

NHS BLOOD AND TRANSPLANT
CARDIOTHORACIC ADVISORY GROUP
CLINICAL CHARACTERISTICS OF URGENT PATIENTS

SUMMARY

BACKGROUND

- 1 This paper summarises the clinical data provided in the initial registration form for urgent heart registrations between 1 April 2012 and 31 March 2013.

DATA ANALYSIS

- 2 Data on 167 urgent heart registrations for 160 patients registered between 1 April 2012 and 31 March 2013 were obtained. The clinical characteristics of patients registered on the urgent list indicated a number of registrations which did not appear to fulfil the criteria for urgent listing:
 - 17% of adult patients were not an inpatient in level 2 critical care
 - 20% of adult patients did not have a cardiac index $< 2\text{l/min/m}^2$
 - Urgent heart category was not reported for 3% of adult registrations but was reported for all paediatric registrationsIn addition 16% of adult registrations and 14% of paediatric registrations were made under the 'Other' category.

ACTIONS

- 3 In cases where there are insufficient data to validate the listing or possible violations of the scheme, centres will be contacted and asked to provide further information or a narrative summary justifying the listing.
- 4 Members are asked whether the cardiac index criterion remains appropriate given that there are cases where the patient is already on inotropes at referral to the transplant unit.
- 5 A more robust method of documenting justifications behind registering an urgent patient under the 'Other' category should be considered.
6. Due to the number of registrations that do not appear to meet the criteria, members are asked whether basic validation should be undertaken before patients are listed.

NHS BLOOD AND TRANSPLANT

CARDIOTHORACIC ADVISORY GROUP

CLINICAL CHARACTERISTICS OF URGENT PATIENTS

BACKGROUND

- 1 The current urgent heart registration forms were introduced in May 2008 to collect more comprehensive data on the clinical condition of urgent patients. Inclusion criterion for adult urgent patients were also introduced and audited on the forms.
- 2 Each new registration onto the urgent heart allocation scheme (UHAS) should be accompanied by an initial Urgent Heart Recipient Registration form. For patients who remain on the urgent list for more than 7 days, Urgent Heart Recipient Weekly Update forms should be submitted each week.
- 3 A planned review of all urgent heart listings in 2011/2012 that did not appear to fulfil the criteria has not yet been achieved.
- 4 This paper summarises the clinical data provided in the initial registration form for urgent heart registrations between 1 April 2012 and 31 March 2013. Data provided in the weekly updates are not presented.

DATA

- 5 Data on 167 urgent heart registrations for 160 patients registered between 1 April 2012 and 31 March 2013 were obtained from the manual records kept by the Organ Donation and Transplantation (ODT) Duty Office.

RESULTS

- 6 A total of 132 adult urgent heart registrations and 35 paediatric urgent heart registrations were made between 1 April 2012 and 31 March 2013.
- 7 **Table 1** shows the urgent heart registration category and key criteria for urgent listing. The most common category for both adult and paediatric patients to be listed under was high dose inotropes. 16% of adult patients were registered under the 'Other' category while 14% of paediatric patients were registered under this category. The urgent category was not reported for 3% of adult patients but reported for all paediatric patients. Adult patients are currently only eligible to be listed urgently if they are an inpatient in level 2 critical care or higher, and if they have a documented cardiac index $< 2 \text{ l/min/m}^2$ before supportive treatment. However, 17% and 20% of adult patients respectively did not meet these criteria.

Table 1 Urgent heart registration category, Level 2 Critical Care status and Cardiac Index criterion status for all adult and paediatric urgent patients, 1 April 2012 – 31 March 2013				
	Adult		Paediatric	
	N 132	% 100	N 35	% 100
Category				
Short-term MCSD	13	10	7	20
MCSD with device-related complications	19	14	0	0
IABP	9	7	2	6
ECMO	5	4	1	3
High-dose inotropes	49	37	13	37
Combination of inotropes	12	9	-	-
Non-invasive ventilation	0	0	-	-
Paediatric ≤15kg on ventilation and inotropes	-	-	7	20
Other	21	16	5	14
Not reported	4	3	0	0
Inpatient in Level 2 Critical Care				
Yes	101	77	35	100
No	22	17	0	0
Not reported	9	7	0	0
Cardiac Index <2l/min/m²				
Yes	91	69	29	83
No	26	20	2	6
Not reported	15	11	4	11

- 8 **Table 2** shows the VAD, ECMO, IABP and inotrope status of all urgent patients registered. 26% of adult patients were on a VAD at time of listing, 3% were on ECMO and 8% were on IABP. The corresponding figures for paediatric patients were 23%, 9% and 0%, respectively. 55% of adult patients and 60% of paediatric patients were on inotropes at the time of listing.
- 9 **Table 3** shows the laboratory results for patients at time of urgent listing. Laboratory investigations were not reported on all initial registration forms.

Table 2 VAD, ECMO, IABP and Inotrope status for all adult and paediatric urgent patients, 1 April 2012 – 31 March 2013

	Adult		Paediatric	
	N	%	N	%
	132	100	35	100
VAD				
None	87	66	26	74
Left	23	17	3	9
Right	1	1	0	0
Both	11	8	5	14
Not reported	10	8	1	3
ECMO				
No	118	89	30	86
Yes	4	3	3	9
Not reported	10	8	2	6
IABP				
No	111	84	32	91
Yes	11	8	0	0
Not reported	10	8	3	9
Inotropes				
Yes – high dose*	38	29	18	51
Yes – low dose	28	21	2	6
Yes – unknown dose	6	5	1	3
No inotropes	51	39	9	26
Not reported	9	7	5	14

* The following are defined as 'high dose' inotropes: dopamine>5µg/kg/min, dobutamine>7.5µg/kg/min, epinephrine>0.05µg/kg/min, milrinone>0.5µg/kg/min, enoximone>5µg/kg/min, levosimendan - any dose.

Table 3 Laboratory investigations data for adult and paediatric urgent patients, 1 April 2012 – 31 March 2013

	Hb	WCC	Serum creatinine	Serum bilirubin	CRP
	(g/dl)	(x10⁹/l)	(µmol/l)	(µmol/l)	(mg/dl)
Adults					
N	106	115	116	114	101
Mean	11.7	11.7	108.3	25.1	28.9
Standard deviation	2.2	16.2	47.0	23.7	32.8
N (high*)	-	22	4	7	35
Paediatrics					
N	27	28	28	25	22
Mean	11.2	16.1	57.2	22.4	36.7
Standard deviation	2.2	24.0	58.1	31.7	31.3
N (high*)	-	12	1	2	11

* 'High' here means:
 - WCC >12 x10⁹/l
 - Serum creatinine >200 µmol/l
 - Serum bilirubin >50 µmol/l
 - CRP >25 mg/dl

CONCLUSION

- 10 The clinical characteristics of patients registered on the urgent list, 1 April 2012 – 31 March 2013, indicate a number of registrations which do not appear to fulfil the criteria for urgent listing:
- 17% of adult patients were not an inpatient in level 2 critical care
 - 20% of adult patients did not have a cardiac index $< 2\text{l/min/m}^2$
 - Urgent heart category was not reported for 3% of adult registrations but was reported for all paediatric registrations
- In addition 16% of adult registrations and 14% of paediatric registrations were made under the 'Other' category.

ACTION

- 11 Urgent registrations which do not appear to fulfil the criteria for urgent listing are currently being reviewed by Mr Tsui. In cases where there are insufficient data to validate the listing or possible violations of the scheme, centres will be contacted and asked to provide further information or a narrative summary justifying the listing. Failure to provide a revised form demonstrating compliance, failure to provide a narrative justification or failure to provide a justification that is accepted as reasonable will place the registration into an INVALID category. Registrations in the INVALID category will be published at the next CTAG meeting. Repeated INVALID registrations may lead to certain sanctions to be determined by CTAG.
- 12 Members are asked whether the cardiac index criterion remains appropriate given that there are cases where the patient is already on inotropes at referral to the transplant unit.
- 13 Centres are reminded that any urgent registration that falls into the 'Other' category should be discussed with Mr Tsui in advance. A narrative justification for the listing should also be faxed to the ODT Duty Office for all such registrations under the 'Other' category. The prior discussion is currently not documented at NHSBT and narrative justifications are rarely provided, hence members should consider a more robust method of documenting these justifications. Centres should also ensure comprehensive completion of the urgent heart registration form.
- 14 Due to the number of registrations that do not appear to meet the criteria, members are asked whether basic validation should be undertaken before patients are listed.