

NHS BLOOD AND TRANSPLANT
CARDIOTHORACIC ADVISORY GROUP
URGENT HEART ALLOCATION SCHEMES –
2012/2013 ACTIVITY

SUMMARY

INTRODUCTION

- 1 This paper is a review of the usage of the Adult Urgent Heart Allocation Scheme (AUHAS) and the Paediatric Urgent Heart Allocation Scheme (PUHAS) in their fourteenth year of operation.

DATA

- 2 Data on 167 urgent heart registrations for 160 patients registered between 1 April 2012 and 31 March 2013 were obtained from the UK Transplant Registry and also from manual records kept by the Organ Donation and Transplantation Duty Office.

CONCLUSIONS

- 3 There were 132 adult urgent heart registrations during the 2012/2013 financial year, an increase of 38% compared with registrations in 2011/2012. There were 13 adult urgent patients on the list at the end of August and July and 17 at the end of June 2013. 66% of adult urgent registrations resulted in transplant. Sadly, seven adult patients died awaiting an urgent heart transplant.
- 4 There were 35 paediatric urgent heart registrations, a decrease of 3% compared with registrations last year. There were 4, 6 and 3 paediatric urgent patients on the list at the end of August, July and June 2012, respectively. 60% of the paediatric patients listed urgently were transplanted. Sadly, six paediatric patients died awaiting an urgent heart transplant.
- 5 There were no statistically significant differences in post-transplant patient survival by urgency status; however patients who received an urgent heart transplant had a higher 30 day and 1 year survival estimate than patients who were non-urgent.

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Statistics and Clinical Studies

September 2013

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INTRODUCTION

- 1 This paper is a review of the usage of the Adult Urgent Heart Allocation Scheme (AUHAS) and the Paediatric Urgent Heart Allocation Scheme (PUHAS) in their fourteenth year of operation.

METHODS

- 2 Data on 167 urgent heart registrations for 160 patients registered between 1 April 2012 and 31 March 2013 were obtained from the UK Transplant Registry and also from manual records kept by the Organ Donation and Transplantation Duty Office.
- 3 Unadjusted 30 day and one year patient survival estimates for first heart only transplants were calculated using the Kaplan-Meier estimation method and compared for urgent and non-urgent transplants. Patient death was regarded as the outcome event and recipients alive with a functioning graft, at time of analysis, were censored at last known follow-up date.
- 4 Thirty day survival rates were based on data from 490 adult and 159 paediatric transplants performed between 1 April 2008 and 31 March 2013; one year survival rates were based on data from 374 adult and 136 paediatric transplants performed between 1 April 2008 and 31 March 2012.

RESULTS

Patient registration and allocation

- 5 A total of 132 adult urgent heart registrations and 35 paediatric urgent heart registrations were made between 1 April 2012 and 31 March 2013. This represented 47% and 76%, respectively, of all adult and paediatric registrations for heart only transplants. Compared with 2011/2012 activity, the number of adult urgent heart registrations increased by 38%, whilst the number of non-urgent registrations increased by 6%.
- 6 AUHAS and PUHAS usage varied between centres and is summarised in **Table 1**. The number of adult urgent registrations at all centres, apart from Papworth, has increased compared with the 2011/2012 activity. Glasgow registered one 15-year old on the PUHAS in 2012/13.

**Table 1 Heart registrations, by age-group,
1 April 2012 – 31 March 2013 (1 April 2011 – 31 March 2012)**

Transplant centre	Number of heart registrations		% urgent of all registrations
	Urgent	Non-urgent	
Adult			
Birmingham	18 (14)	25 (24)	42% (37%)
Glasgow	12 (7)	8 (14)	60% (33%)
Great Ormond St	2 (0)	1 (1)	67% (0%)
Harefield	20 (16)	37 (23)	35% (41%)
Manchester	20 (17)	18 (17)	53% (50%)
Newcastle	37 (13)	32 (22)	54% (37%)
Papworth	23 (29)	28 (39)	45% (43%)
Total	132 (96)	149 (140)	47% (41%)
Paediatric			
Great Ormond St	15 (19)	9 (17)	53% (59%)
Newcastle	19 (17)	2 (2)	89% (77%)
Glasgow	1 (0)	0 (0)	100% (0%)
Total	35 (36)	11 (19)	76% (65%)
TOTAL	167 (132)	160 (159)	51% (45%)

- 7 Instances where two or more urgent patients from the same centre were registered at the same time had to be agreed in advance with the Chair of CTAG or the Associate Medical Director for Organ Donation and Transplantation.

Patient outcome

- 8 Outcomes of urgent heart registrations are shown in **Table 2**. Of the 132 adult urgent registrations, 87 received a transplant (23 within seven days). Waiting time for adult patients on the urgent list ranged between 0 and 196 days, with seven patients waiting over 100 days. On average, 11.4 adult patients were on the urgent list at any one time, compared with 6.4 in 2011/2012. There were 13 adult urgent patients on the list at the end of August and July and 17 at the end of June 2013.
- 9 Seven adult patients died on the urgent list post-registration. Two of these patients did not receive any offers of a donor heart while the remaining five received between 3 and 23 offers. Adult patients were removed from the list on 38 occasions. Twenty five of these were implanted with a ventricular assist device (VAD), 8 were removed from the list as they were too ill and 5 were removed for unknown reasons.
- 10 Of the 35 paediatric urgent registrations, 21 received a transplant (three within seven days), as shown in **Table 3**. Six of the 21 transplanted paediatric patients received hearts from adult donors; three patients were registered at Great Ormond Street, two at Newcastle and one at Glasgow.

Waiting time for paediatric patients ranged between 2 and 149 days, with two paediatric patients waiting over 100 days. On average, 5.9 paediatric patients were on the list at any one time compared with 7.3 in 2011/2012. There were 4, 6 and 3 paediatric urgent patients on the list at the end of August, July and June 2013, respectively.

- 11 Six paediatric patients died on the urgent list after waiting between 1 and 50 days. The number of heart offers for these patients ranged between 0 and 2. Paediatric patients were removed from the list on eight occasions. Three patients were removed as their condition improved, two patients were removed due to a deterioration in their condition and three due to unknown reasons.

Table 2 Registration outcome, as at 1 August 2013, by age-group, 1 April 2012 to 31 March 2013						
Registration outcome	Adult		Paediatric		Total	
	N	%	N	%	N	%
Transplanted	87	66	21	60	108	65
Died	7	5	6	17	13	8
Removed	38	29	8	23	46	27
Still active	0	0	0	0	0	0
TOTAL	132	100	35	100	167	100

- 12 The outcome of those 38 adult registrations and 8 paediatric registrations which were removed from the list are provided in **Tables 3 and 4** respectively. **Table 3** has been further separated depending on whether the patient had received a VAD either upon removal from the list or after. VAD data is not yet available for analysis for paediatric patients.

Table 3 Registration outcome for those removed from the list, as at 1 August 2013, by age-group, 1 April 2012 to 31 March 2013 - Adults			
Registration outcome	VAD		Total
	No	Yes	
Returned to non-urgent list	1	6	7
Returned to urgent list	0	2	2
Suspended from list	2	2	4
Transplanted	2	2	4
Still removed from list	8	13	21
TOTAL	13	25	38

Twenty five of the 38 adult patients removed from the urgent list subsequently received a VAD and none of the patients died after removal.

Table 4 Registration outcome for those removed from the list, as at 1 August 2013, by age-group, 1 April 2012 to 31 March 2013 - Paediatric

Registration outcome	Total
Returned to non-urgent list	1
Returned to urgent list	0
Suspended from list	1
Transplanted	1
Still removed from list	5
TOTAL	8

Urgent and non-urgent patient survival

- 13 Thirty day and one year patient survival estimates are provided in **Table 5** with associated 95% confidence intervals. Also given are p-values for log rank tests to compare the survival times of urgent and non-urgent transplants.
- 14 The survival estimates obtained for adult and paediatric recipients who received a first urgent heart transplant were higher than those for non-urgent heart recipients, but the difference is not statistically significant so survival between the two groups is comparable.

Table 5 Kaplan-Meier patient survival after first heart only transplant in the UK

	Number analysed	30 day ¹ Patient survival estimate (%)	95% Confidence interval	Number analysed	One year ² Patient survival estimate (%)	95% Confidence interval
Adult						
Urgent	268	90	86 – 93	189	83	77 – 88
Non-urgent	222	84	79 – 88	185	78	72 – 84
Log-rank p-value		0.07			0.19	
Paediatric						
Urgent	121	98	93 – 99	100	92	85 – 96
Non-urgent	38	92	77 – 97	36	86	70 – 94
Log-rank p-value		0.12			0.30	

¹ Transplants between 1 April 2008 and 31 March 2013

² Transplants between 1 April 2008 and 31 March 2012

CONCLUSIONS

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