went for transplant found to have malignancy therefore abandoned

35	6	October 2021	198	739	Condition improved	
36	7	October 2021	168	103	Condition deteriorated	Patient too sick for liver transplant
37	2	October 2021	468	82	Patient non-compliant	Following MDT - majority of the team do not support transplant due to concerns with compliance
38	5	October 2021	320	90	Condition deteriorated	
39	5	November 2021	1642	62	Condition deteriorated	Deteriorated and patient not keen on transplant
40	3	November 2021	1617	6	Condition deteriorated	
41	5	November 2021	1866	1256	Condition deteriorated	New PLTD diagnosis
42	2	November 2021	6605	42	Condition improved	Patient transferred and under assessment at new centre
43	6	December 2021	2649	457	Other	Drinking alcohol whilst on the waiting list
44	1	December 2021	53	4	Condition deteriorated	
45	6	January 2022	876	113	Condition improved	
46	6	March 2022	5352	32	Condition deteriorated	End of life care. Frailty. Refractory leg abscess. MOF.

3.5. LIVER OFFERING

3.5.1. **Table 8** shows the overall UK deceased donor liver offering outcome between 20 March 2017 and 19 March 2022, by donor type and time period. 3594 DBD and 3457 DCD livers were offered for transplantation in the first forty-eight months of the scheme. Of the DBD livers offered, 3112 (87%) were retrieved for the purposes of transplantation and 2695 (87%) were transplanted (all but 20 were transplanted in the UK). The proportion of DBD livers offered and retrieved is very similar to the percentage for the 12 months prior to the introduction of the new scheme. **Table 8** also shows the liver offering outcome for donors where at least one solid organ was retrieved for the purposes of transplantation.

3.5.2. **Table 9** shows, separately, the reasons for not offering, not retrieving and not transplanting livers by donor type and time period. The number in brackets are the corresponding values for solid organ donors where at least one organ was retrieved for the purposes of transplantation. Full breakdown of the reasons for non-retrieval and non-use are presented in **Appendix C**.

Table 8 Overall deceased donor liver offering outcome, 20 March 2017 to 19 March 2022

	DBD					DCD				
	2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22
1A. ALL DONORS										
Number donors	**1067**	**1074**	**1070**	**875**	**880**	**1164**	**1222**	**1275**	**717**	**1032**
Liver not offered for donation	105	72	69	84	80	212	225	237	140	187
Liver offered for donation	962	1002	1001	791	800	952	997	1038	577	845
Liver not retrieved (% offered)	118 (12)	143 (14)	134 (13)	117 (15)	88 (11)	652 (68)	741 (74)	751 (72)	407 (71)	533 (63)
Liver retrieved (% offered)	844 (88)	859 (86)	867 (87)	674 (85)	712 (89)	300 (32)	256 (26)	287 (28)	170 (29)	312 (37)
Livers transplanted overseas (% retrieved)	4 (0.5)	9 (1)	3 (0.3)	2 (0.3)	6 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Livers transplanted in the UK (% retrieved)	765 (91)	756 (88)	735 (85)	580 (86)	604 (85)	198 (66)	189 (74)	176 (61)	114 (67)	195 (63)
Liver not transplanted (% retrieved)	75 (9)	94 (11)	129 (15)	92 (14)	102 (14)	102 (34)	67 (26)	111 (39)	56 (33)	117 (38)
Liver used for research (% not transplanted)	44	52	68	5	8	63	39	62	5	9
2. SOLID ORGAN DONORS										
Number donors	**949**	**967**	**965**	**752**	**787**	**616**	**641**	**655**	**388**	**622**
Liver not offered for donation	45	28	23	23	27	44	51	41	31	51
Liver offered for donation	904	939	942	729	760	572	590	614	357	571
Liver not retrieved (% offered)	60 (7)	80 (9)	75 (8)	55 (8)	48 (6)	272 (48)	334 (57)	327 (53)	187 (52)	259 (45)
Liver retrieved (% offered)	844 (93)	859 (91)	867 (92)	674 (92)	712 (94)	300 (52)	256 (43)	287 (47)	170 (48)	312 (55)
Livers transplanted overseas (% retrieved)	4 (0.5)	9 (1)	3 (0.3)	2 (0.3)	6 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Livers transplanted in the UK (% retrieved)	765 (91)	756 (88)	735 (85)	580 (86)	604 (85)	198 (66)	189 (74)	176 (61)	114 (67)	195 (63)
Liver not transplanted (% retrieved)	75 (9)	94 (11)	129 (15)	92 (14)	102 (14)	102 (34)	67 (26)	111 (39)	56 (33)	117 (38)
Liver used for research (% not transplanted)	44	52	68	5	8	63	39	62	5	9

Table 9 Reasons for non-retrieval and non-use of livers from deceased donors (solid organ donors), 20 March 2017 to 19 March 2022

	DBD					DCD				
	17/18	**18/19**	**19/20**	**20/21**	**21/22**	**17/18**	**18/19**	**19/20**	**20/21**	**21/22**
REASONS NOT OFFERED										
Family permission not sought	1 (1)	0 (0)	0 (0)	1 (1)	2 (2)	2 (2)	2 (2)	1 (1)	0 (0)	1 (0)
Family permission refused	20 (11)	10 (3)	8 (5)	3 (3)	7 (3)	26 (6)	18 (6)	3 (1)	9 (2)	9 (4)
Permission refused by coroner	18 (9)	7 (4)	0 (0)	5 (3)	7 (4)	5 (0)	9 (5)	10 (3)	4 (3)	8 (4)
Donor unsuitable - age	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	8 (4)	5 (2)	10 (6)	26 (11)	7 (5)
Donor unsuitable - past history	30 (20)	17 (14)	21 (16)	19 (13)	18 (15)	51 (23)	54 (27)	48 (18)	27 (12)	52 (29)
Donor unstable	1 (0)	1 (0)	0 (0)	1 (0)	0 (0)	4 (1)	1 (1)	2 (0)	0 (0)	0 (0)
Donor unsuitable - size	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	1 (1)
Donor arrested	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)
Poor function	1 (0)	7 (6)	2 (2)	2 (2)	3 (2)	13 (5)	16 (7)	12 (6)	2 (1)	10 (6)
Infection	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (0)	1 (0)	0 (0)	0 (0)	0 (0)
Other disease	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)
Organ damaged	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)
Ischaemia time too long - warm	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)
Donor unsuitable - virology	4 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)
Other	8 (1)	2 (1)	3 (0)	7 (1)	2 (1)	26 (2)	18 (0)	26 (4)	7 (1)	12 (2)
Not reported	21 (1)	28 (0)	35 (0)	46 (0)	41 (0)	72 (1)	98 (0)	122 (0)	65 (1)	87 (0)
Total not offered	**105 (45)**	**72 (28)**	**69 (23)**	**84 (23)**	**80 (27)**	**212 (44)**	**225 (51)**	**237 (41)**	**140 (31)**	**187 (52)**
REASONS FOR NON-RETRIEVAL										
Donor unsuitable - medical	11 (0)	11 (2)	18 (4)	6 (2)	8 (4)	12 (1)	14 (3)	15 (4)	6 (1)	12 (7)
Donor unsuitable - non medical	3 (0)	11 (5)	3 (3)	2 (0)	3 (3)	19 (12)	24 (15)	27 (18)	13 (8)	16 (9)
Donor age	5 (3)	5 (4)	2 (2)	1 (0)	2 (0)	142 (55)	198 (93)	181 (82)	59 (28)	133 (65)
Organ unsuitable - clinical	57 (32)	63 (37)	62 (40)	61 (39)	48 (29)	154 (86)	198 (107)	188 (96)	138 (82)	186 (109)
Poor function	17 (11)	16 (12)	16 (9)	16 (8)	7 (6)	49 (32)	49 (32)	51 (31)	30 (17)	32 (24)
Other	25 (14)	37 (20)	33 (17)	31 (6)	20 (6)	276 (86)	258 (84)	289 (96)	161 (51)	154 (45)
Total	**118 (60)**	**143 (80)**	**134 (75)**	**117 (55)**	**88 (48)**	**652 (272)**	**741 (334)**	**751 (327)**	**407 (187)**	**533 (259)**
REASONS RETRIEVED BUT NOT TRANSPLANTED										
Donor unsuitable - medical	6 (6)	4 (4)	5 (5)	10 (10)	22 (22)	1 (1)	0 (0)	6 (6)	7 (7)	9 (9)
Donor unsuitable - non medical	1 (1)	0 (0)	1 (1)	1 (1)	7 (7)	0 (0)	1 (1)	1 (1)	3 (3)	6 (6)
Donor age	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (2)
Organ unsuitable - clinical	12 (12)	19 (19)	25 (25)	46 (46)	40 (40)	17 (17)	17 (17)	19 (19)	16 (16)	45 (45)
Poor function	0 (0)	1 (1)	1 (1)	5 (5)	10 (10)	0 (0)	0 (0)	1 (1)	5 (5)	15 (15)
Other	56 (56)	70 (70)	97 (97)	30 (30)	23 (23)	84 (84)	49 (49)	84 (84)	25 (25)	40 (40)
Total	**75 (75)**	**94 (94)**	**129 (129)**	**92 (92)**	**102 (102)**	**102 (102)**	**67 (67)**	**111 (111)**	**56 (56)**	**117 (117)**

3.5.3. **Figure 7** shows the DBD liver offering outcome for all livers offered regardless of whether any solid organs were retrieved for the purposes of transplantation. **Figure 7** shows that 277 livers were offered during the first quarter of NLOS which was the second highest number of livers offered during the 5 year period.

3.5.4. The percentage of organs retrieved and transplanted per quarter ranged from 77% to 82% in the year prior and 67% to 82% in the forty-eight months post the introduction of NLOS. The percentage of livers retrieved and used for research ranged between 3% and 6% in the year prior and 0% to 10% for the forty-eight months post the introduction of NLOS.

3.5.5. **Figure 8** shows the equivalent information for all solid organ donors where the liver was offered for transplantation and at least one organ (not necessarily the liver) was retrieved for the purposes of transplantation.

Figure 7 DBD donor liver offering outcome regardless of whether the donor was a solid organ donor, by quarter and offering outcome, 20 March 2017 to 19 March 2022

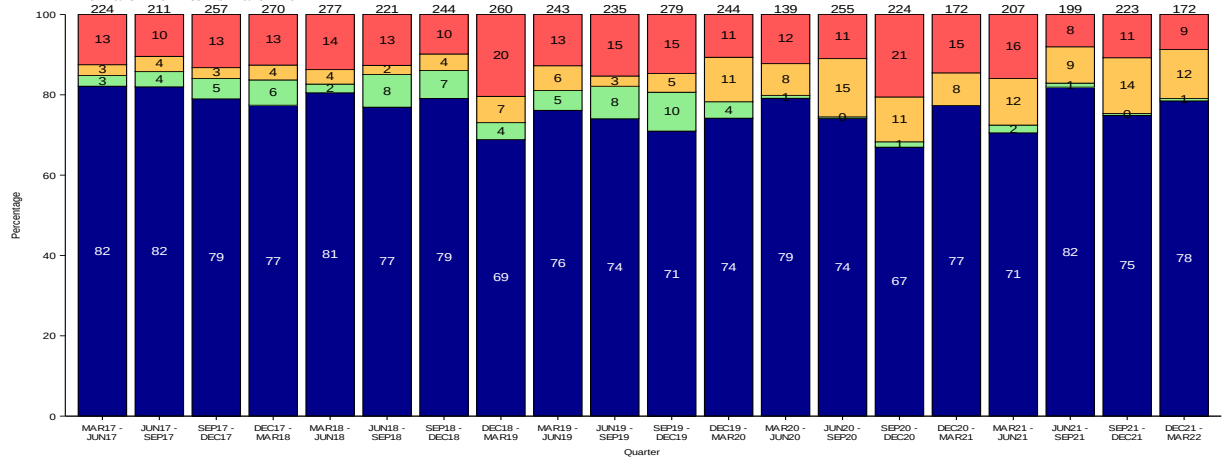
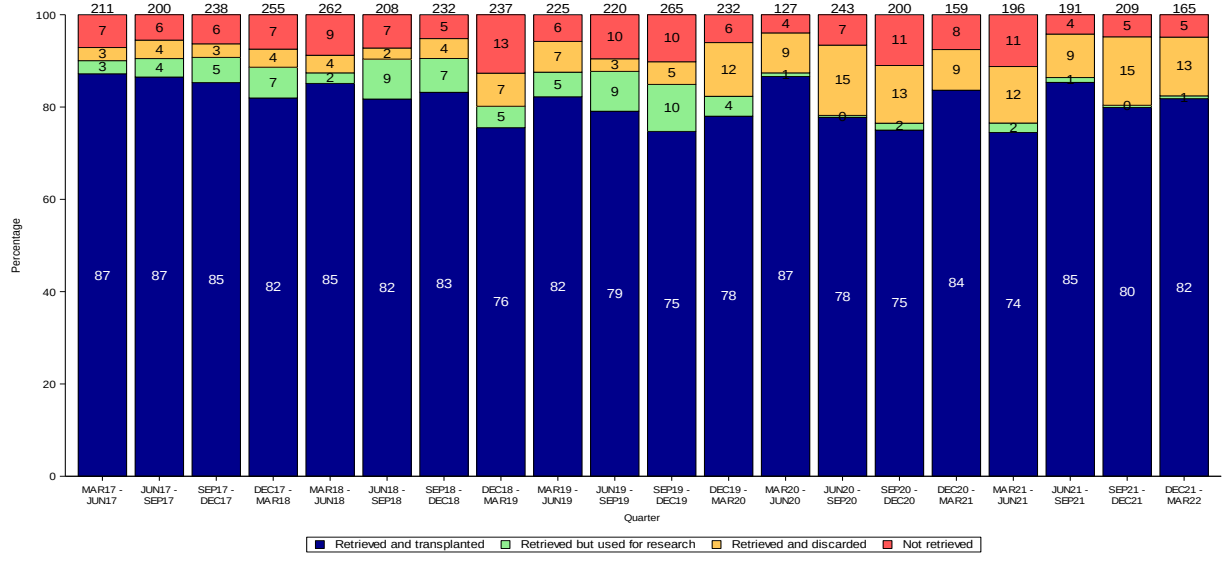


Figure 8 DBD donor liver offering outcome for solid organ donors, by quarter and offering outcome, 20 March 2017 to 19 March 2022



3.5.6. **Figure 9a** show the number of livers offered during the first forty-eight months of the new scheme at each stage of the liver offering pathway up to and including the liver and cardiothoracic section. Livers offered during COVID are included in **Figure 9a** but excluded at the elective stage of **Figure 9b**. 31 of the 3594 donors did not meet the DBD criteria at the start of the offering process and 28 were retrieved and transplanted. These livers are hence excluded from the offering pathway.

3.5.7. Livers from 391 donors meeting the DBD criteria were accepted and transplanted into super-urgent patients (including 20 super-urgent patients in Dublin). 424 livers were offered to hepatoblastoma patients and 46 were accepted and transplanted. 335 livers were offered to the liver and intestinal list and 35 were accepted and transplanted. Please note that a liver accepted and used at any stage may have been provisionally offered on to elective patients or fast-tracked before being accepted and used. These have not been included in the number of livers offered in later stages along with livers that may have been accepted, split and transplanted into two patients.

3.5.8. 627 livers were offered to liver and cardiothoracic patients and eight were accepted and transplanted combined liver and cardiothoracic patients.

3.5.9. **Figure 9b** shows the number of livers that were offered to elective patients and hadn't been accepted and used for super-urgent, hepatoblastoma, liver/intestinal and liver/cardiothoracic patients. Of the 3078 livers offered to elective patients, 3027 were adult donors and 51 were paediatric donors (aged less than 16 years or weighing 40 kg or less). 551 adult donors met the split criteria and 501 livers were offered to paediatric centres for paediatric/small adult patients. 151 of the 501 livers were accepted and transplanted. Thirty livers were only offered to paediatric patients and not offered to elective adult patient or fast-tracked.

3.5.10. 162 livers were offered to elective patients between 27 March and 9 July 2020.

3.5.11. Ninety percent of livers offered to elective patients were randomly allocated to the elective CLD/HCC pathway while ten percent were allocated to the variant syndrome pathway. Of the 2590 livers allocated to the CLD/HCC pathway, 2328 (90%) were offered to named patients and 1371 (59%) were accepted and transplanted. Of the 296 livers allocated to the VS pathway, 242 (82%) were offered and 111 (46%) were accepted and transplanted.

Figure 9A Liver offering flow chart for UK DBD donors offered between 20 March 2018 and 19 March 2022

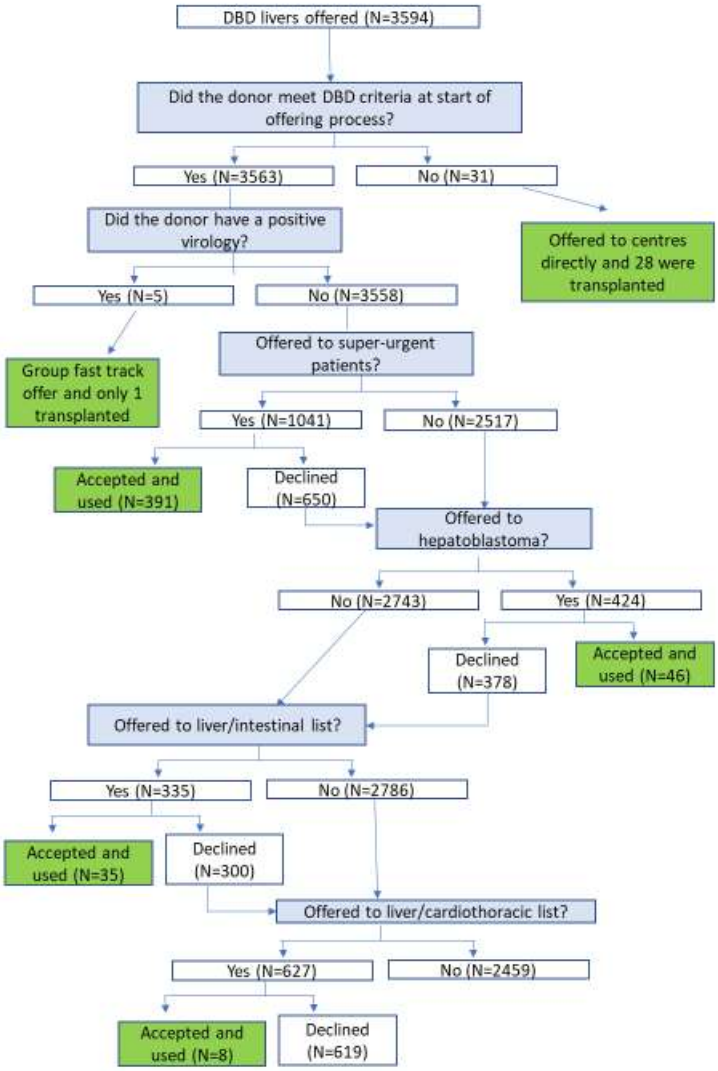
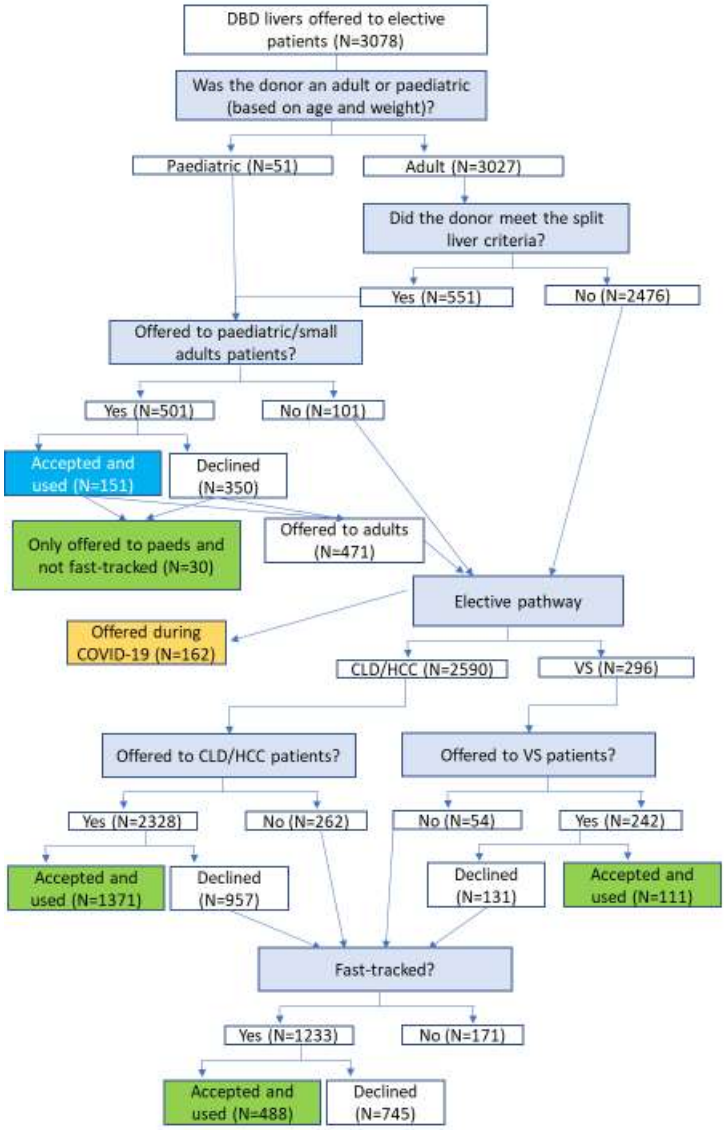


Figure 9B Liver offering flow chart for UK DBD donors offered between 20 March 2018 and 19 March 2022



3.5.12. **Table 10** shows the number of liver offers made to each UK liver transplant centre in either the twelve months prior to the new scheme or during the first forty-eight months of the new scheme. Livers offered to intestinal or liver/cardiothoracic patients have been excluded. The number of offers made to UK liver transplant centres has increased compared with the 12 months prior.

Table 10 Number of DBD liver only offers (excludes intestinal and liver/cardiothoracic offers) per UK transplant centre, 20 March 2017 to 19 March 2022

	2017/18		2018/19		2019/20		2020/21		2021/22	
	No. of offers (no. of donors)	Median number (IQR) of offers per donor	No. of offers (no. of donors)	Median number (IQR) of offers per donor	No. of offers (no. of donors)	Median number (IQR) of offers per donor	No. of offers (no. of donors)	Median number (IQR) of offers per donor	No. of offers (no. of donors)	Median number (IQR) of offers per donor
A. All liver offers										
Newcastle	344 (323)	1 (1, 1)	431 (378)	1 (1, 1)	432 (386)	1 (1, 1)	402 (343)	1 (1, 1)	315 (285)	1 (1, 1)
Leeds	501 (435)	1 (1, 1)	645 (481)	1 (1, 2)	733 (545)	1 (1, 2)	632 (443)	1 (1, 2)	611 (445)	1 (1, 2)
Cambridge	348 (323)	1 (1, 1)	479 (391)	1 (1, 1)	455 (386)	1 (1, 1)	434 (352)	1 (1, 1)	400 (347)	1 (1, 1)
Royal Free	384 (352)	1 (1, 1)	567 (460)	1 (1, 1)	489 (420)	1 (1, 1)	463 (368)	1 (1, 1)	479 (375)	1 (1, 1)
Kings College	516 (455)	1 (1, 1)	1020 (640)	1 (1, 2)	901 (629)	1 (1, 2)	808 (531)	1 (1, 2)	919 (564)	1 (1, 2)
Birmingham	495 (417)	1 (1, 1)	868 (583)	1 (1, 2)	829 (591)	1 (1, 2)	673 (468)	1 (1, 2)	729 (487)	1 (1, 2)
Edinburgh	374 (351)	1 (1, 1)	511 (426)	1 (1, 1)	470 (415)	1 (1, 1)	509 (395)	1 (1, 1)	406 (345)	1 (1, 1)
Total	**2962 (944)**	**2 (1, 5)**	**4521 (984)**	**3 (2, 7)**	**4309 (986)**	**3 (1, 7)**	**3921 (777)**	**4 (1, 8)**	**3859 (786)**	**4 (1, 8)**
B. All liver offers for livers ultimately transplanted										
Newcastle	174 (161)	1 (1, 1)	211 (192)	1 (1, 1)	208 (184)	1 (1, 1)	205 (176)	1 (1, 1)	157 (139)	1 (1, 1)
Leeds	324 (277)	1 (1, 1)	367 (276)	1 (1, 2)	429 (320)	1 (1, 2)	376 (263)	1 (1, 2)	377 (274)	1 (1, 2)
Cambridge	191 (173)	1 (1, 1)	263 (221)	1 (1, 1)	240 (203)	1 (1, 1)	231 (188)	1 (1, 1)	205 (182)	1 (1, 1)
Royal Free	209 (193)	1 (1, 1)	321 (264)	1 (1, 1)	237 (199)	1 (1, 1)	250 (196)	1 (1, 1)	265 (208)	1 (1, 1)
Kings College	327 (287)	1 (1, 1)	656 (423)	1 (1, 2)	546 (397)	1 (1, 2)	511 (343)	1 (1, 2)	607 (386)	1 (1, 2)
Birmingham	313 (261)	1 (1, 1)	540 (380)	1 (1, 2)	507 (368)	1 (1, 2)	409 (294)	1 (1, 2)	476 (318)	1 (1, 2)
Edinburgh	209 (192)	1 (1, 1)	273 (231)	1 (1, 1)	221 (192)	1 (1, 1)	283 (217)	1 (1, 1)	211 (177)	1 (1, 1)
Total	**1747 (755)**	**1 (1, 3)**	**2631 (750)**	**2 (1, 5)**	**2388 (726)**	**2 (1, 5)**	**2265 (575)**	**3 (1, 6)**	**2298 (596)**	**3 (1, 6)**

3.5.13. **Figure 10** shows, for livers that were ultimately transplanted, the outcome of liver offers made in either the last year prior to the new scheme or during the first forty-eight months of the new scheme. Fast-track offers that were not accepted and transplanted (i.e. declined or accepted and not used fast-track offers) as well as livers offered from either DCD or positive virology donors were excluded. It should be noted that offers of left and right lobes are included. The proportion of offers accepted and not used has increased compared with the 12 months prior. **Figure 10A** shows the equivalent for each transplant centre.

Figure 10 Offer outcome for DBD livers that were offered and ultimately transplanted, 20 March 2017 to 19 March 2022

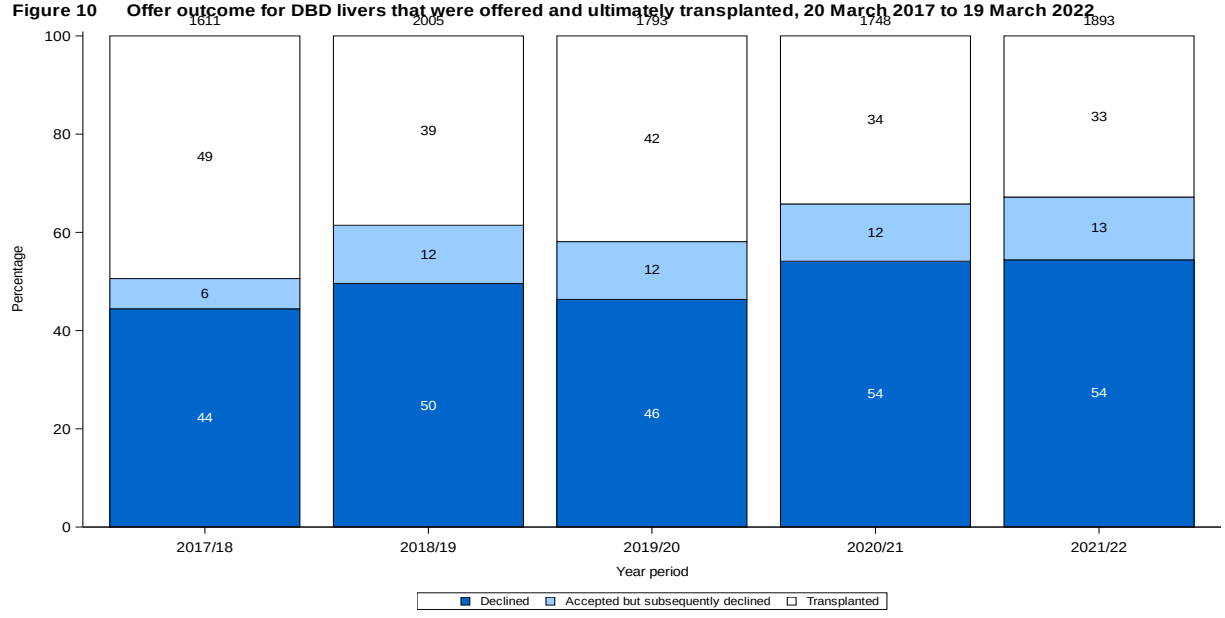
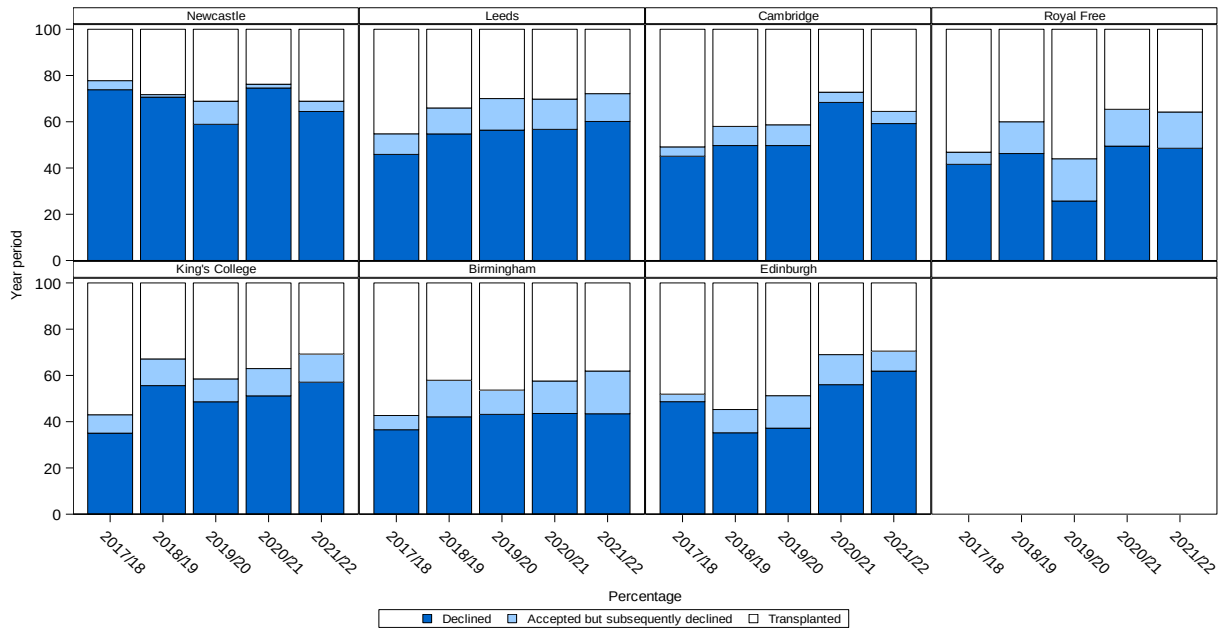


Figure 10A Offer outcome, by centre, for DBD livers that were offered and ultimately transplanted, 20 March 2017 to 19 March 2022



3.5.14. 5816 (30%) of the 19572 offers made in the first 48 months post NLOS were to named recipients. All offers between 27 March and 9 July 2020 are excluded as centres were offered livers for any clinically urgent patient rather than named patients. 4030 of the named patient offers involved livers that were ultimately retrieved and transplanted.

3.5.15. The number of named patient offers per donor ranged between 1 and 10 with a median of one named patient offers per donor. The number of named offers per patient ranged between 1 and 27 with a median of two offers per patient. Thirty-three patients at 7 centres were offered 11 or more livers in the forty-eight month time period (13 were offered 11 livers, 6 were offered 12 livers, 4 were offered 13 livers, 3 were offered 14 livers, 1 was offered 15 livers, 1 was offered 16 livers, 1 was offered 17, 1 was offered 21, 1 was offered 22 livers and 1 was offered 27 livers).

3.5.16. **Table 11** shows the outcome of named patient liver offers made during the first forty-eight months of the new scheme by type of patient. It also shows the offer outcome after excluding named patients offers for livers that were ultimately not transplanted. Overall, forty-four percent of named patient offers were accepted and 26% were accepted and transplanted. The number of transplants will not agree with the flow chart in **Figure 9A** as **Table 11** includes all elective named patient offers and will include livers that were offered as a right lobe after being accepted for super-urgent and hepatoblastoma patients.

3.5.17. **Figures 11A, 11B** and **11C** shows the outcome of named CLD patient liver offers made during the first forty-eight months of the new scheme for livers ultimately transplanted by aetiology, transplant centre and blood group respectively.

3.5.18. **Figures 12A** and **12B** for shows the outcome of named HCC patient liver offers made during the first forty-eight months of the new scheme for livers ultimately transplanted by transplant centre and blood group respectively. **Figures 13A** and **13B** show equivalent information for variant syndrome patients.

Table 11 **Offer outcome for named elective patient offers made between 20 March 2018 and 19 March 2022 (excluding 27 March 2020 to 9 July 2020), by type of patient**

		Offer outcome for all named patient offers				Offer outcome for all named patient offers for livers that were ultimately transplanted			
Type of patient	**Disease group**	**Declined**	**Accepted but not used**	**Transplanted**	**Total**	**Declined**	**Accepted but not used**	**Transplanted**	**Total**
Chronic Liver Disease (CLD)	2018/2019	790 (55)	246 (17)	411 (28)	**1447**	492 (47)	142 (14)	411 (39)	**1045**
	2019/2020	613 (50)	250 (20)	361 (29)	**1224**	346 (42)	118 (14)	361 (44)	**825**
	2020/2021[1]	544 (59)	162 (17)	223 (24)	**929**	315 (51)	78 (13)	223 (36)	**616**
	2021/2022	796 (58)	252 (18)	336 (24)	**1384**	493 (51)	131 (14)	336 (35)	**960**
	Total	**2743 (55)**	**910 (18)**	**1331 (27)**	**4984**	**1646 (48)**	**469 (14)**	**1331 (39)**	**3446**
HCC	2018/2019	31 (53)	12 (20)	16 (27)	**59**	24 (53)	5 (11)	16 (36)	**45**
	2019/2020	29 (44)	12 (18)	25 (38)	**66**	11 (24)	9 (20)	25 (56)	**45**
	2020/2021[1]	31 (57)	13 (24)	10 (19)	**54**	25 (61)	6 (15)	10 (24)	**41**
	2021/2022	39 (58)	11 (16)	17 (25)	**67**	17 (44)	5 (13)	17 (44)	**39**
	Total	**130 (53)**	**48 (19)**	**68 (28)**	**246**	**77 (45)**	**25 (15)**	**68 (40)**	**170**
Variant syndrome	2018/2019	80 (56)	27 (19)	35 (25)	**142**	55 (53)	14 (13)	35 (34)	**104**
	2019/2020	92 (58)	28 (18)	39 (25)	**159**	66 (55)	16 (13)	39 (32)	**121**
	2020/2021[1]	58 (64)	19 (21)	13 (14)	**90**	22 (50)	9 (20)	13 (30)	**44**
	2021/2022	132 (68)	38 (19)	25 (13)	**195**	94 (65)	26 (18)	25 (17)	**145**
	Total	**362 (62)**	**112 (19)**	**112 (19)**	**586**	237 (57)	65 (16)	112 (f27)	**414**
Total named patient offers		**3235 (56)**	**1070 (18)**	**1511 (26)**	**5816**	**1960 (49)**	**559 (14)**	**1511 (37)**	**4030**

[1] Offers between 27 March 2020 and 9 July excluded

Figure 11A **Named CLD patient offer outcome, by year and disease group, for DBD livers that were offered and ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding offers between 27 March and 9 July 2020**

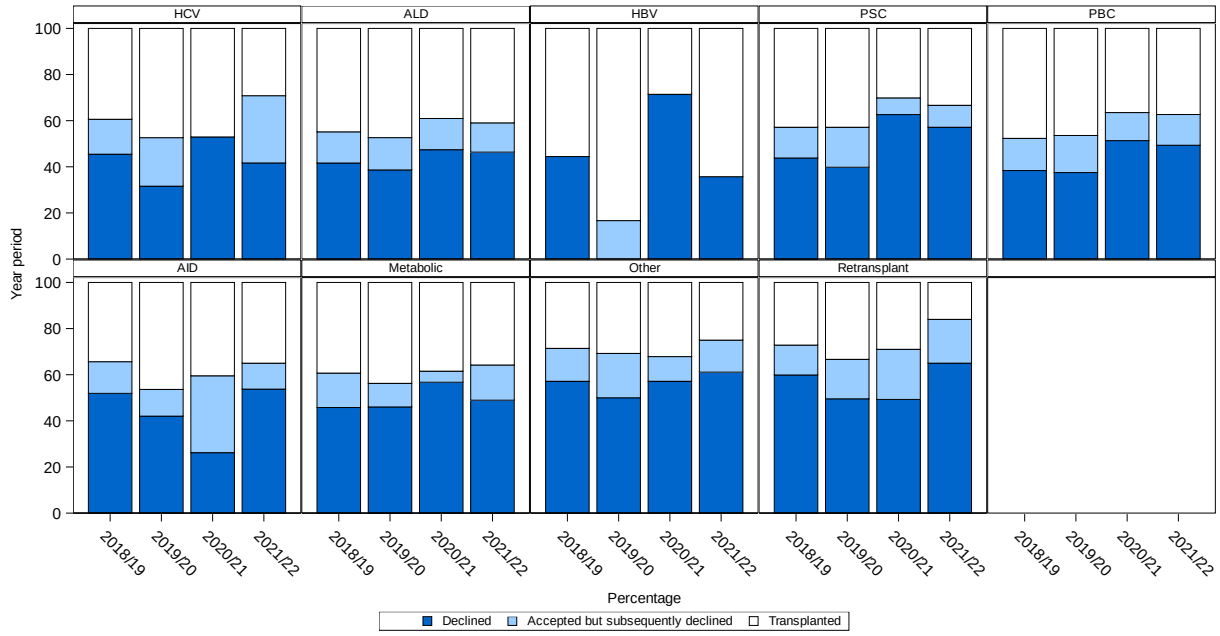


Figure 11B **Named CLD patient offer outcome, by year and offer centre, for DBD livers that were offered and ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding offers between 27 March and 9 July 2020**

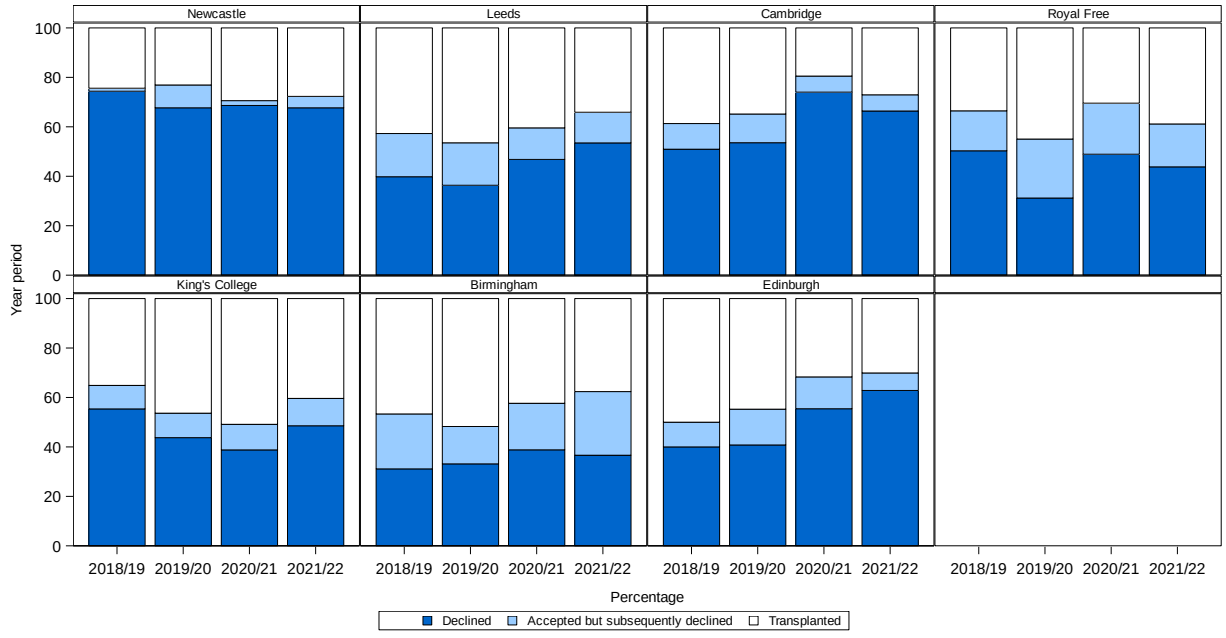


Figure 11C **Named CLD patient offer outcome, by year and blood group, for DBD livers that were offered and ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding offers between 27 March and 9 July 2020**

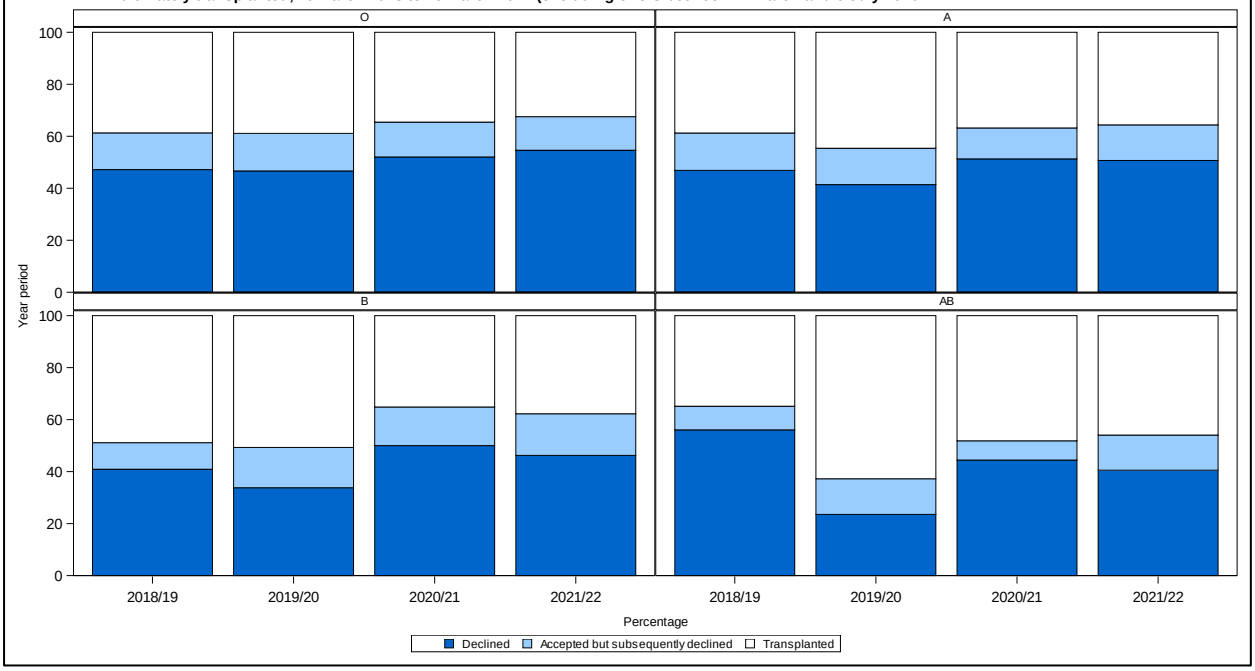


Figure 12A **Named HCC patient offer outcome, by year and offer centre, for DBD livers that were offered and ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding offers between 27 March and 9 July 2020**

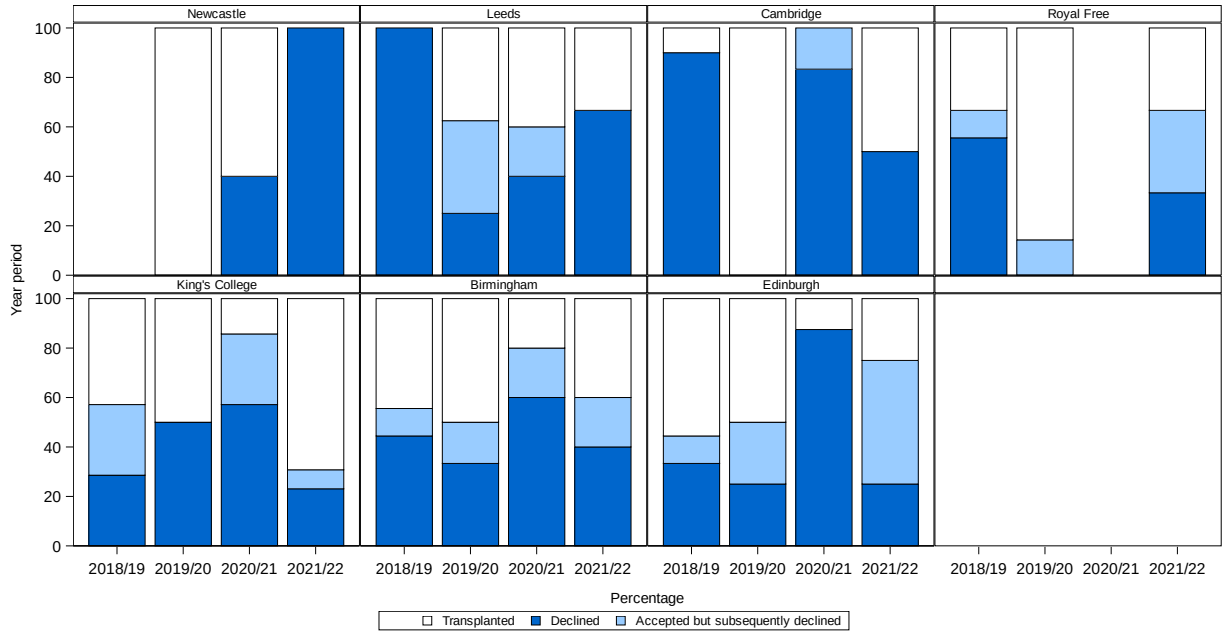


Figure 12B **Named HCC patient offer outcome, by year and blood group, for DBD livers that were offered and ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding offers between 27 March and 9 July 2020**

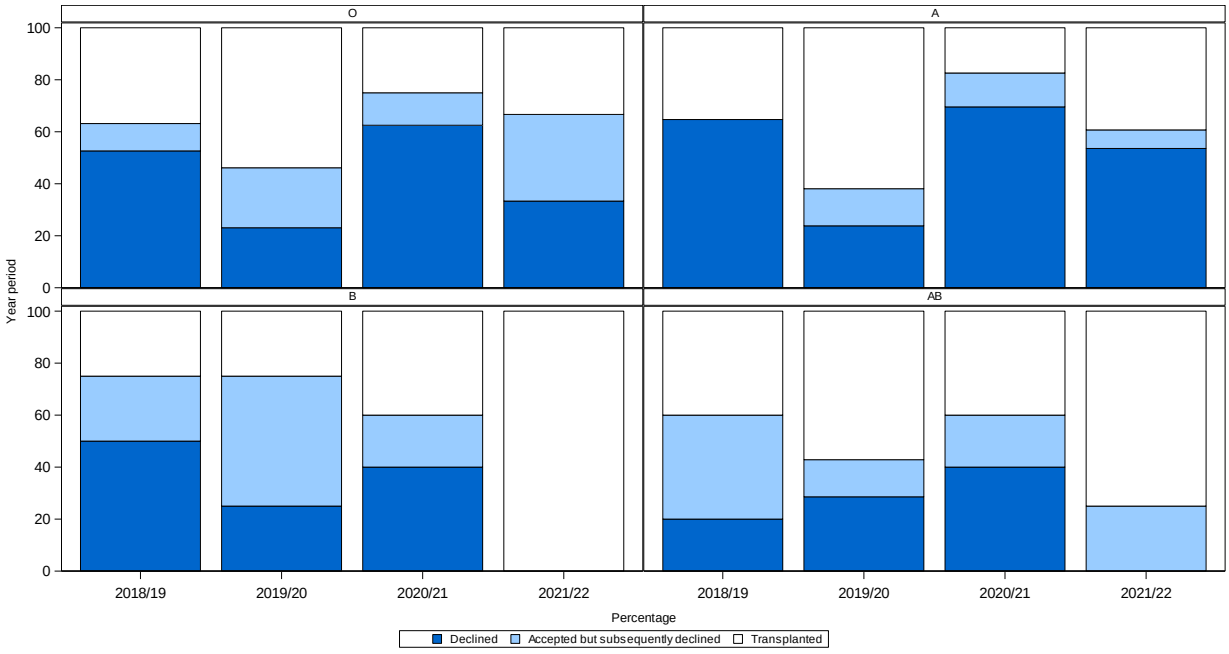


Figure 13A **Named VS patient offer outcome, by year and offer centre, for DBD livers that were offered and ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding offers between 27 March and 9 July 2020**

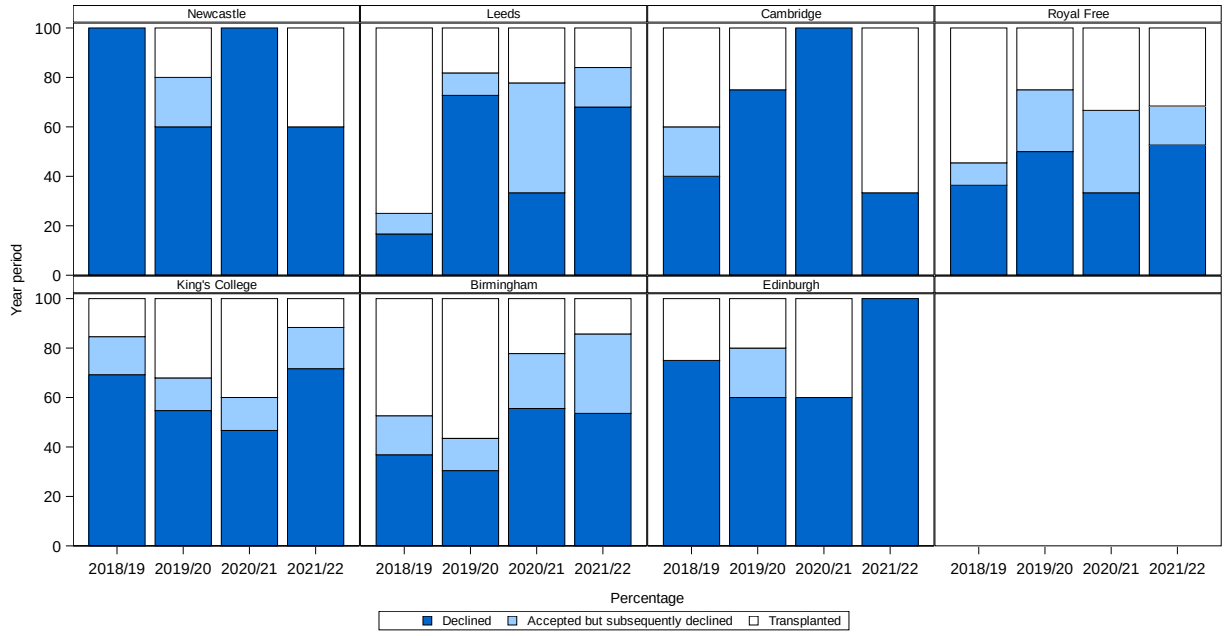
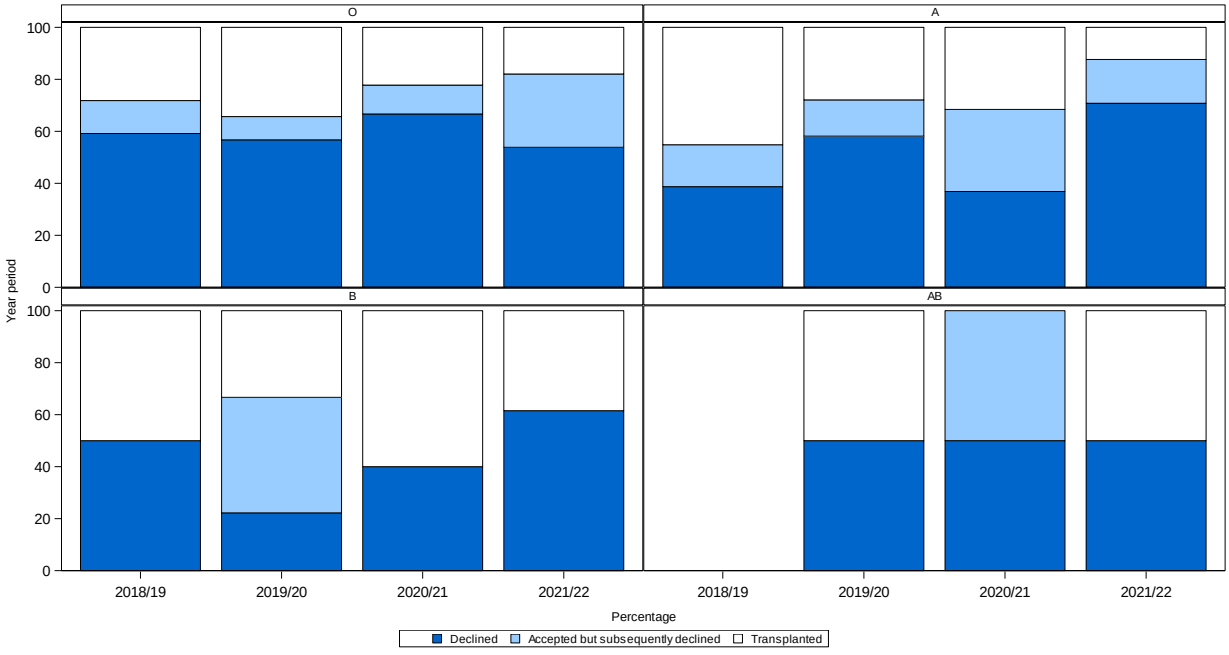


Figure 13B **Named VS patient offer outcome, by year and blood group, for DBD livers that were offered and ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding offers between 27 March and 9 July 2020**



3.5.19. **Table 12** shows the median Transplant Benefit Score (TBS) at time of offer for named elective CLD patient offers for *livers ultimately transplanted* by, separately, year group, aetiology, blood group and centre. Overall, the median TBS was 1167 days and ranged between 1124 and 1179 days by year. The overall median TBS ranged between 1002 days for other aetiology and 1246 days for AID. For blood group, the median TBS ranged between 1031 days for blood group AB and 1229 days for blood group O. **Table 13** shows equivalent information for HCC named patient offers.

Table 12 **Median (Range) Transplant Benefit Score (TBS) for named elective chronic liver disease (CLD) patient offers for livers ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding 27 March 2020 to 9 July 2020)**

	2018/19			2019/20			2020/21			2021/22			Overall	
Disease group	**N**	**Median**	**IQR**	**N**	**Median**	**IQR**	**N**	**Median**	**IQR**	**N**	**Median**	**IQR**	**N**	**Median**
Hepatitis C	33	1056.78	920 - 1251	19	1170.01	926 - 1392	17	1107.20	994 - 1304	24	1239.03	1056 - 1376	**93**	**1133.11**
ALD	281	1247.11	1032 - 1347	264	1229.73	1080 - 1353	192	1185.20	976 - 1307	315	1211.94	1026 - 1348	**1052**	**1221.98**
Hepatitis B	18	1062.17	971 - 1380	6	1181.53	998 - 1406	7	1369.83	1261 - 1555	14	970.96	833 - 1221	**45**	**1152.10**
PSC	105	1198.86	1017 - 1316	98	1179.12	1092 - 1281	83	1084.29	838 - 1221	126	1166.82	968 - 1258	**412**	**1156.99**
PBC	86	1081.24	1007 - 1223	56	1089.22	1015 - 1212	74	1091.40	949 - 1256	75	1036.89	870 - 1227	**291**	**1081.90**
AID	131	1258.83	1107 - 1379	69	1202.14	1005 - 1332	42	1284.19	1202 - 1354	80	1215.18	994 - 1432	**322**	**1245.62**
Metabolic	201	1220.28	1051 - 1326	176	1168.53	1041 - 1310	104	1157.13	1032 - 1265	190	1243.44	1082 - 1350	**671**	**1199.20**
Other	28	992.34	797 - 1080	26	995.54	939 - 1163	28	1041.93	678 - 1168	36	1062.25	885 - 1246	**118**	**1001.86**
Retransplant	162	1116.69	1011 - 1236	111	1074.09	984 - 1199	69	1010.66	878 - 1122	100	1102.58	921 - 1238	**442**	**1097.37**
Centre														
Newcastle	82	1255.13	1085 - 1340	65	1128.12	1064 - 1280	51	1067.92	952 - 1264	65	1258.98	1184 - 1352	**263**	**1212.13**
Leeds	103	1097.23	923 - 1289	99	1182.65	1031 - 1309	94	1094.07	932 - 1235	129	1186.41	1064 - 1288	**425**	**1144.65**
Cambridge	106	1204.94	997 - 1306	112	1222.81	1084 - 1310	77	1122.43	994 - 1224	122	1157.92	978 - 1313	**417**	**1182.80**
Royal Free	167	1190.45	996 - 1342	109	1154.04	1037 - 1255	92	1102.42	930 - 1276	121	1176.43	1027 - 1308	**489**	**1171.24**
Kings College	242	1168.09	1022 - 1310	192	1147.34	1006 - 1336	116	1164.97	1011 - 1254	208	1152.55	965 - 1266	**758**	**1157.94**
Birmingham	225	1201.16	1058 - 1317	172	1153.32	1016 - 1297	85	1162.22	917 - 1350	202	1126.70	958 - 1300	**684**	**1160.71**
Edinburgh	120	1131.67	1008 - 1283	76	1175.45	1041 - 1315	101	1147.42	1032 - 1270	113	1258.18	1120 - 1345	**410**	**1186.99**
Blood group														
O	460	1189.36	1057 - 1329	360	1233.56	1113 - 1346	246	1209.73	1071 - 1306	379	1253.37	1152 - 1346	**1445**	**1229.42**
A	431	1190.29	997 - 1314	343	1082.09	976 - 1233	269	1063.00	905 - 1211	438	1081.22	919 - 1259	**1481**	**1106.89**
B	88	1140.07	963 - 1291	71	1192.82	1061 - 1285	74	1107.13	972 - 1344	106	1189.56	971 - 1293	**339**	**1166.25**
AB	66	979.37	640 - 1273	51	1045.52	876 - 1363	27	1044.83	765 - 1126	37	812.71	460 - 1137	**181**	**1030.96**
Overall	**1045**	**1178.91**	**1017 - 1314**	**825**	**1169.19**	**1031 - 1303**	**616**	**1124.33**	**965 - 1274**	**960**	**1179.39**	**988 - 1304**	**3446**	**1167.42**

Table 13 **Median (Range) Transplant Benefit Score (TBS) for named elective chronic HCC named patient offers for livers ultimately transplanted, 20 March 2018 to 19 March 2022 (excluding 27 March 2020 to 9 July 2020)**

	2018/19			2019/20			2020/21			2021/22			Overall	
	N	**Median**	**IQR**	**N**	**Median**	**IQR**	**N**	**Median**	**IQR**	**N**	**Median**	**IQR**	**N**	**Median**
Centre														
Newcastle	0	-	-	2	1161.34	1034 - 1289	5	-14.34	-55 - 570	4	564.01	254 - 697	**11**	**570.08**
Leeds	1	668.05	668 - 668	16	971.47	901 - 1090	10	516.45	-2 - 854	6	992.70	968 - 1036	**33**	**939.77**
Cambridge	10	1322.15	1265 - 1458	2	867.07	297 - 1437	6	291.64	137 - 705	4	1196.09	553 - 1254	**22**	**1254.17**
Royal Free	9	1312.81	676 - 1409	7	506.79	242 - 943	0	-	-	3	1115.54	643 - 1152	**19**	**943.11**
Kings College	7	598.46	515 - 1104	8	1060.40	1051 - 1105	7	463.13	415 - 1318	13	1075.38	910 - 1371	**35**	**1053.67**
Birmingham	9	1026.15	642 - 1179	6	922.57	549 - 1062	5	1089.63	1051 - 1103	5	448.06	-103 - 582	**25**	**930.59**
Edinburgh	9	1081.05	1052 - 1120	4	783.65	470 - 1020	8	339.28	236 - 831	4	651.45	331 - 1063	**25**	**929.44**
Blood group														
O	19	1284.76	1105 - 1381	13	1062.41	474 - 1164	8	913.83	704 - 1305	6	1133.71	904 - 1187	**46**	**1120.60**
A	17	1256.03	855 - 1329	21	1033.53	920 - 1164	23	402.24	130 - 915	28	953.20	646 - 1196	**89**	**967.99**
B	4	671.82	629 - 698	4	957.66	851 - 990	5	354.59	192 - 1028	1	943.06	943 - 943	**14**	**741.83**
AB	5	545.32	515 - 598	7	549.42	348 - 899	5	276.32	-55 - 415	4	372.62	144 - 515	**21**	**448.06**
UKELD group														
<49	1	590.94	591 - 591	9	297.35	182 - 507	15	136.80	-6 - 415	4	9.40	-57 - 163	**29**	**191.72**
49-53	8	606.64	497 - 695	9	916.25	810 - 980	12	730.36	232 - 1070	13	643.00	448 - 1036	**42**	**738.58**
≥ 54	36	1260.57	1059 - 1358	27	1053.67	943 - 1227	14	913.83	767 - 1289	22	1028.59	910 - 1254	**99**	**1104.49**
Overall	**45**	**1106.12**	**676 - 1315**	**45**	**980.26**	**775 - 1089**	**41**	**463.13**	**192 - 973**	**39**	**938.42**	**543 - 1152**	**170**	**943.09**

3.6. TRANSPLANT ACTIVITY

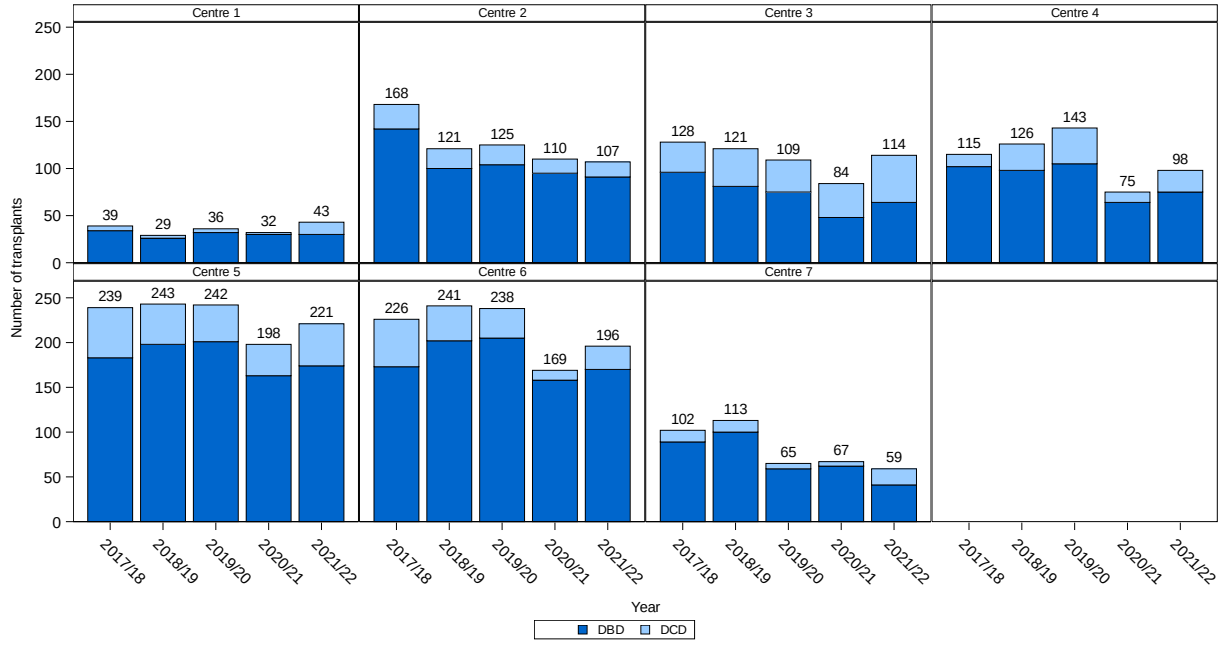
3.6.1. **Table 14** shows the urgency status and age group of DBD and DCD liver transplants performed in the UK between 20 March 2017 and 19 March 2022. The proportion of super-urgent transplants performed prior to NLOS implementation was similar to the proportion performed in the most time period 2021/22 (11% vs 12% respectively). There was no evidence of a statistically significant difference for DBD liver and liver/kidney transplants (overall Chi-squared p-value=0.68 for adult patients and 0.32 for paediatric). Highlighted in red are the transplants that will be analysed further in the rest of the section.

Table 14 Urgency status and age group for deceased donor liver transplants performed in the UK, 20 March 2017 to 19 March 2022, as at 31 March 2022

	2017/18 N (%)	2018/19 N (%)	2019/20 N (%)	2020/21 N (%)	2021/22 N (%)
DBD liver					
Adult elective liver and liver/kidney	640 (78.1)	624 (77.5)	608 (77.8)	477 (76.8)	481 (74.6)
Adult elective multivisceral	6 (0.7)	5 (0.6)	6 (0.8)	1 (0.2)	9 (1.4)
Adult elective liver/ cardiothoracic	2 (0.2)	0 (0)	2 (0.3)	3 (0.5)	3 (0.5)
Adult super-urgent liver and liver/kidney	94 (11.5)	100 (12.4)	83 (10.6)	61 (9.8)	75 (11.6)
Adult super-urgent multivisceral	1 (0.1)	0 (0)	0 (0)	0 (0)	0 (0)
Paediatric elective liver and liver/kidney	57 (7.0)	56 (7.0)	64 (8.2)	63 (10.1)	53 (8.2)
Paediatric elective multivisceral	6 (0.7)	3 (0.4)	2 (0.3)	4 (0.6)	2 (0.3)
Paediatric super-urgent liver and liver/kidney	13 (1.6)	17 (2.1)	16 (2.0)	12 (1.9)	22 (3.4)
Total UK DBD transplants	**819 (80.5)**	**805 (81.0)**	**781 (81.5)**	**621 (84.4)**	**645 (77.0)**
DCD liver					
Adult elective liver and liver/kidney	190 (96.0)	184 (97.4)	173 (97.7)	110 (95.7)	189 (97.9)
Adult super-urgent liver and liver/kidney	1 (0.5)	1 (0.5)	3 (1.7)	2 (1.7)	2 (1.0)
Paediatric elective liver and liver/kidney	7 (3.5)	3 (1.6)	1 (0.6)	2 (1.7)	2 (1.0)
Paediatric super-urgent liver and liver/kidney	0 (0)	1 (0.5)	0 (0)	1 (0.9)	0 (0)
Total UK DCD transplants	**198 (19.5)**	**189 (19.0)**	**177 (18.5)**	**115 (15.6)**	**193 (23.0)**
Total UK transplants	**1017 (100)**	**994 (100)**	**958 (100)**	**736 (100)**	**838 (100)**

3.6.2. **Figure 14** shows the number of transplants over the time periods of interest, by transplant centre and donor type.

Figure 14 **Number of deceased donor liver transplants performed in the UK by transplant centre and donor type, 20 March 2017 - 19 March 2022**



3.6.3. One hundred and forty of the 3676 adult elective liver and liver/kidney transplants were performed in the UK between 27 March 2020 and 9 July 2020. These transplants are **included** in the rest of the section but note that DBD livers were not offered through the National Liver Offering Scheme due to COVID-19, and both DBD and DCD livers were offered to clinically urgent patients. Sixteen NHS group 2 transplants (1 performed at London Bridge and 15 performed at King's College) and three intestinal liver only transplants performed at Cambridge between August 2017 and September 2018 have been excluded from the rest of this section.

3.6.4. **Table 15** and **Table 16** show the demographics of adult elective liver and liver/kidney DBD and DCD transplants performed in the UK during the time periods of interest. For both DBD and DCD transplants, there was no evidence of a statistically significant association between time period and transplant type (p=0.19 DBD, 0.42 DCD), type of liver transplanted for DBD (p=0.82) and gender (p=0.47 DBD, 0.31 DCD).

3.6.5. For DBD transplants, there was evidence of a statistically significant association between time period and age group (p=0.0008), disease group (p=0.0008), transplant centre (p=0.01)**,** zonal (p<0.0001), type of patient (p<0.0001) and blood group compatibility (p=0.0002).

3.6.6. For DCD transplants, there was evidence of a statistically significant association between time period and disease group (p=0.0095), transplant centre (p<0.0001) and type of patient (p=0.01). There was borderline significance for blood group compatibility (p=0.05) and there was no evidence of a statistically significant association for age group (p=0.14) and zonal transplants (p=0.77).

Table 14 Adult elective liver and liver/kidney transplants performed in the UK using livers from DBD donors, 20 March 2017 to 19 March 2022 as at 31 March 2022

	2017/18 N (%)	**2018/19** N (%)	**2019/20** N (%)	**2020/21** N (%)	**2021/22** N (%)
Total	**635**	**622**	**607**	**476**	**481**
Offer type					
Named patient		493 (79.3)	443 (73.0)	346 (72.7)	395 (82.1)
Fast-track		129 (20.7)	164 (27.0)	130 (27.3)	86 (17.9)
Rank on matching run					
Median (IQR)		2 (1 – 4)	2 (1 – 4)	2 (1 – 5)	2 (1 – 4)
(Range)		(1 - 187)	(1 – 191)	(1 – 204)	(1 – 362)
Transplant Benefit Score					
Median (IQR)		1132.82 (881 – 1301)	1096.12 (885 – 1289)	1090.12 (838 – 1281)	1155.10 (923 – 1314)
(Range)		(-493 – 1617)	(-549 – 1616)	(-1535 - 1563)	(-289 – 1600)
Transplant Type					
Liver only	615 (96.9)	609 (97.9)	593 (97.7)	469 (98.5)	475 (98.8)
Liver & kidney	20 (3.1)	13 (2.1)	14 (2.3)	7 (1.5)	6 (1.2)
Type of Liver Transplanted					
Whole liver	596 (93.9)	582 (93.6)	569 (93.7)	443 (93.1)	447 (92.9)
Split liver	39 (6.1)	40 (6.4)	37 (6.1)	33 (6.9)	34 (7.1)
Reduced liver	0 (0)	0 (0)	1 (0.2)	0 (0)	0 (0)
Recipient Age Group					
17-25 years	27 (4.3)	37 (5.9)	35 (5.8)	34 (7.1)	25 (5.2)
26-39 years	95 (15.0)	68 (10.9)	64 (10.5)	41 (8.6)	49 (10.2)
40-49 years	98 (15.4)	75 (12.1)	68 (11.2)	78 (16.4)	85 (17.7)
50-59 years	208 (32.8)	202 (32.5)	213 (35.1)	170 (35.7)	133 (27.7)
60-69 years	193 (30.4)	232 (37.3)	212 (34.9)	144 (30.3)	174 (36.2)
70+ years	14 (2.2)	8 (1.3)	15 (2.5)	9 (1.9)	15 (3.1)
Recipient Sex					
Male	396 (62.4)	396 (63.7)	369 (60.8)	298 (62.6)	318 (66.1)
Female	239 (37.6)	226 (36.3)	238 (39.2)	178 (37.4)	163 (33.9)
Type of Patient					
CLD	477 (75.1)	486 (78.1)	471 (77.6)	398 (83.6)	402 (83.6)
HCC	104 (16.4)	72 (11.6)	80 (13.2)	54 (11.3)	38 (7.9)
VS	49 (7.7)	59 (9.5)	51 (8.4)	21 (4.4)	28 (5.8)
HCC downstaging	5 (0.8)	5 (0.8)	5 (0.8)	3 (0.6)	3 (0.6)
ACLF	0 (0)	0 (0)	0 (0)	0 (0)	10 (2.1)
Robert's Disease Group					
HCC	109 (17.2)	78 (12.5)	85 (14.0)	57 (12.0)	48 (10.0)
HCV	23 (3.6)	12 (1.9)	16 (2.6)	9 (1.9)	6 (1.2)
ALD	139 (21.9)	169 (27.2)	153 (25.2)	127 (26.7)	150 (31.2)
HBV	8 (1.3)	13 (2.1)	6 (1.0)	2 (0.4)	10 (2.1)
PSC	86 (13.5)	72 (11.6)	63 (10.4)	47 (9.9)	55 (11.4)
PBC	37 (5.8)	49 (7.9)	47 (7.7)	43 (9.0)	36 (7.5)
AID	44 (6.9)	51 (8.2)	48 (7.9)	38 (8.0)	37 (7.7)
NAFLD	67 (10.6)	72 (11.6)	71 (11.7)	54 (11.3)	69 (14.3)
Metabolic (excluding NAFLD)	8 (1.3)	13 (2.1)	23 (3.8)	7 (1.5)	9 (1.9)
Other	58 (9.1)	40 (6.4)	44 (7.2)	38 (8.0)	34 (7.1)
Retransplant	56 (8.8)	53 (8.5)	51 (8.4)	54 (11.3)	27 (5.6)

Table 14 Adult elective liver and liver/kidney transplants performed in the UK using livers from DBD donors, 20 March 2017 to 19 March 2022 as at 31 March 2022

	2017/18 N (%)	**2018/19** N (%)	**2019/20** N (%)	**2020/21** N (%)	**2021/22** N (%)
Total	**635**	**622**	**607**	**476**	**481**
Liver Transplant Number					
First liver transplant	579 (91.2)	568 (91.3)	556 (91.6)	421 (88.4)	454 (94.4)
Second	46 (7.2)	51 (8.2)	40 (6.6)	45 (9.5)	18 (3.7)
Third	7 (1.1)	3 (0.5)	8 (1.3)	9 (1.9)	8 (1.7)
Fourth	2 (0.3)	0 (0)	3 (0.5)	1 (0.2)	1 (0.2)
Sixth	1 (0.2)	0 (0)	0 (0)	0 (0)	0 (0)
Blood Group Compatibility*					
Identical	628 (98.9)	608 (97.7)	574 (94.6)	451 (94.7)	460 (95.8)
Compatible	6 (0.9)	14 (2.3)	33 (5.4)	25 (5.3)	20 (4.2)
Incompatible	1 (0.2)	0 (0)	0 (0)	0 (0)	0 (0)
Zonal Transplants					
Non zonal	167 (26.3)	488 (78.5)	486 (80.1)	398 (83.6)	389 (80.9)
Zonal	468 (73.7)	134 (21.5)	121 (19.9)	78 (16.4)	92 (19.1)
Blood group matching* (D=donor, R=recipient)					
DO, RO	297 (46.8)	294 (47.3)	262 (43.2)	182 (38.2)	171 (35.6)
DO, RA	1 (0.2)	0 (0)	3 (0.5)	5 (1.1)	8 (1.7)
DO, RB	1 (0.2)	1 (0.2)	5 (0.8)	5 (1.1)	5 (1.0)
DA, RO	1 (0.2)	0 (0)	0 (0)	0 (0)	0 (0)
DA, RA	245 (38.6)	236 (37.9)	235 (38.7)	203 (42.6)	213 (44.4)
DA, RAB	4 (0.6)	11 (1.8)	20 (3.3)	10 (2.1)	6 (1.3)
DB, RB	70 (11.0)	55 (8.8)	59 (9.7)	55 (11.6)	52 (10.8)
DB, RAB	0 (0)	2 (0.3)	5 (0.8)	5 (1.1)	1 (0.2)
DAB, RAB	16 (2.5)	23 (3.7)	18 (3.0)	11 (2.3)	24 (5.0)

* 1 transplant performed with unknown donor blood group in 2021/22

Table 15 Adult elective liver and liver/kidney transplants performed in the UK using livers from DCD donors, 20 March 2017 to 19 March 2022 as at 31 March 2022

	2017/18 N (%)	2018/19 N (%)	2019/20 N (%)	2020/21 N (%)	2021/22 N (%)
Total	**186**	**181**	**170**	**110**	**189**
Transplant Type					
Liver only	186 (100)	181 (100)	169 (99.4)	110 (100)	189 (100)
Liver & kidney	0 (0)	0 (0)	1 (0.6)	0 (0)	0 (0)
Type of Liver Transplanted					
Whole liver	186 (100)	181 (100)	170 (100)	110 (100)	189 (100)
Split liver	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Reduced liver	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Recipient Age Group					
17-25 years	4 (2.2)	5 (2.8)	5 (2.9)	1 (0.9)	1 (0.5)
26-39 years	10 (5.4)	17 (9.4)	16 (9.4)	14 (12.7)	19 (10.1)
40-49 years	24 (12.9)	23 (12.7)	25 (14.7)	17 (15.5)	35 (18.5)
50-59 years	76 (40.9)	73 (40.3)	55 (32.4)	36 (32.7)	83 (43.9)
60-69 years	66 (35.5)	57 (31.5)	68 (40.0)	39 (35.5)	48 (25.4)
70+ years	6 (3.2)	6 (3.3)	1 (0.6)	3 (2.7)	3 (1.6)
Recipient Sex					
Male	119 (64.0)	129 (71.3)	106 (62.4)	76 (69.1)	132 (69.8)
Female	67 (36.0)	52 (28.7)	64 (37.6)	34 (30.9)	57 (30.2)
Type of Patient					
CLD	123 (66.1)	86 (47.5)	107 (62.9)	72 (65.5)	104 (55.0)
HCC	52 (28.0)	83 (45.9)	58 (34.1)	33 (30.0)	73 (38.6)
VS	9 (4.8)	5 (2.8)	1 (0.6)	2 (1.8)	8 (4.2)
HCC downstaging	2 (1.1)	7 (3.9)	4 (2.4)	3 (2.7)	3 (1.6)
ACLF	0 (0)	0 (0)	0 (0)	0 (0)	1 (0.5)
Robert's Disease Group					
HCC	55 (29.6)	91 (50.3)	62 (36.5)	36 (32.7)	76 (40.2)
HCV	4 (2.2)	3 (1.7)	3 (1.8)	2 (1.8)	6 (3.2)
ALD	43 (23.1)	35 (19.3)	43 (25.3)	20 (18.2)	39 (20.6)
HBV	3 (1.6)	1 (0.6)	2 (1.2)	1 (0.9)	3 (1.6)
PSC	19 (10.2)	12 (6.6)	17 (10)	16 (14.5)	15 (7.9)
PBC	24 (12.9)	7 (3.9)	18 (10.6)	9 (8.2)	10 (5.3)
AID	10 (5.4)	7 (3.9)	5 (2.9)	4 (3.6)	11 (5.8)
NAFLD	21 (11.3)	12 (6.6)	8 (4.7)	8 (7.3)	11 (5.8)
Metabolic (excluding NAFLD)	4 (2.2)	2 (1.1)	1 (0.6)	3 (2.7)	1 (0.5)
Other	0 (0)	6 (3.3)	8 (4.7)	4 (3.6)	11 (5.8)
Retransplant	3 (1.6)	5 (2.8)	3 (1.8)	7 (6.4)	6 (3.2)
Liver Transplant Number					
First liver transplant	183 (98.4)	176 (97.2)	167 (98.2)	103 (93.6)	183 (96.8)
Second	3 (1.6)	5 (2.8)	3 (1.8)	7 (6.4)	4 (2.1)
Third	0 (0)	0 (0)	0 (0)	0 (0)	2 (1.1)
Blood Group Compatibility					
Identical	185 (99.5)	174 (96.1)	161 (94.7)	109 (99.1)	182 (96.3)
Compatible	1 (0.5)	7 (3.9)	9 (5.3)	1 (0.9)	7 (3.7)
Zonal Transplants					
Non zonal	65 (34.9)	74 (40.9)	65 (38.2)	42 (38.2)	77 (40.7)
Zonal	121 (65.1)	107 (59.1)	105 (61.8)	68 (61.8)	112 (59.3)

Table 15 Adult elective liver and liver/kidney transplants performed in the UK using livers from DCD donors, 20 March 2017 to 19 March 2022 as at 31 March 2022

	2017/18 N (%)	**2018/19** N (%)	**2019/20** N (%)	**2020/21** N (%)	**2021/22** N (%)
Total	**186**	**181**	**170**	**110**	**189**
Blood group matching* (D=donor, R=recipient)					
DO, RO	95 (51.1)	79 (43.6)	68 (40.0)	52 (47.3)	88 (46.6)
DO, RA	0 (0)	0 (0)	3 (1.8)	1 (0.9)	4 (2.1)
DO, RB	0 (0)	5 (2.8)	5 (2.9)	0 (0)	2 (1.1)
DO, RAB	0 (0)	1 (0.6)	0 (0)	0 (0)	1 (0.5)
DA, RA	70 (37.6)	74 (40.9)	77 (45.3)	48 (43.6)	73 (38.6)
DA, RAB	1 (0.5)	1 (0.6)	0 (0)	0 (0)	0 (0)
DB, RB	18 (9.7)	16 (8.8)	13 (7.6)	7 (6.4)	21 (11.1)
DB, RAB	0 (0)	0 (0)	1 (0.6)	0 (0)	0 (0)
DAB, RAB	2 (1.1)	5 (2.8)	3 (1.8)	2 (1.8)	0 (0)

* 1 transplant performed with unknown donor blood group in 2021/22

3.6.7. **Table 16** and **Table 17** shows the median waiting time to transplant for the adult elective transplants performed in the UK by transplant centre, blood group and type of patient, for DBD and DCD transplants respectfully. Overall, the median time to transplant was statistically significantly different across the time periods of interest for both DBD and DCD transplants (both with a Kruskal-Wallis p-value<0.0001).

Table 16 **Median (IQR; range) time to transplant (days) for adult elective liver and liver/kidney transplants performed in the UK using livers from DBD donors, 20 March 2017 to 19 March 2022, as at 31 March 2022**

	2017/18			2018/19			2019/20			2020/21			2021/22		
	N	Median (IQR)	Range	N	Median (IQR)	Range	N	Median (IQR)	Range	N	Median (IQR)	Range	N	Median (IQR)	Range
Overall	**635**	**71 (23 - 198)**	**0 -1835**	**622**	**39 (9 - 138)**	**1 -1711**	**607**	**43 (10 - 144)**	**0 -1620**	**476**	**43 (9 - 164.5)**	**0 -1814**	**481**	**33 (9 - 105)**	**0 - 1470**
Type of patient															
CLD	477	65 (20 - 186)	0 -1519	486	29.5 (7 - 96)	1 -1518	471	25 (8 - 93)	0 - 1450	398	32 (8 - 150)	0 -1814	402	25 (8 - 84)	0 - 1470
HCC	104	57 (23 - 184)	2 -1030	72	55 (22.5 - 145)	1 - 568	80	79 (33.5 - 167.5)	1 - 739	54	62 (24 - 128)	0 - 664	38	52 (21 - 107)	2 - 1400
VS	49	187 (79 - 543)	2 -1835	59	296 (100 - 836)	2 -1711	51	365 (174 - 613)	16 -1620	21	367 (261 -585)	3 -1260	28	385 (200 - 612)	17 - 1326
ACLF	0	-	-	0	-	-	0	-	-	0	-	-	10	11.5 (5 - 42)	2 - 968
HCC downstaging	5	93 (63 - 131)	16 -384	5	14 (10 - 27)	6 - 65	5	58 (22 - 128)	17 - 204	3	44 (4 - 240)	4 - 240	3	42 (31 - 115)	31 - 115
Centre															
Newcastle	30	47 (17 - 111)	1 - 377	22	43 (17 - 96)	2 - 318	26	28.5 (14 - 85)	1 - 517	27	52 (20 - 190)	2 - 607	23	45 (13 - 110)	2 - 760
Leeds	108	64.5(26-228.5)	1 -1402	66	41.5 (9 - 145)	1 -1341	79	33 (9 - 136)	1 - 1405	70	52.5 (14 - 159)	1 -1260	60	27.5 (9 - 113)	1 - 1187
Cambridge	71	74 (21 - 200)	0 -1343	65	36 (10 - 88)	1 - 760	60	17 (8.5 - 67)	1 - 656	35	23 (9 - 76)	0 - 679	50	37 (9 - 90)	0 - 633
Royal Free	84	99.5(29.5-236.5)	0 - 945	83	33 (7 - 133)	1 -1261	91	37 (11 - 96)	1 - 971	57	39 (8 - 95)	0 - 699	65	28 (8 - 154)	2 - 592
Kings College	128	125 (45 - 374)	1 -1813	143	54 (11 - 252)	1 -1711	145	54 (11 - 164)	1 - 1620	115	32 (8 - 140)	0 -1687	117	33 (9 - 98)	1 - 968
Birmingham	133	48 (15 - 137)	0 -1519	155	42 (11 - 105)	1 -1657	154	58.5 (9 - 204)	0 - 976	114	71.5 (8 - 262)	1 -1814	127	34 (9 - 146)	1 - 1470
Edinburgh	81	42 (12 - 109)	0 -1835	88	24.5 (6 - 115.5)	1 -1124	52	46.5 (19 - 140)	2 - 640	58	45.5 (9 - 239)	1 - 749	39	17 (7 - 39)	1 - 452
Recipient blood group															
O	298	113.5 (32-280)	0 -1835	294	60 (14 - 218)	1 -1711	262	56.5 (12 - 188)	1 - 1620	182	52.5 (11 - 216)	0 -1814	171	37 (10 - 132)	0 - 1470
A	246	40 (16 - 93)	0 -1109	236	23 (6.5 - 76.5)	1 -1056	238	33 (9 - 100)	0 - 758	208	27 (7 - 138)	0 - 786	221	27 (8 - 100)	1 - 918
B	71	168 (49 - 384)	0 -1813	56	57 (15 - 132)	2 -1518	64	66 (18.5 - 167.5)	2 - 865	60	66(21.5-279.5)	2 -1335	57	33 (9 - 103)	2 - 592
AB	20	25.5 (7.5 - 66)	0 - 148	36	39.5 (13 - 93)	1 - 466	43	19 (4 - 43)	1 - 201	26	34 (15 - 83)	5 - 340	32	24 (8 - 57)	2 - 388

Table 17 **Median (IQR; range) time to transplant (days) for adult elective liver and liver/kidney transplants performed in the UK using livers from DCD donors, 20 March 2017 to 19 March 2022, as at 31 March 2022**

	2017/18			2018/19			2019/20			2020/21			2021/22		
	N	Median (IQR)	Range	N	Median (IQR)	Range	N	Median (IQR)	Range	N	Median (IQR)	Range	N	Median (IQR)	Range
Overall	**186**	**41.5 (14 - 142)**	**0 - 875**	**181**	**53 (20 - 128)**	**0 - 607**	**170**	**52 (19 - 142)**	**2 - 693**	**110**	**90.5 (29 - 205)**	**2 - 1278**	**189**	**98 (38 - 163)**	**1 - 923**
Type of patient															
CLD	123	41 (13 - 143)	0 - 875	86	56 (20 - 125)	0 - 561	107	50 (15 - 147)	2 - 693	72	104.5(35.5-205.5)	2 - 1101	104	102 (29.5- 178)	1 - 923
HCC	52	39.5 (16.5 - 110)	1 - 691	83	49 (20 - 148)	2 - 607	58	66.5 (35 - 135)	4 - 322	33	73 (29 - 144)	5 - 1278	73	95 (45 - 157)	2 - 822
VS	9	222 (32 - 347)	7 - 870	5	98 (72 - 300)	5 - 306	1	559	599	2	218 (215 - 221)	215 - 221	8	154 (103.5 -254.5)	70 -396
ACLF	0	-	-	0	-	-	0	-	-	0	-	-	1	2	2
HCC downstaging	2	53 (51 - 55)	51-55	7	47 (17 - 84)	11 -323	4	21 (12 - 35.5)	12 - 41	3	72 (27 - 216)	27 - 216	3	52 (24 - 143)	24 -143
Centre															
Newcastle	5	106 (85 - 304)	5 - 304	3	304 (22-452)	22 -452	4	144.5 (119 -371)	103 -588	2	110 (4 - 216)	4 - 216	13	152 (117 - 394)	5 - 817
Leeds	26	77.5 (13 - 297)	0 - 875	21	36 (12 - 99)	2 - 517	21	36 (12 - 73)	2 - 565	15	56 (26 - 133)	5 - 511	16	115.5 (52 - 147)	4 - 923
Cambridge	32	60 (28.5 - 151.5)	0 - 870	40	57.5(21.5-128)	2 - 355	33	35 (14 - 78)	2 - 479	35	89 (46 - 211)	5 - 625	48	63 (21.5 - 142.5)	1 - 822
Royal Free	13	62 (24 - 234)	3 - 369	28	56.5(29.5-144)	2 - 323	37	55 (23 - 135)	4 - 693	11	57 (23 - 205)	11 - 227	23	94 (27 - 148)	8 - 327
Kings College	46	67 (27 - 205)	4 - 691	38	72.5(34-180)	4 - 607	37	84 (38 - 198)	3 - 559	31	123 (54 - 189)	8 - 1101	46	133.5 (52 - 162)	1 - 342
Birmingham	52	22.5 (13 - 42.5)	0 - 511	38	35.5 (16 -80)	0 - 487	33	50 (30 - 125)	2 - 267	11	115 (7 - 221)	2 - 259	25	94 (60 - 218)	12 -418
Edinburgh	12	41.5 (10 - 94.5)	0 - 783	13	71 (38 - 333)	6 - 383	5	51 (44 - 151)	40 -224	5	42 (30 - 777)	27 - 1278	18	52.5 (16 - 151)	2 - 738
Recipient blood group															
O	95	62 (16 - 245)	0 - 875	79	69 (28 - 175)	0 - 561	68	69 (19 - 163.5)	2 - 693	52	115.5 (28 - 222)	7 - 1278	88	117 (45.5-182.5)	1 - 822
A	70	29 (10 - 65)	0 - 351	74	37.5 (17 -78)	2 - 457	80	50 (19 - 100.5)	2 - 588	49	78 (26 - 189)	2 - 530	77	93 (28 - 143)	2 - 476
B	18	55 (19 - 262)	4 - 783	21	103 (30-171)	4 - 607	18	87 (43 - 183)	2 - 479	7	92 (57 - 119)	29 - 446	23	86 (40 - 271)	1 - 923
AB	3	27 (9 - 111)	9 - 111	7	23 (9 - 94)	6 - 111	4	7.5 (6.5 - 22)	6 - 36	2	60.5 (48 - 73)	48 - 73	1	77	77

3.6.8. **Figure 15** show the overall cold ischaemia time for the time periods of interest for DBD transplants while **Figure 16** shows the cold ischaemia time for each centre. **Figures 17** and **Figure 18** show the equivalent information for DCD donor transplants. There was no statistically significant difference in the overall median cold ischaemia time for DCD transplants (Kruskal-Wallis p-value=0.11).

3.6.9. There was a statistically significant difference in the cold ischaemia time for adult elective DBD transplants over the time periods of interest (p=0.004). However, it should be noted that these results will change as NHSBT has not received all the first week transplant record forms which collect the cold ischaemia time. It should also be noted that this analysis does not adjust for whether machine perfusion was used.

Figure 15 **Median cold ischaemia time in all adult elective DBD donor liver transplants, by time period, 20 March 2017 to 19 March 2022**

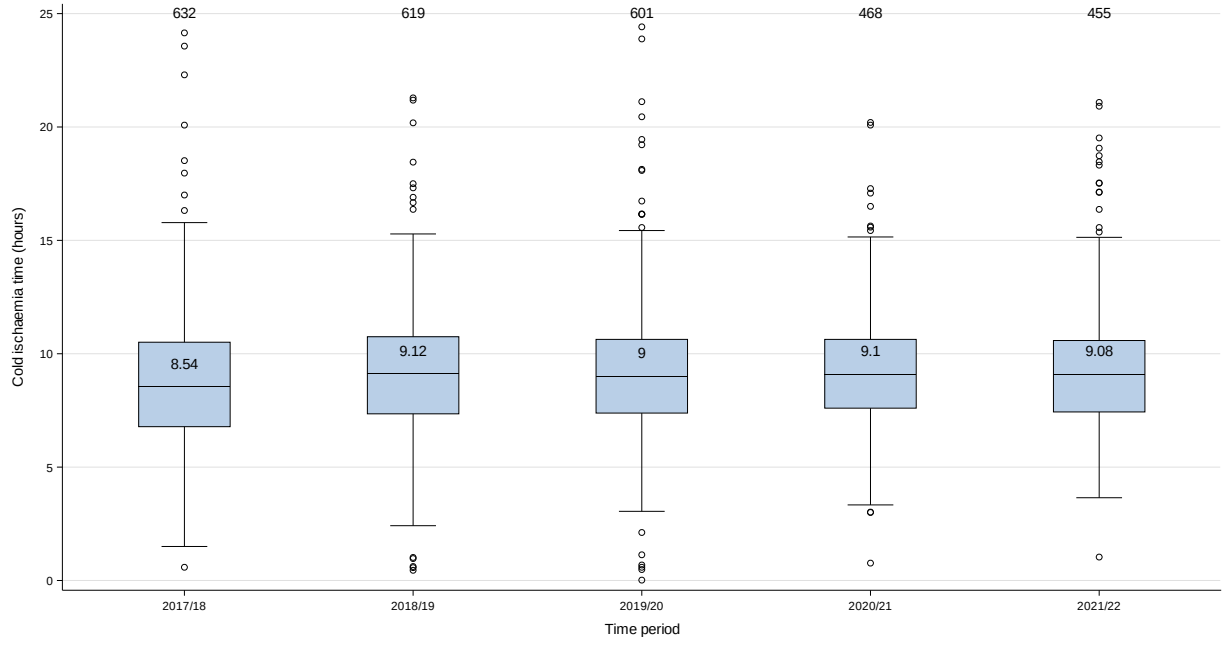


Figure 16 **Median cold ischaemia time in all adult elective DBD donor liver transplants, by transplant centre, 20 March 2017 - 19 March 2022**

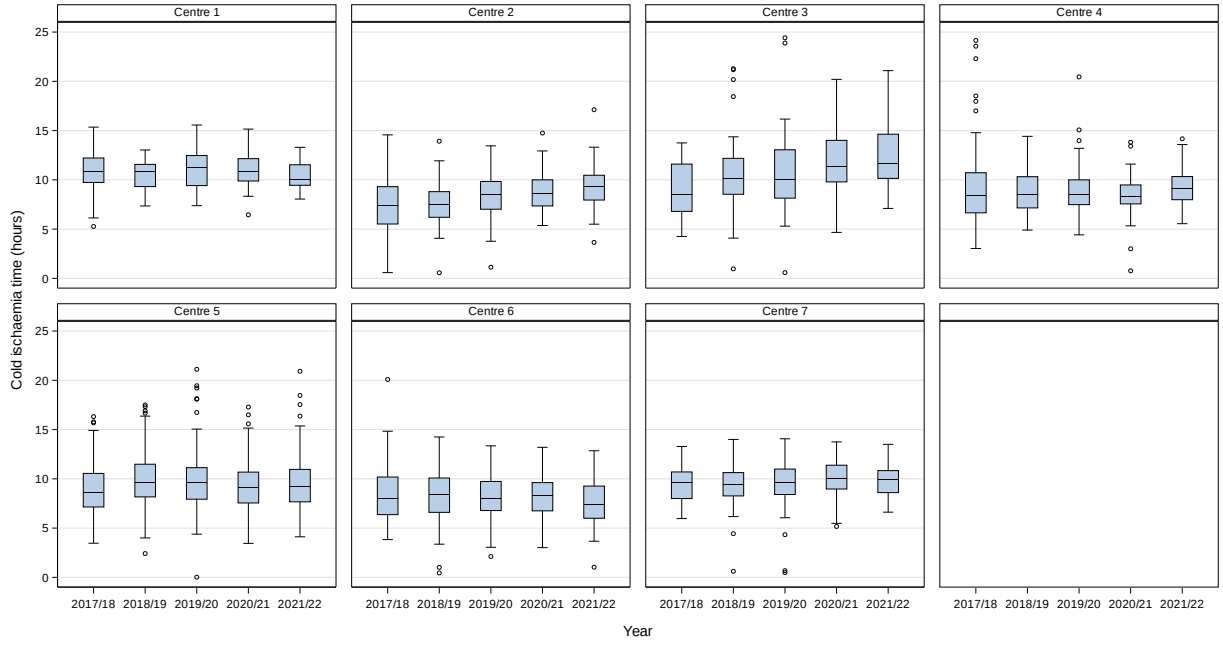


Figure 17 **Median cold ischaemia time in all adult elective DCD donor liver transplants, by time period, 20 March 2017 to 19 March 2022**

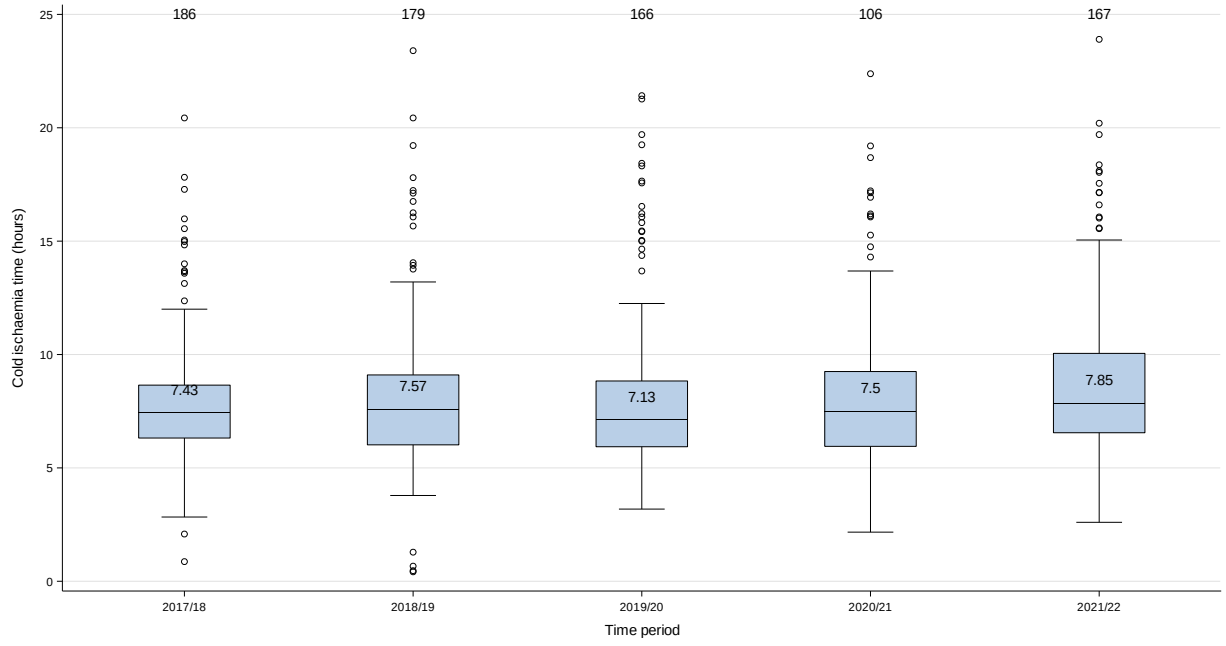
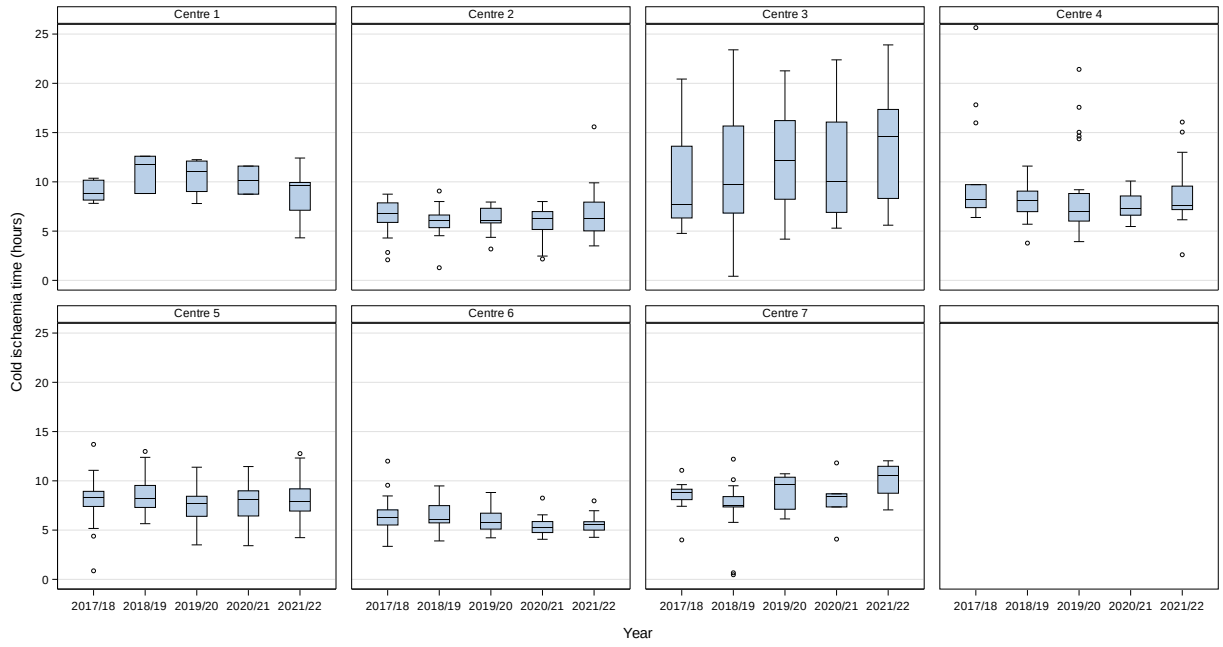


Figure 18 **Median cold ischaemia time in all adult elective DCD donor liver transplants, by transplant centre, 20 March 2017 - 19 March 2022**



3.7. NINETY-DAY POST-TRANSPLANT SURVIVAL

3.7.1. **Figure 19** shows the unadjusted ninety-day patient survival by time period and donor type for transplants performed in either the twelve months prior to NLOS or in the first forty-five months of NLOS. **Table 18** and **Table 19** shows the survival estimates and confidence intervals by blood group and type of patient for DBD and DCD transplants respectfully. Patient survival was defined as the time from first transplant to death or last known survival reported to NHSBT irrespective of whether the patient received a retransplant after their first transplant.

3.7.2. For DBD transplants, there was no overall statistically significant difference between the time periods of interest in ninety-day patient survival (log-rank p-value=0.36). There was a statistically significant difference in ninety-day survival for HCC patients (log-rank p-value=0.04) and CLD patients had borderline significance (log-rank p-value=0.09). There were no statistically significant differences between the time periods for the individual centres and blood groups (log-rank p-value≥0.21), apart from blood group B patients which had borderline significance (p=0.07).

3.7.3. For DCD transplants, there was no overall statistically significant difference at a 5% significance level overall between the time periods in ninety-day patient survival (log-rank p-value=0.14). There was a borderline statistically significant difference in ninety-day survival for HCC patients (log-rank p-value=0.09) and CLD patients had no statistical significance (log-rank p-value=0.38). There were no statistically significant differences between the time periods for blood groups (log rank p-value≥0.26) and for the individual centres (log rank p-value≥0.24).

Figure 19 Unadjusted ninety day patient survival after first adult elective liver transplant from deceased donor, 20 March 2017 to 19 December 2021

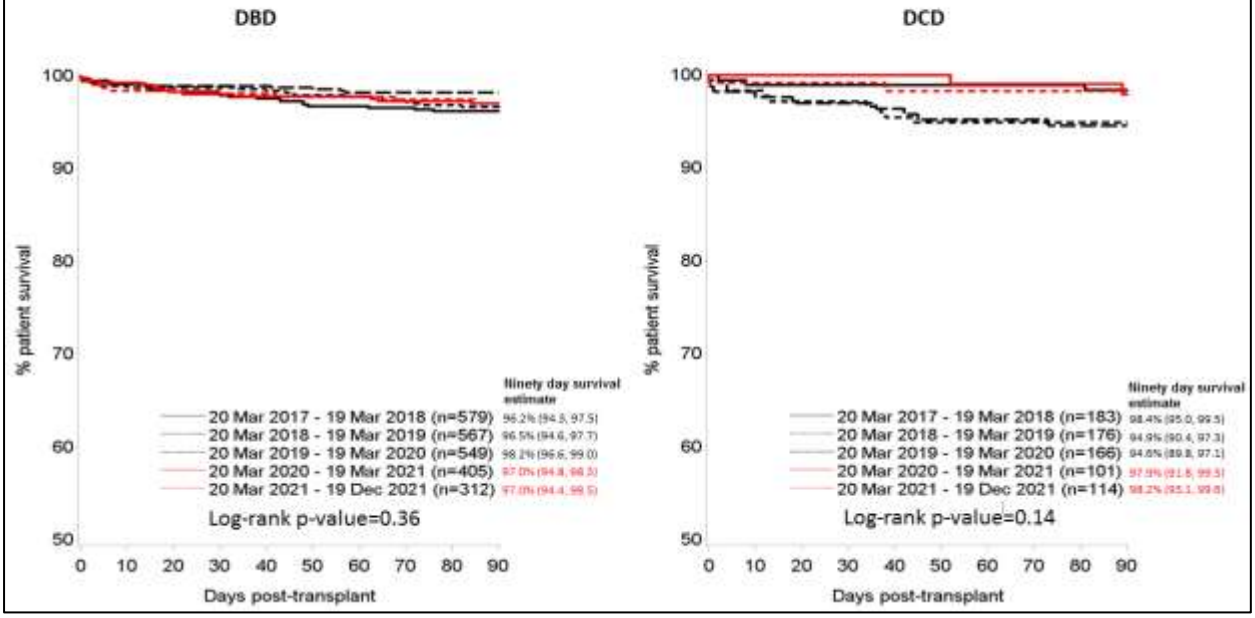


Table 18 **90-day patient survival (95% confidence interval) for first adult elective liver and liver/kidney transplants performed in the UK using livers from DBD donors, 20 March 2017 to 19 December 2021**

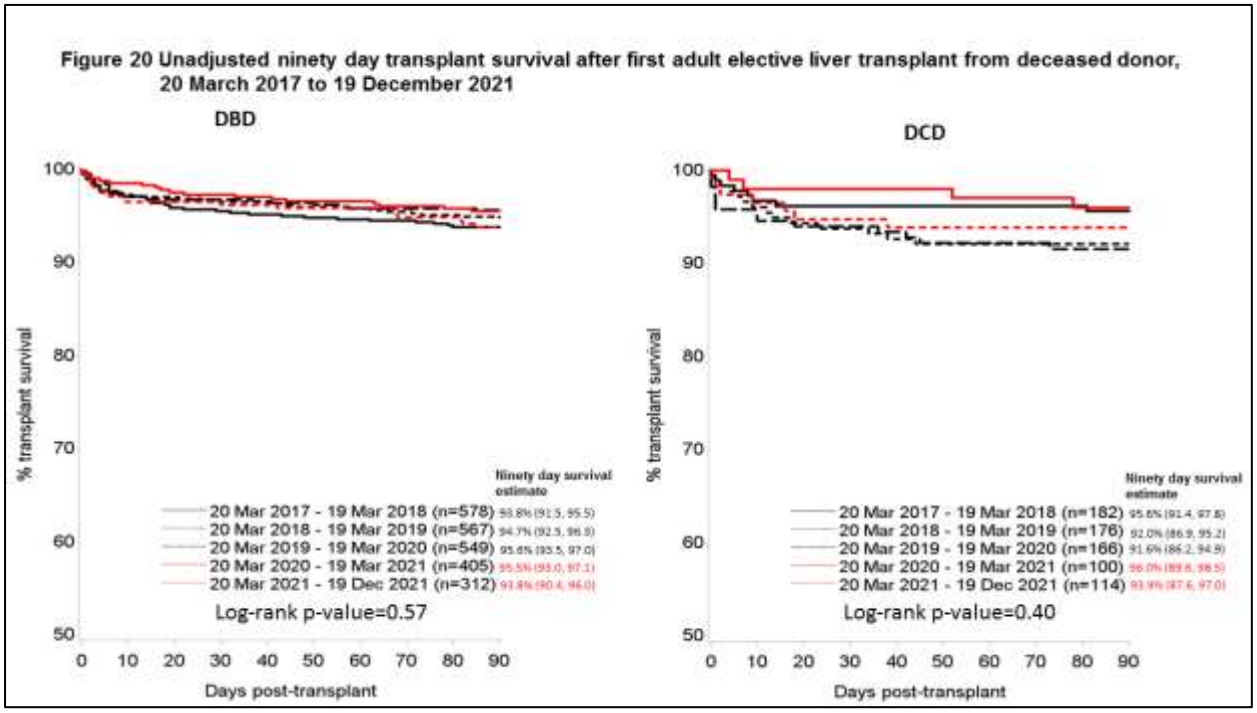
	2017/18		2018/19		2019/20		2020/21		2021/22		
	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	Log-rank p-value
Overall	579	96.2 (94.3, 97.5)	567	96.5 (94.6, 97.7)	549	98.2 (96.6, 97.1)	405	97.0 (94.8, 98.3)	312	97.0 (94.4, 98.5)	0.36
Type of patient											
CLD	425	95.5 (93.1, 97.1)	436	95.9 (93.5, 97.4)	421	98.1 (96.2, 99.0)	332	98.2 (95.9, 99.2)	255	97.2 (94.3, 98.7)	0.09
HCC	104	98.1 (92.5, 99.5)	71	97.2 (89.2, 99.3)	77	98.7 (91.1, 99.8)	52	90.4 (78.4, 95.9)	28	100 (-)	0.04
VS	45	97.8 (85.3, 99.7)	55	100 (-)	46	97.8 (85.6, 99.7)	18	94.4 (66.6, 99.2)	20	93.8 (63.2, 99.1)	0.60
HCC downstaging	5	-	5	-	5	-	3	-	1	-	-
ACLF	0	-	0	-	0	-	0	-	8	-	-
Recipient blood group											
O	272	95.2 (91.9, 97.2)	265	97.3 (94.5, 98.7)	237	98.7 (96.1, 99.6)	158	97.4 (93.2, 99.0)	111	96.2 (90.2, 98.6)	0.21
A	224	96.4 (93.0, 98.2)	215	96.3 (92.7, 98.1)	216	97.7 (94.5, 99.0)	176	96.0 (91.8, 98.1)	140	97.8 (93.5, 99.3)	0.80
B	66	100 (-)	53	92.5 (81.1, 97.1)	57	98.2 (88.2, 99.8)	48	97.9 (86.1, 99.7)	34	100 (-)	0.07
AB	17	94.1 (65.0, 99.1)	34	97.1 (80.9, 99.6)	39	97.4 (83.2, 99.6)	23	100 (-)	27	92.6 (73.5, 98.1)	0.65
Centre											
Newcastle	26	92.3 (72.6, 98.0)	22	95.5 (71.9, 99.3)	24	95.8 (73.9, 99.4)	24	100 (-)	16	100 (-)	0.59
Leeds	101	93.1 (86.0, 96.6)	59	91.5 (80.8, 96.4)	66	98.5 (89.7, 99.8)	53	94.1 (82.9, 98.1)	38	92.0 (77.3, 97.4)	0.49
Cambridge	67	97.0 (88.6, 99.2)	61	100 (-)	58	94.8 (84.8, 98.3)	28	100 (-)	35	100 (-)	0.21
Royal Free	82	96.3 (89.1, 98.8)	80	93.8 (85.6, 97.3)	88	100 (-)	47	97.9 (85.8, 99.7)	38	94.7 (80.3, 98.6)	0.21
Kings College	111	98.2 (92.9, 99.5)	128	99.2 (94.6, 99.9)	133	98.5 (94.1, 99.6)	104	99.0 (93.4, 99.9)	82	98.8 (91.7, 99.8)	0.96
Birmingham	117	95.7 (90.0, 98.2)	134	96.3 (91.3, 98.4)	135	99.3 (94.9, 99.9)	96	95.8 (89.3, 98.4)	81	96.3 (88.9, 98.8)	0.48
Edinburgh	75	98.7 (90.9, 99.8)	83	96.3 (89.0, 98.8)	45	95.6 (83.4, 98.9)	53	94.1 (82.8, 98.1)	22	100 (-)	0.55

Table 19 **90-day patient survival (95% confidence interval) for first adult elective liver and liver/kidney transplants performed in the UK using livers from DCD donors, 20 March 2017 to 19 December 2021**

	2017/18		2018/19		2019/20		2020/21		2021/22		
	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	No at risk on day 0	% (95% CI)	Log-rank p-value
Overall	183	98.4 (95.0, 99.5)	176	94.9 (90.4, 97.3)	166	94.6 (89.8, 97.1)	101	97.9 (91.8, 99.5)	114	98.2 (93.1, 99.6)	0.14
Type of patient											
CLD	120	98.3 (93.5, 99.6)	82	95.1 (87.5, 98.1)	103	97.1 (91.2, 99.1)	65	98.5 (89.6, 99.8)	55	100 (-)	0.38
HCC	52	98.1 (87.1, 99.7)	83	95.2 (87.7, 98.2)	58	89.7 (78.4, 95.2)	31	96.6 (77.9, 99.5)	50	100 (-)	0.09
VS	9	-	4	-	1	-	2	-	8	-	-
HCC downstaging	2	-	7	-	4	-	3	-	0	-	-
ACLF	0	-	0	-	0	-	0	-	1	-	-
Recipient blood group											
O	95	97.9 (91.8, 99.5)	78	93.6 (85.3, 97.3)	67	94.0 (84.9, 97.7)	48	95.3 (82.5, 98.8)	56	100 (-)	0.26
A	67	98.5 (89.9, 99.8)	71	98.6 (90.4, 99.8)	78	94.9 (86.9, 98.0)	44	100 (-)	42	95.2 (82.1, 98.8)	0.34
B	18	100 (-)	20	90 (65.6, 97.4)	18	94.4 (66.6, 99.2)	7	-	16	100 (-)	0.44
AB	3	-	7	-	3	-	2	-	0	-	-
Centre											
Newcastle	4	-	3	-	4	-	2	-	9	-	-
Leeds	26	96.2 (75.7, 99.4)	20	95.0 (69.5, 99.3)	21	90.5 (67.0, 97.5)	13	100 (-)	9	-	0.68
Cambridge	30	96.7 (78.6, 99.5)	37	97.3 (82.3, 99.6)	31	93.5 (76.6, 98.3)	29	100 (-)	27	96.3 (76.5, 99.5)	0.73
Royal Free	13	100 (-)	28	92.9 (74.3, 98.2)	36	94.4 (79.6, 98.6)	11	79.5 (39.3, 94.5)	7	-	0.42
Kings College	46	100 (-)	37	94.6 (80.1, 98.6)	36	97.2 (81.9, 99.6)	30	100 (-)	36	100 (-)	0.24
Birmingham	52	98.1 (87.1, 99.7)	38	92.1 (77.5, 97.4)	33	97.0 (80.4, 99.6)	11	100 (-)	17	100 (-)	0.44
Edinburgh	12	100 (-)	13	100 (-)	5	-	5	-	9	-	0.26

3.7.4. **Figure 20** shows the unadjusted ninety-day transplant survival by time period and donor type for transplants performed in either the twelve months prior to NLOS or in the first forty-five months of NLOS. Transplant survival was defined as the time from first transplant to retransplant, death or last known survival reported to NHSBT. Patients who received a second transplant or who died post-transplant were treated as events while patients who were alive with a functioning first transplant were censored at 90 days.

3.7.5. There were no statistically significant differences in the unadjusted ninety-day transplant survival between the time periods for DBD and DCD transplants (log-rank p-value=0.57 and 0.40).



3.8 ONE-YEAR POST-TRANSPLANT SURVIVAL

3.8.1 **Figure 21** shows the unadjusted one-year patient survival by time period and donor type for transplants performed in either the twelve months prior to NLOS or in the first thirty-six months of NLOS. **Table 20** and **Table 21** shows the survival estimates and confidence intervals by blood group and type of patient, for DBD and DCD transplants respectfully. Patient survival was defined as the time from first transplant to death or last known survival reported to NHSBT irrespective of whether the patient received a retransplant after their first transplant.

3.8.2 For DBD transplants, there was no overall statistically significant difference between the time periods of interest in one-year patient survival (log-rank p-value=0.53). There were no statistically significant differences between the time periods for CLD and HCC (log rank p-value≥0.12), blood groups (log-rank p-value≥0.25) and for the individual centres (log-rank p-value≥0.13).

3.8.3 For DCD transplants, there was no overall statistically significant difference at a 5% significance level overall between the time periods in one-year patient survival (log-rank p-value=0.57). There were no statistically significant differences between the two time periods for CLD and HCC (log rank p-value≥0.57), blood groups (log rank p-value≥0.58) and for the individual centres (log rank p-value≥0.12).

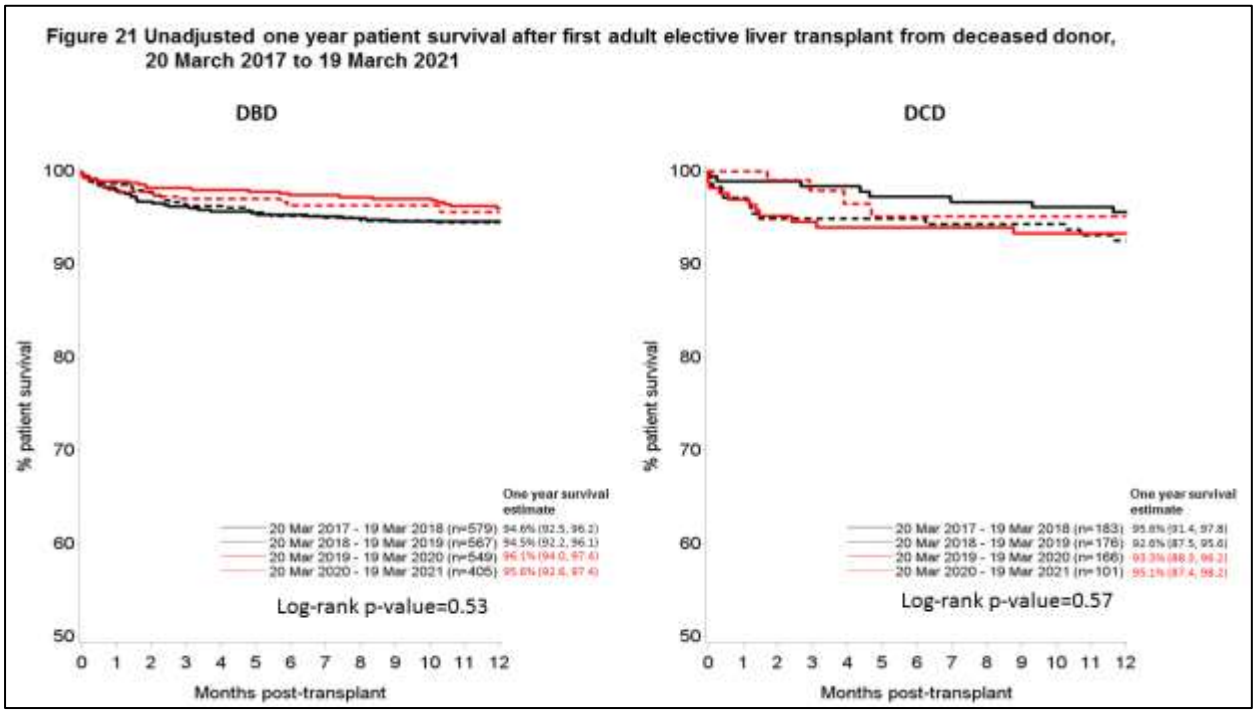


Table 20 **1-year patient survival (95% confidence interval) for first adult elective liver and liver/kidney transplants performed in the UK using livers from DBD donors, 20 March 2017 to 19 March 2021**

	2017/18		2018/19		2019/20		2020/21		
	No at risk on day 0	**% (95% CI)**	**No at risk on day 0**	**% (95% CI)**	**No at risk on day 0**	**% (95% CI)**	**No at risk on day 0**	**% (95% CI)**	**Log-rank p-value**
Overall	579	94.6 (92.5, 96.2)	567	94.5 (92.2, 96.1)	549	96.1 (94.0, 97.4)	405	95.6 (92.6, 97.4)	0.53
Type of patient									
CLD	425	93.9 (91.1, 95.8)	436	94.4 (91.8, 96.2)	421	96.6 (94.3, 98.0)	332	96.5 (92.9, 98.2)	0.12
HCC	104	96.1 (89.9, 98.5)	71	92.8 (83.6, 97.0)	77	93.2 (84.5, 97.1)	52	90.4 (78.4, 95.9)	0.40
VS	45	97.8 (85.3, 99.7)	55	96.3 (86.0, 99.1)	46	95.6 (83.4, 98.9)	18	94.4 (66.6, 99.2)	0.88
HCC downstaging	5	-	5	-	5	-	3	-	-
Recipient blood group									
O	272	93.7 (90.1, 96.1)	265	93.9 (90.2, 96.2)	237	97.0 (93.8, 98.5)	158	96.5 (91.8, 98.5)	0.25
A	224	95.1 (91.3, 97.3)	215	95.8 (92.1, 97.8)	216	94.7 (90.6, 97.0)	176	93.6 (87.1, 96.8)	0.90
B	66	97.0 (88.4, 99.2)	53	92.5 (81.1, 97.1)	57	96.5 (86.6, 99.1)	48	97.9 (86.1, 99.7)	0.53
AB	17	94.1 (65.0, 99.1)	34	94.0 (78.2, 98.5)	39	97.4 (83.2, 99.6)	23	100 (-)	0.64
Centre									
Newcastle	26	92.3 (72.6, 98.0)	22	95.5 (71.9, 99.3)	24	91.7 (70.6, 97.8)	24	100 (-)	0.56
Leeds	101	91.1 (83.6, 95.3)	59	89.5 (78.1, 95.2)	66	95.0 (85.3, 98.4)	53	94.1 (82.9, 98.1)	0.61
Cambridge	67	95.5 (86.8, 98.5)	61	100 (-)	58	92.9 (82.1, 97.3)	28	100 (-)	0.13
Royal Free	82	95.1 (87.5, 98.1)	80	91.2 (82.5, 95.7)	88	97.5 (90.4, 99.4)	47	97.9 (85.8, 99.7)	0.23
Kings College	111	98.2 (92.9, 99.5)	128	96.8 (91.7, 98.8)	133	98.5 (94.1, 99.6)	104	94.2 (84.5, 97.9)	0.49
Birmingham	117	93.2 (86.8, 96.5)	134	94.8 (89.3, 97.5)	135	95.5 (90.2, 97.9)	96	95.8 (89.3, 98.4)	0.83
Edinburgh	75	96.0 (88.1, 98.7)	83	92.6 (84.2, 96.6)	45	95.6 (83.4, 98.9)	53	94.1 (82.8, 98.1)	0.67

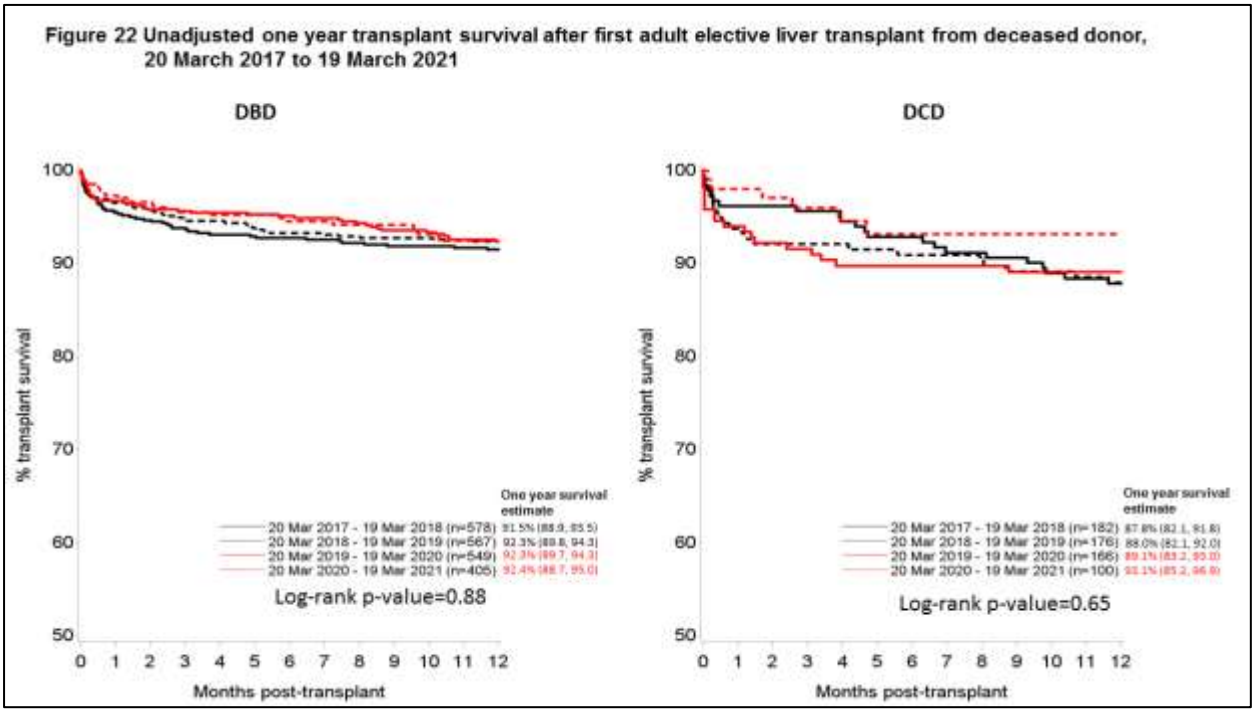
Table 21 **1-year patient survival (95% confidence interval) for first adult elective liver and liver/kidney transplants performed in the UK using livers from DCD donors, 20 March 2017 to 19 March 2021**

	2017/18		2018/19		2019/20		2020/21		
	No at risk on day 0	**% (95% CI)**	**No at risk on day 0**	**% (95% CI)**	**No at risk on day 0**	**% (95% CI)**	**No at risk on day 0**	**% (95% CI)**	**Log-rank p-value**
Overall	183	95.6 (91.4, 97.8)	176	92.6 (87.5, 95.6)	166	93.3 (88.3, 96.2)	101	95.1 (87.4, 98.2)	0.57
Type of patient									
CLD	120	96.7 (91.3, 98.7)	82	92.7 (84.4, 96.6)	103	96.1 (90.0, 98.5)	65	94.1 (82.5, 98.1)	0.59
HCC	52	92.2 (80.5, 97.0)	83	92.7 (84.4, 96.6)	58	87.9 (76.2, 94.0)	31	96.6 (77.9, 99.5)	0.57
VS	9	-	4	-	1	-	2	-	-
HCC downstaging	2	-	7	-	4	-	3	-	-
Recipient blood group									
O	95	96.8 (90.5, 99.0)	78	92.3 (83.6, 96.4)	67	94.0 (84.9, 97.7)	48	95.3 (82.5, 98.8)	0.58
A	67	95.4 (86.5, 98.5)	71	95.7 (87.4, 98.6)	78	92.2 (83.4, 96.4)	44	96.9 (79.8, 99.6)	0.60
B	18	94.4 (66.6, 99.2)	20	90.0 (25.8, 92.0)	18	94.4 (66.6, 99.2)	7	-	0.85
AB	3	-	7	-	3	-	2	-	0.64
Centre									
Newcastle	4	-	3	-	4	-	2	-	-
Leeds	26	92.3 (72.6, 98.0)	20	89.7 (64.8, 97.3)	21	84.4 (58.7, 94.8)	13	100 (-)	0.53
Cambridge	30	96.7 (78.6, 99.6)	37	94.6 (80.1, 98.6)	31	90.3 (72.9, 96.8)	29	100 (-)	0.38
Royal Free	13	92.3 (56.6, 98.9)	28	85.7 (66.3, 94.4)	36	94.4 (79.6, 98.6)	11	66.3 (26.6, 88.0)	0.12
Kings College	46	95.5 (83.0, 98.8)	37	94.6 (80.1, 98.6)	36	97.2 (81.9, 99.6)	30	96.0 (74.8, 99.4)	0.96
Birmingham	52	96.2 (85.5, 99.0)	38	92.1 (77.5, 97.4)	33	97.0 (80.4, 99.6)	11	100 (-)	0.61
Edinburgh	12	100 (-)	13	100 (-)	5	-	5	-	-

3.8.4 **Figure 22** shows the unadjusted one-year transplant survival by time period and donor type for transplants performed in either the twelve months prior to NLOS or in the first thirty-six months of NLOS. Transplant survival was defined as the time from first transplant to retransplant, death or last known survival reported to NHSBT. Patients who received a second transplant or who died post-transplant were treated as events while patients who were alive with a functioning first transplant were censored at 1 year.

3.8.5 There were no statistically significant differences in the unadjusted one-year transplant survival between the time periods for DBD and DCD transplants (log-rank p-value=0.88 and 0.65).

Figure 22 Unadjusted one year transplant survival after first adult elective liver transplant from deceased donor, 20 March 2017 to 19 March 2021



4 CONCLUSIONS

The new National Liver Offering Scheme was implemented on the 20th March 2018. 3594 DBD and 3457 DCD livers were offered for transplantation in the first forty-eight months of the scheme. Of the DBD livers offered, 3112 (87%) were retrieved for the purposes of transplantation and 2695 (87%) were transplanted (all but 20 were transplanted in the UK).

Rhiannon Taylor, Jennifer Banks and Maria Jacobs **April 2022**
Statistics and Clinical Research

APPENDIX A: SUPER-URGENT CATEGORIES

INDICATION FOR REGISTRATION
1 - Category 1: Aetiology: Paracetamol poisoning: pH <7.25 more than 24 hours after overdose and after fluid resuscitation
2 - Category 2: Aetiology: Paracetamol poisoning: Co-existing prothombin time >100 seconds or INR >6.5, and serum creatinine >300 µmol/l or anuria, and grade 3-4 encephalopathy
3 - Category 3: Aetiology: Paracetamol poisoning: Significant liver injury and coagulopathy following exclusion of other causes of hyperlactatemia (e.g. pancreatitis, intestinal ischemia) after adequate fluid resuscitation: arterial lactate >5 mmol/l on admission and >4 mmol/l 24 hours later in the presence of clinical hepatic encephalopathy
4 - Category 4: Aetiology: Paracetamol poisoning: Two of the three criteria from category 2 with clinical evidence of deterioration (eg increased ICP, FiO_2 >50%, increasing inotrope requirements) in the absence of clinical sepsis
5 - Category 5: Aetiology: Favourable non-paracetamol aetiologies such as acute viral hepatitis or ecstacy/ cocaine induced ALF: the presence of clinical hepatic encephalopathy is mandatory and: prothrombin time >100 seconds, or INR >6.5, or any three from the following: age >40 or <10 years; prothrombin time >50 seconds or INR >3.5; any grade of hepatic encephalopathy with jaundice to encephalopathy time >7 days; serum bilirubin >300 µmol/l
6 - Category 6: Aetiology: Unfavourable non-paracetamol aetiologies such as seronegative or idiosyncratic drug reactions: a) prothrombin time >100 seconds, or INR >6.5, or b) in the absence of clinical hepatic encephalopathy then INR >2 after vitamin K repletion is mandatory and any two from the following: age >40 or <10 years; prothrombin time >50 seconds or INR >3.5; if hepatic encephalopathy is present then jaundice to encephalopathy time >7 days; serum bilirubin >300 µmol/l
7 - Category 7: Aetiology: Acute presentation of Wilson's disease or Budd-Chiari syndrome. A combination of coagulopathy and any grade of encephalopathy
8 - Category 8: Hepatic artery thrombosis on days 0 to 21 after liver transplantation
9 - Category 9: Early graft dysfunction on days 0 to 7 after liver transplantation with at least two of the following: AST >10,000; INR >3.0; arterial lactate >3 mmol/l; absence of bile production
10 - Category 10: The total absence of liver function (eg after total hepatectomy)
11 - Category 11: Any patient who has been a live liver donor (NHS entitled) who develops severe liver failure within 4 weeks of the donor operation
20 - Category 20: Acute liver failure in children under two years of age: INR >4 or grade 3-4 encephalopathy. Definition: Multisystem disorder in which severe acute impairment of liver function with or without encephalopathy occurs in association with hepatocellular necrosis in a child with no recognised underlying chronic liver disease. Children with leukaemia/lymphoma, haemophagocytosis and disseminated intra-vascular coagulopathy are excluded

APPENDIX B: SIX MONTH REGISTRATION OUTCOME

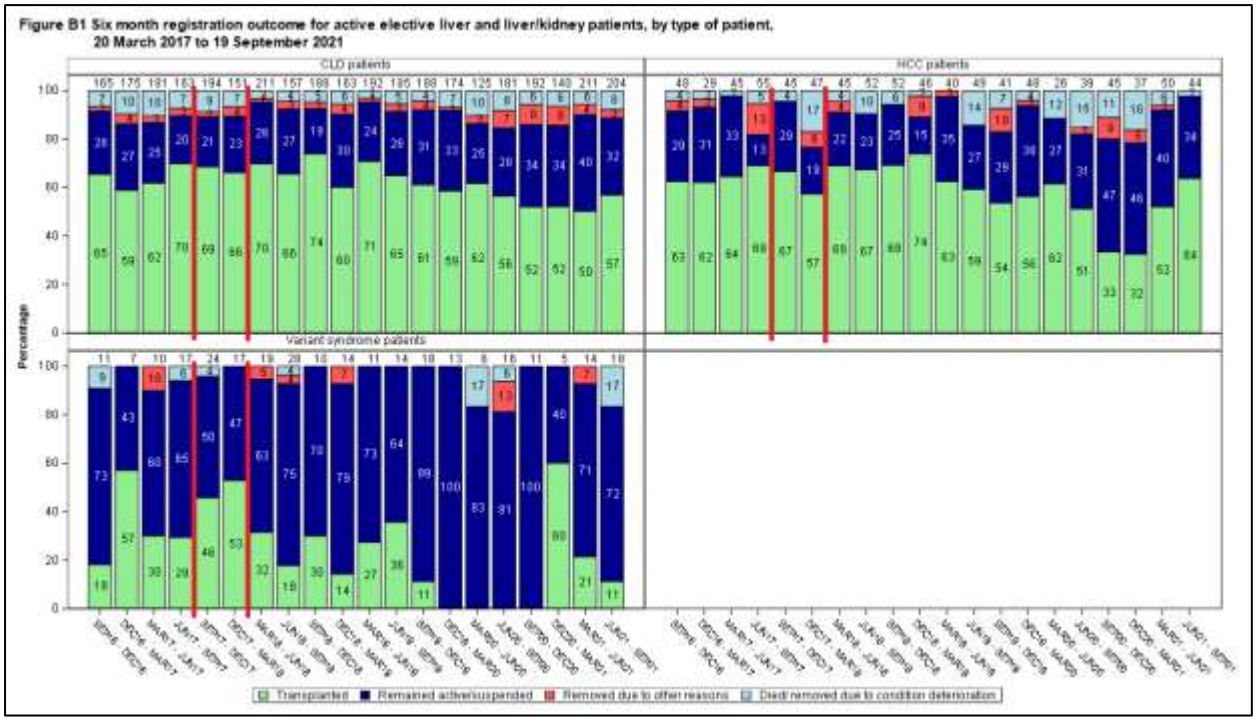


Figure B1 Six month registration outcome for active elective liver and liver/kidney patients, by type of patient, 20 March 2017 to 19 September 2021

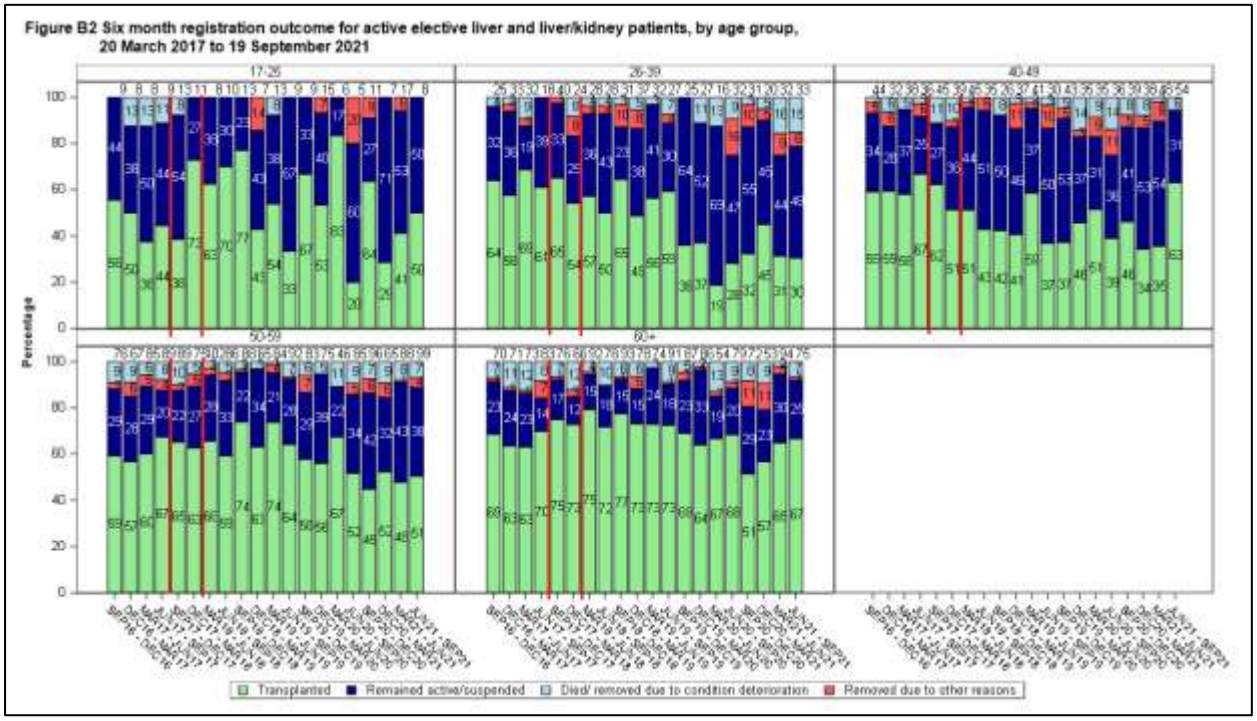


Figure B2 Six month registration outcome for active elective liver and liver/kidney patients, by age group, 20 March 2017 to 19 September 2021

Figure B3 Six month registration outcome for active elective liver and liver/kidney patients, by first transplant or regraft, 20 March 2017 to 19 September 2021

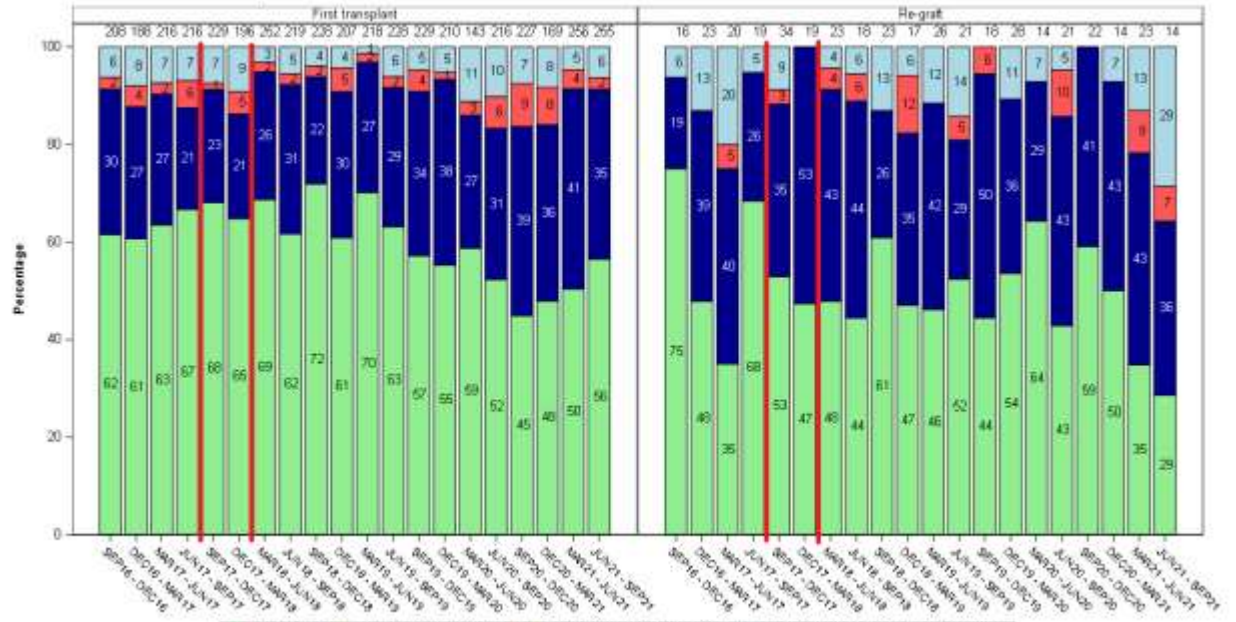
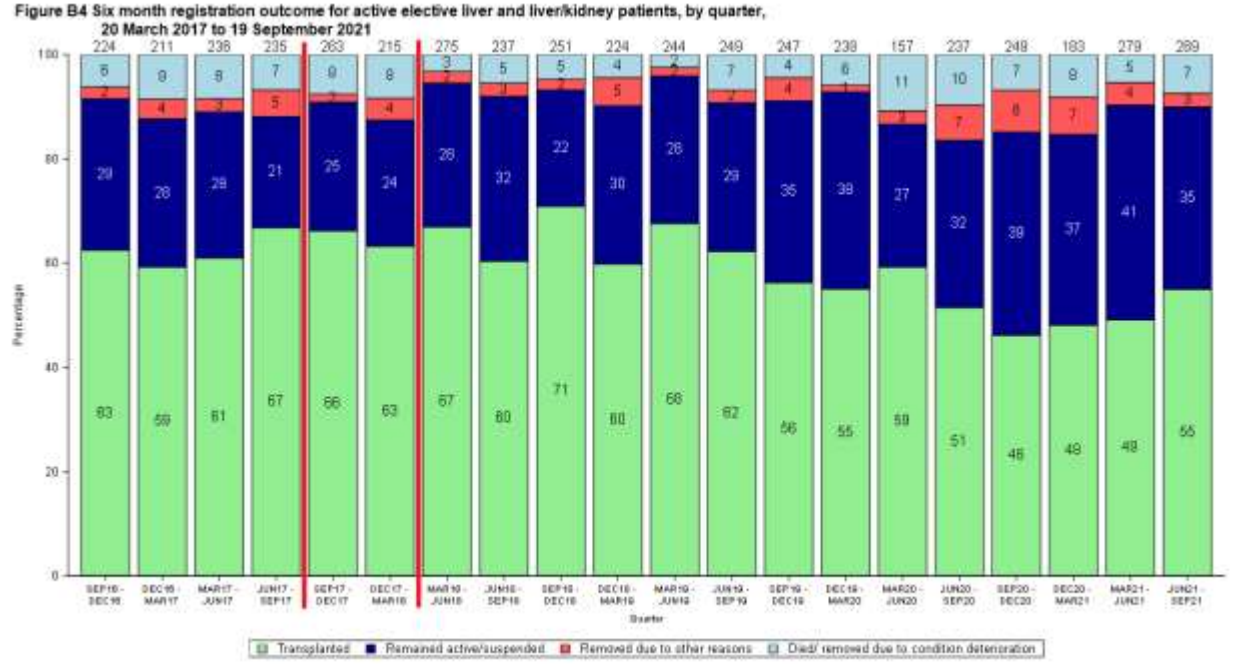


Figure B4 Six month registration outcome for active elective liver and liver/kidney patients, by quarter, 20 March 2017 to 19 September 2021



APPENDIX C: REASONS FOR NON-RETRIEVAL AND NON-USE

Table C1 Reasons for non-retrieval of livers from deceased donors (solid organ donors), 20 March 2017 to 19 March 2022

	DBD					DCD				
	2017/18	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**
Donor unsuitable - medical										
Donor unsuitable - cod	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	1 (0)	1 (1)
Infection	0 (0)	3 (0)	1 (0)	1 (0)	0 (0)	2 (0)	3 (3)	0 (0)	0 (0)	1 (1)
Tumour	2 (0)	0 (0)	3 (0)	1 (0)	2 (0)	1 (0)	0 (0)	1 (0)	1 (0)	0 (0)
Anatomy	0 (0)	0 (0)	1 (1)	2 (1)	4 (3)	0 (0)	0 (0)	1 (1)	0 (0)	4 (4)
Other disease	0 (0)	1 (1)	0 (0)	1 (1)	0 (0)	1 (1)	1 (0)	0 (0)	0 (0)	0 (0)
Donor unsuitable - virology	9 (0)	7 (1)	13 (3)	1 (0)	1 (0)	8 (0)	10 (0)	13 (3)	4 (1)	6 (1)
Total	**11 (0)**	**11 (2)**	**18 (4)**	**6 (2)**	**8 (4)**	**12 (1)**	**14 (3)**	**15 (4)**	**6 (1)**	**12 (7)**
Donor unsuitable - non-medical										
Donor recovered	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)
Donor unstable	2 (0)	2 (1)	0 (0)	0 (0)	0 (0)	2 (0)	3 (0)	0 (0)	0 (0)	1 (0)
Donor unsuitable - size	1 (0)	9 (4)	3 (3)	2 (0)	3 (3)	17 (12)	21 (15)	26 (18)	13 (8)	15 (9)
Total	**3 (0)**	**11 (5)**	**3 (3)**	**2 (0)**	**3 (3)**	**19 (12)**	**24 (15)**	**27 (18)**	**13 (8)**	**16 (9)**
Donor unsuitable - age	**5 (3)**	**5 (4)**	**2 (2)**	**1 (0)**	**2 (0)**	**142 (55)**	**198 (93)**	**181 (82)**	**59 (28)**	**133 (65)**
Organ unsuitable - clinical										
Donor unsuitable - past history	44 (21)	49 (25)	48 (28)	50 (30)	40 (21)	141 (75)	186 (99)	176 (89)	117 (64)	154 (91)
HLA/ABO type	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)	0 (0)
Organ damaged	0 (0)	0 (0)	2 (2)	1 (1)	0 (0)	1 (1)	2 (1)	1 (1)	2 (2)	1 (1)
Ischaemia time too long - warm	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	2 (0)	13 (10)	22 (9)
Ischaemia time too long - cold	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	3 (3)	4 (3)
Fatty organ	10 (8)	14 (12)	12 (10)	7 (5)	7 (7)	12 (10)	7 (7)	9 (6)	1 (1)	2 (2)
Organ unsuitable for transplant	0 (0)	0 (0)	0 (0)	2 (2)	1 (1)	0 (0)	0 (0)	0 (0)	1 (1)	2 (2)
Organ fibrotic	1 (1)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	1 (1)
Total	**57 (32)**	**63 (37)**	**62 (40)**	**61 (39)**	**48 (29)**	**154 (86)**	**198 (107)**	**188 (96)**	**138 (82)**	**186 (109)**
Poor function	**17 (11)**	**16 (12)**	**16 (9)**	**16 (8)**	**7 (6)**	**49 (32)**	**49 (32)**	**51 (31)**	**30 (17)**	**32 (24)**
Other										
Donor arrested	0 (0)	0 (0)	0 (0)	1 (.)	0 (0)	0 (0)	1 (.)	0 (0)	0 (0)	1 (.)
No suitable recipients	6 (4)	8 (4)	10 (5)	4 (2)	7 (3)	26 (14)	30 (18)	41 (18)	27 (16)	24 (15)
No time	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (.)
Centre already retrieving/transplanting	1 (1)	0 (0)	0 (0)	2 (.)	0 (0)	1 (1)	0 (0)	8 (5)	5 (2)	3 (1)
No beds	0 (0)	0 (0)	1 (1)	1 (.)	0 (0)	0 (0)	1 (1)	0 (0)	1 (.)	5 (3)
Transport difficulties	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (.)	0 (0)	0 (0)	0 (0)	0 (0)
No response to fast track offer	1 (1)	2 (2)	1 (1)	1 (.)	1 (1)	11 (2)	4 (1)	6 (4)	11 (5)	3 (2)
Other	17 (8)	27 (14)	21 (10)	22 (4)	12 (2)	237 (69)	222 (64)	234 (69)	117 (28)	117 (24)
Total	**25 (14)**	**37 (20)**	**33 (17)**	**31 (6)**	**20 (6)**	**276 (86)**	**258 (84)**	**289 (96)**	**161 (51)**	**154 (45)**

Table C2 Reasons for non-use of livers retrieved from deceased donors (solid organ donors), 20 March 2017 to 20 March 2022

	DBD					DCD				
	2017/18	2018/19	2019/20	2020/21	2021/22	2017/18	2018/19	2019/20	2020/21	2021/22
Donor unsuitable - medical										
Infection	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)
Tumour	3 (3)	0 (0)	2 (2)	0 (0)	2 (2)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)
Anatomy	3 (3)	4 (4)	3 (3)	10 (10)	20 (20)	1 (1)	0 (0)	5 (5)	6 (6)	9 (9)
Total	**6 (6)**	**4 (4)**	**5 (5)**	**10 (10)**	**22 (22)**	**1 (1)**	**0 (0)**	**6 (6)**	**7 (7)**	**9 (9)**
Donor unsuitable - non-medical										
Donor unsuitable - size	1 (1)	0 (0)	1 (1)	1 (1)	7 (7)	0 (0)	1 (1)	1 (1)	3 (3)	6 (6)
Total	1 (1)	0 (0)	1 (1)	1 (1)	7 (7)	0 (0)	1 (1)	1 (1)	3 (3)	6 (6)
Donor unsuitable - age	**0 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**0 (0)**	**2 (2)**
Organ unsuitable - clinical										
Donor unsuitable - past history	0 (0)	0 (0)	1 (1)	6 (6)	3 (3)	0 (0)	1 (1)	2 (2)	2 (2)	4 (4)
HLA/ABO type	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)
Organ damaged	0 (0)	0 (0)	3 (3)	4 (4)	3 (3)	1 (1)	0 (0)	3 (3)	2 (2)	3 (3)
Ischaemia time too long - warm	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (4)	3 (3)	3 (3)	4 (4)	6 (6)
Ischaemia time too long - cold	4 (4)	4 (4)	3 (3)	5 (5)	4 (4)	3 (3)	6 (6)	4 (4)	2 (2)	7 (7)
Fatty organ	8 (8)	14 (14)	16 (16)	30 (30)	29 (29)	7 (7)	5 (5)	5 (5)	4 (4)	22 (22)
Organ unsuitable for transplant	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Organ fibrotic	0 (0)	1 (1)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)
Poor perfusion	0 (0)	0 (0)	2 (2)	0 (0)	0 (0)	2 (2)	2 (2)	2 (2)	1 (1)	2 (2)
Total	**12 (12)**	**19 (19)**	**25 (25)**	**46 (46)**	**40 (40)**	**17 (17)**	**17 (17)**	**19 (19)**	**16 (16)**	**45 (45)**
Poor function	**0 (0)**	**1 (1)**	**1 (1)**	**5 (5)**	**10 (10)**	**0 (0)**	**0 (0)**	**1 (1)**	**5 (5)**	**15 (15)**
Other										
No suitable recipients	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Recipient unfit	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)
Recipient died	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Recipient refused	0 (0)	0 (0)	0 (0)	1 (1)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
No response to fast track offer	3 (3)	2 (2)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Used for research after declined by centres	42 (42)	49 (49)	64 (64)	5 (5)	5 (5)	60 (60)	36 (36)	57 (57)	5 (5)	7 (7)
Other	11 (11)	19 (19)	32 (32)	23 (23)	17 (17)	22 (22)	12 (12)	27 (27)	20 (20)	33 (33)
Not reported	0 (0)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Total	**56 (56)**	**70 (70)**	**97 (97)**	**30 (30)**	**23 (23)**	**84 (84)**	**49 (49)**	**84 (84)**	**25 (25)**	**40 (40)**