

NHS BLOOD AND TRANSPLANT

RETRIEVAL ADVISORY GROUP

SUPER-URGENT LIVER PATHWAY – THREE MONTH REPORT

BACKGROUND

- 1 Recipients listed for super urgent liver transplant are at risk of rapid and fatal deterioration during the time between listing and transplantation. The deterioration may occur over hours, such that the patient may become un-transplantable. Experience suggests that avoidable retrieval delay is common in such patients. The super-urgent liver pathway was proposed for cases where the liver has been accepted for a super-urgent patient to minimise the length of process and potentially avoid such situations. When a liver has been accepted for a super-urgent patient, if cardiothoracic organs are under offer, cardiothoracic offering will switch to group offering if not already at that stage to reduce the length of time taken.
- 2 The pathway was first brought in on 8 April 2021 under an “opt-in” trial where liver centres could choose to activate the pathway upon acceptance of the liver for a super-urgent patient. This had varying levels of utilisation across centres and so on 1 November 2021, a pilot began where this pathway would be implemented for all super-urgent liver acceptances where cardiothoracic offering is occurring.

SUPER-URGENT LIVER REGISTRATIONS AND OUTCOMES

- 3 Between 1 November 2021 and 31 January 2022, there were 32 registrations to the super-urgent liver list. No patients were on the super-urgent list on 1 November. The outcomes of these registrations are seen in **Figure 1**. Of the 32, 24 (75%) were ventilated or encephalopathic. In total, 31 received transplants – 28 from UK deceased donors, 1 from an overseas donor, and 2 from living donors. One patient was removed due to deteriorating condition. Of the 28 transplanted from UK deceased donors, 22 (79%) had at least one cardiothoracic organ offered, with 8 proceeding to cardiothoracic donation.

LENGTH OF PROCESS

- 4 There were 26 super-urgent liver transplants and 187 non-urgent liver only transplants from 204 UK deceased donors between 1 November 2021 and 31 January 2022. **Table 1** shows the length of offering process for these two groups, by whether or not cardiothoracic offering occurred, on a donor basis. If the liver was split, the donor is categorised by the highest urgency of liver transplant that resulted. If no cardiothoracic organs were offered, the median length of time from Hub registration to abdominal team agreed departure time was 5.7 hours, which is 3 hours less than if cardiothoracic organs are offered. When the transplant was in a super-urgent recipient, this time interval was an hour shorter compared to the non-urgent transplant group when CT offering occurs.
- 5 **Table 2** shows the length of time from abdominal team arrival to knife to skin by whether a cardiothoracic team attended and urgency of liver transplant. The time from team arrival to theatre access was similar across the cohort, taking 16 minutes if there was a CT team in attendance, and 20 minutes if it was abdominal only. When no CT team was involved, the time from theatre access to knife to skin was quicker (85 mins vs 108

mins). When a CT team were involved, the time to knife to skin is longer on average than an abdominal only retrieval.

ORGAN UTILISATION

- 6 There were 210 DBD donors who had their liver offered between 1 November 2021 and 31 January 2022, with 194 of these donors proceeding to donate at least one organ. Of the 210, 35 (17%) had the liver accepted for a super-urgent recipient (including acceptances which were subsequently declined), 166 (79%) had the liver accepted for other liver recipients (all tiers below super-urgent), and 9 (5%) did not have their liver accepted at all. **Table 3** below shows the utilisation of organs from these donors. Although based on small numbers, transplantation rates across organs were similar between the two groups where the liver had been accepted. Note that a number of the livers accepted for super-urgent recipients may have been subsequently declined and used in other liver recipients.

LIMITATIONS

- 7 Throughout the analysis, it was assumed that all super-urgent liver acceptances went through the pathway where cardiothoracic organs were offered, however, there may be cases where the pathway was not used for various reasons such as group offering had already commenced by time of super-urgent liver acceptance, or there was a request from the liver centre to not use the pathway.

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**Figure 1 Super-urgent liver registrations and outcomes,
1 November 2021 – 31 January 2022**

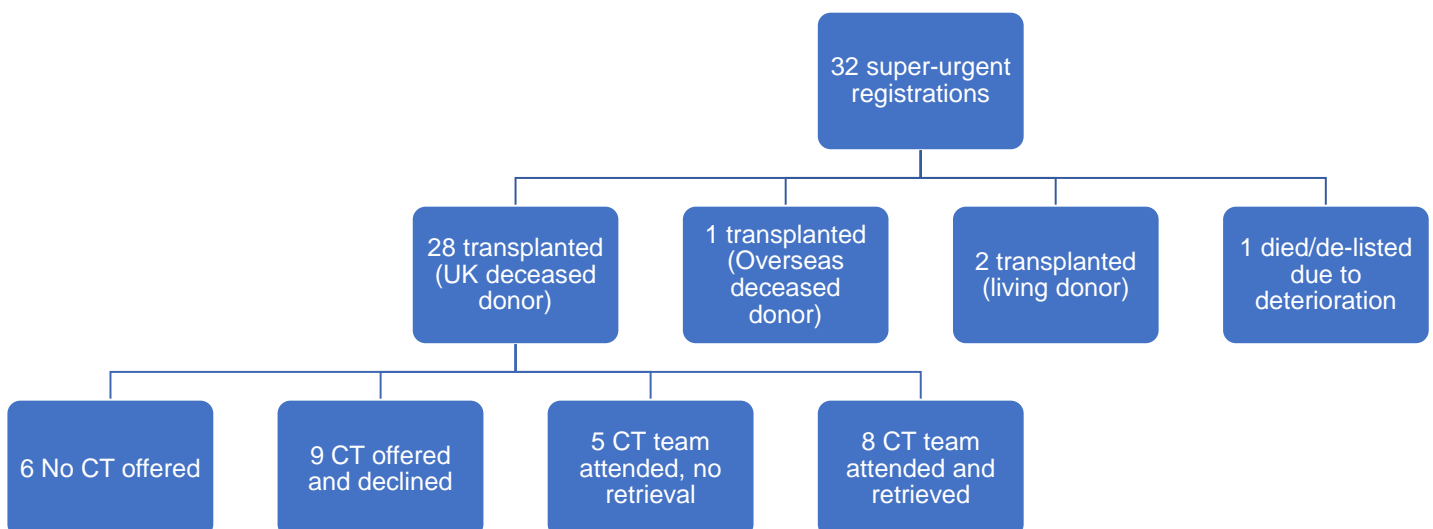


Table 1 Length of offering process for liver only transplants, by urgency of transplant and whether CT offering occurred, 1 November 2021 – 31 January 2022

CT offering occurred	Urgency of transplant	Number of donors	Hub registration to agreed departure time*	
			Number reported	Median (IQR) hours
No	Super-urgent	6	6	5.6 (4.4-6.6)
	Non-urgent	57	57	5.7 (4.5-7.6)
	Overall	63	63	5.7 (4.5-7.6)
Yes	Super-urgent	20	20	7.5 (6.0-9.1)
	Non-urgent	121	120	8.7 (6.2-11.7)
	Overall	141	140	8.4 (6.2-11.6)

* As recorded by the SNOD for the abdominal NORS team

Table 2 Timings from AB NORS team arrival to knife to skin for liver only transplants, by urgency of transplant and whether CT team attended, 1 November 2021 – 31 January 2022

CT team attended	Urgency of transplant	Number of donors	Team arrival to access to theatre		Access to theatre to knife to skin	
			Number reported	Median (IQR) mins	Number reported	Median (IQR) mins
No	Super-urgent	14	14	22.5 (10-40)	14	89 (61-108)
	Non-urgent	110	106	20 (10-30)	106	85 (64-115)
	Overall	124	120	20 (10-33.5)	120	85 (64-112)
Yes	Super-urgent	12	11	16 (10-29)	11	105 (51-154)
	Non-urgent	68	66	16 (10-38)	66	115.5 (74-158)
	Overall	80	77	16 (10-35)	77	108 (74-155)

Table 3 Organ offer outcomes by highest recipient tier acceptance of liver, 1 November 2021 – 31 January 2022

Liver acceptance	Outcome	Kidney ¹	Liver	Pancreas	Heart	Lungs ¹
Liver accepted for SU	Offered	35	35	20	20	23
	Retrieved	33	33	15	6	4
	Transplanted (% of offered)	31 (89%)	27 (77%)	9 (45%)	6 (30%)	3 (13%)
Liver accepted for other ²	Offered	162	166	93	80	92
	Retrieved	143	151	51	24	13
	Transplanted (% of offered)	131 (81%)	130 (78%)	29 (31%)	23 (29%)	12 (13%)
Liver not accepted	Offered	8	9	3	5	6
	Retrieved	4	0	0	1	1
	Transplanted (% of offered)	4 (50%)	0 (0%)	0 (0%)	1 (20%)	1 (17%)
Total	Offered	205	210	116	105	121
	Retrieved	180	184	66	31	18
	Transplanted (% of offered)	166 (81%)	157 (75%)	38 (33%)	30 (29%)	16 (13%)

¹ At least one² All tiers below super-urgent