NHS BLOOD AND TRANSPLANT

CARDIOTHORACIC ADVISORY GROUP

SUMMARY OF SUPER-URGENT AND URGENT HEART ALLOCATION SCHEMES SINCE IMPLEMENTATION/CHANGES

INTRODUCTION

1. The Super-Urgent Heart Allocation Scheme (SUHAS) was implemented on 26 October 2016 for adult patients. On the same day, changes were made to both the adult and paediatric patient categories included in the Urgent Heart Allocation Scheme (UHAS). This paper provides a first look at the usage of the new SUHAS and the revised UHAS, including the number of patients registered onto the schemes and their outcomes. The time period analysed was the five months from 26 October 2016 to 26 March 2017, and data were extracted from the UK Transplant Registry on 27 March 2017.

RESULTS

2. **Table 1** shows that there are 99 patients registered onto the SUHAS or UHAS over the five month period. Of these, 19 patients were registered onto the SUHAS and the majority of these had received a transplant by the time of data extraction. Of the 80 patients who had been registered on the UHAS, 37 had received a transplant at time of analysis, 28 were still on the urgent list, 8 had been removed, and 7 had died. For patients registered more than once in the time period on either of the schemes, the latest registration was used for this analysis.

Table 1 Number of patients registered onto the Super-Urgent or Urgent Heart Allocation Scheme during the five month period from 26 October 2016 to 26 March 2017, by centre and registration outcome as at 27 March 2017

Transplant centre		Super-Urgent registration outcome		Urgent registration outcome				Total
		Removed	Transplanted	Still active on list	Died	Removed	Transplanted	
Adult	**Newcastle**	0	0	5	0	1	8	**14**
	Papworth	0	3	1	0	1	8	**13**
	Harefield	4	0	8	1	0	6	**19**
	Birmingham	0	5	5	0	5	3	**18**
	Manchester	0	3	1	0	0	6	**10**
	Glasgow	0	4	0	0	0	0	**4**
Paediatric	**Newcastle**	-	-	4	3	1	4	**12**
	GOSH	-	-	4	3	0	2	**9**
UK		**4**	**15**	**28**	**7**	**8**	**37**	**99**

Four patients were registered more than once in the time period. The table shows their latest registration.

3. **Table 2** shows the same information as in **Table 1** but by registration category rather than centre. Details of the registration categories are included in **Appendix A1**. Of the two possible super-urgent categories, 11 and 12, only 11 has been used so far. The new urgent adult categories 21, 22, 23, 31 and 32 have replaced the previous categories 1-7 and 9. Only 21, 22 and 23 have been used so far. The urgent paediatric category 53 has been removed, so the current categories are 51, 52, 54, 55, 56 and 59. All but one of these has been used so far.

Table 2 Number of patients registered onto the Super-Urgent or Urgent Allocation Scheme during the five month period from 26 October 2016 and 26 March 2017, by registration category and registration outcome as at 27 March 2017

Registration category*		Super-Urgent registration outcome		Urgent registration outcome				Total
		Removed	Transplanted	Still active on list	Died	Removed	Transplanted	
Adult	**11**	4	15	-	-	-	-	**19**
	21	-	-	15	0	5	25	**45**
	22	-	-	5	1	2	4	**12**
	23	-	-	0	0	0	2	**2**
Paediatric	**51**	-	-	2	0	0	2	**4**[1]
	54	-	-	0	1	1	0	**2**
	55	-	-	2	2	0	3	**7**
	56	-	-	2	2	0	1	**5**[1]
	59	-	-	2	1	0	0	**3**[1]
Total		**4**	**15**	**28**	**7**	**8**	**37**	**99**

*See **Appendix A1** for the category details.

Four patients were registered more than once in the time period. The table shows their latest registration.

[1] three of these patients, all at GOSH, were registered without a category but the correct category was obtained from the centre for the purpose of this paper.

4. **Table 3** shows that of the 19 patients who were registered onto the SUHAS during the five month period, 15 (79%) had received a transplant at time of data extraction. The remaining 4 patients, all at Harefield, were removed from the SUHAS without transplantation: one patient had fallen outside of the agreed listing criteria, one had an LVAD fitted and one patient's condition deteriorated. The median waiting time to super-urgent heart transplant, calculated from all 19 waiting times using the Kaplan-Meier method, was 6 days.

5. There were 80 patients registered onto the UHAS during the five month period, plus 3 more who were urgent then super-urgent. Median waiting time to urgent heart transplant was calculated from all 83 waiting times, using the Kaplan Meier method, and for adult patients was 42 days, while for paediatric patients it was 26 days. Please note that the urgent heart median waiting time and the registration outcome are reported as at 27 March 2017, as a result not all registrations have sufficient time allowance for their outcomes (e.g. new registrations at the end of the analysis period will be mostly censored/still active on the list), therefore the waiting time at this stage is only a crude estimate.

Table 3 Waiting time to transplant for the 19 patients registered onto the Super-Urgent Heart Allocation Scheme between 26 October 2016 and 26 March 2017, as at 27 March 2017

Transplant centre		Total registrations	Waiting time to transplant (days)	Super-urgent registration outcome	
				Removed	Transplanted
Adult	**Newcastle**	0	-	-	-
	Papworth	3	1, 4, 7	0	3
	Harefield	4	-	4*	0
	Birmingham	5	1,2, 2, 6,17	0	5
	Manchester	3	2, 2, 4	0	3
	Glasgow	4	14, 19, 30, 39	0	4
UK		**19**	**6****	**4**	**15**

*Patients waited for 4,6,13 and 25 days respectively before they were removed from the list
**Median waiting time to transplant (days) is estimated by Kaplan Meier method, patients removed from the list are censored at date of removal from list

6. There are 4 Super-Urgent and Urgent registration categories (12, 22, 23 and 59) that require agreement from the CTAG Adjudication Panel. **Table 4** lists the 18 registrations under these categories during the five month period. Evidence of Adjudication Panel agreement should be sent to the ODT Duty Office via email or fax at the same time as the *Super-Urgent/Urgent Heart Recipient Registration Form* in order for the patient to be registered onto the appropriate scheme. In 5 out of 18 cases, the individual registering the patient had indicated on the form that agreement from the panel had been given, but in only 3 of these cases had the evidence been emailed to NHSBT.

Table 4 Registrations under the super-urgent or urgent heart registration categories that required Adjudication Panel agreement between 26 October 2016 and 26 March 2017

Registration category*/ Transplant centre		Total registrations	Indication of agreement from Adjudication Panel on the registration form	Email evidence of agreement from Adjudication Panel
22	Newcastle	2	0	0
	Harefield	6	1	1
	Birmingham	4	0	0
23	Papworth	1	1	0
	Manchester	1	1	1
	Glasgow	1	1	1
59	GOSH	3	1	0
	Total	**18**	**5**	**3**

*See **Appendix A1** for the category details.

CONCLUSIONS

- There were 99 patients registered onto the SUHAS or UHAS in the five months period since 26 October 2016.
- Nineteen of these classified for super-urgent registration.
- Fifteen of the 19 super-urgent patients had received a heart transplant by the time of analysis, on 27 March 2017.
- Waiting time to super-urgent heat transplantation is very short (median 6 days).
- Waiting time to super-urgent heart transplantation is substantially shorter than to urgent heart transplantation (median 42 days for adult patients registered in the time period).
- Future monitoring of the SUHAS and UHAS will compare registration data before and after 26 October 2016 to see what impact the changes have made.
- Patients should always be registered onto the SUHAS or UHAS with a valid category provided at the start of Section 4 of the *Super-Urgent/Urgent Heart Recipient Registration Form.*
- Patients registered under categories 12, 22, 23 and 59 require CTAG Adjudication Panel agreement and evidence of agreement, if given, should be emailed to the Duty Office at the time of registration, as stated in the NHSBT Heart Selection Policy (http://www.odt.nhs.uk/transplantation/guidance-policies/).
- The ODT Duty Office can only facilitate minimal validation of registration forms at present so centres should be diligent when completing forms to ensure they comply with the Heart Selection Policy.

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April 2017

Appendix

A1 INDICATION FOR SUPER-URGENT/URGENT HEART REGISTRATION

SUPER-URGENT ADULT PATIENTS

11 - Category 11 - Adult patient on short-term mechanical circulatory support (MCSD).
12 - Category 12 - Adult patient at imminent risk of dying or irreversible complications. Meets criteria for urgent listing but is not suitable for long-term VAD and/or other exceptional circumstances. Agreed by CTAG Adjudication Panel and evidence of agreement emailed to NHSBT.

URGENT ADULT PATIENTS

21 - Category 21 - Adult inpatient dependent on intravenous inotropes which cannot be weaned.
22 - Category 22 - Adult long-term VAD or TAH patient with one of the following complications: right ventricular failure dependent on inotropes; recurrent systemic infection related to VAD/TAH; other VAD/TAH issues including recurrent or refractory VAD/TAH thrombosis, agreed by CTAG Adjudication Panel and evidence of agreement emailed to NHSBT.
23 - Category 23 - Exceptionally sick adult patient - high risk of dying or having an irreversible complication but does not meet urgent listing criteria. Agreed by CTAG Adjudication Panel and evidence of agreement emailed to NHSBT.
31 - Category 31 - ACHD arrhythmia patients - Refractory arrhythmia (> 1 hospital admission over last 3 months with haemodynamic instability or associated with kidney or liver dysfunction).
32 - Category 32 - ACHD patients with no option for conventional escalation of therapy - Inpatients unsuitable for inotropes and/or VAD with one of the following: bilirubin and transaminases > 2x normal; deteriorating renal function (eGFR <50ml/min/1.73m , or 20% reduction from baseline); requirement for dialysis/CVVH for fluid or electrolyte management; recurrent admissions (> 3 in preceding 3 months) with episodes of right heart failure or protein losing enteropathy requiring ascites drainage.

URGENT PAEDIATRIC PATIENTS

For any urgent listing there must be agreement between the two paediatric centres. This should involve the clinical leads or in their absence an appointed deputy. If there is disagreement this should be noted at the time of discussion with the chair of CTAG.
51 - Category 51 - Paediatric with short-term MCSD: Mechanical circulatory support for acute haemodynamic decompensation using a short-term right, left or bi-ventricular device (including Berlin Heart), implanted as a specific bridge-to-transplantation.
52 - Category 52 - Paediatric with MCSD with device-related complications: Mechanical circulatory support with objective medical evidence of significant device-related complications such as thrombo-embolism, device infection, mechanical failure and/or life-threatening ventricular arrhythmias. Panel reactive antibody sensitisation does not qualify for urgent registration in this criterion.
54 - Category 54 - Paediatric with VA ECMO: Mechanical circulatory support using extra-corporeal membrane oxygenation as a specific bridge-to-transplantation.
55 - Category 55 - Paediatric >15kg on high-dose inotropes: Patients >15kg on continuous central infusion of a high dose intravenous inotrope.
56 - Category 56 - Paediatric ≤15kg on ventilation and inotropes: Patients ≤15kg who are ventilated and on inotropes.
59 - Category 59 - Paediatric, Other: Paediatric patients outside the criteria listed above, but for whom the patient's transplant physicians believe urgent listing is justified using acceptable medical criteria not included above. For paediatric patients whereby a maximum acceptable donor size has been specified to be ≥160 cm in height and/or ≥60kg in weight, their eligibility for registering under this category must be discussed and agreed by a panel of representatives from each paediatric transplant centre and the CTAG Chair or his deputy, and evidence of agreement emailed to NHSBT. For all other paediatric patients, their eligibility may be discussed between the paediatric centres