

**NHS BLOOD AND TRANSPLANT**  
**CARDIOTHORACIC ADVISORY GROUP**  
**ALLOCATION ZONAL BOUNDARY CHANGES**  
**SUMMARY**

**INTRODUCTION**

- 1 On 30 April 2014, the CTAG Allocation Zone Working Group agreed a process for assessing balance between donor and registration numbers for each allocation zone and a methodology for adjusting zonal boundaries when an imbalance occurs. This is based on a statistically significant difference being observed between the percentage share of registrations and the percentage share of donors for any one cardiothoracic allocation zone. It was agreed that the cardiothoracic allocation zones would be reviewed on an annual basis.
- 2 Following the first analysis run in September 2014, an imbalance in the donor to registration percentage share was identified and changes to the allocation zones were made on 15th January 2015 to address this.
- 3 This paper presents the results of the third annual analysis which has been performed for the registrations between 1st April 2014 and 31st March 2016.

**RESULTS AND CONCLUSION**

- 4 When comparing the proportion of lung registrations made with the proportion of lung donors available at each centre in turn, there were found to be some statistically significant differences observed. The same conclusion was found for hearts. It is hopefully planned that separate heart and lung zones will be implemented with the introduction of the lung allocation scheme, and thus no changes will be made to the zones pending this separation.

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**INTRODUCTION**

- 1 On 30 April 2014, the CTAG Allocation Zone Working Group agreed a process for assessing balance between donor and registration numbers for each allocation zone and a methodology for adjusting zonal boundaries when an imbalance occurs. This is based on a statistically significant difference being observed between the percentage share of registrations and the percentage share of donors for any one cardiothoracic allocation zone and that the cardiothoracic allocation zones would be reviewed on an annual basis.
- 2 Following the first analysis run in September 2014, an imbalance in the donor to registration percentage share was identified and changes to the allocation zones were made on 15<sup>th</sup> January 2015 to address this.
- 3 This paper presents the results of the second annual analysis which has been performed for the registrations between 1<sup>st</sup> April 2014 and 31<sup>st</sup> March 2016.

**DATA AND METHODS**

- 4 Changes to the cardiothoracic allocation zones are based on a statistically significant difference being observed between the percentage share of registrations and the percentage share of donors for any one cardiothoracic allocation zone (at the 5% significance level adjusted to account for the largest difference in percentage share being tested for significance). The cardiothoracic allocation zones are reviewed on an annual basis and presented for endorsement at each Autumn CTAG meeting. Any subsequent changes to zonal boundaries are then implemented in the Autumn, around November. This paper presents the results of the third review.
- 5 Registrations were defined as:  
  
The total number of UK adult (≥16 years at time of registration) Group 1 heart, lung or heart/lung registrations in the **two year period** from 1 April 2014 and 31 March 2016, but excluding a) any registrations made by Great Ormond Street Hospital and b) any patients with no active waiting time. Registrations that ended in a domino or live donor transplant, multi-organ registrations and urgent heart registrations are included. Retrospective registrations made after an unlisted patient was transplanted were also included.

For patients registered twice in the registration period, the following rules apply:

- If a patient was registered, removed then reregistered, only the first registration is included.
- If a patient was registered, transplanted then reregistered, both registrations are included.
- If a patient was active, suspended then reactivated, only the first activation is included.
- If a patient was non-urgent, then made urgent, only the first registration is included, and vice versa.

Note that registrations for heart/lung transplantation were included in the number of heart registrations as heart/lung blocks are allocated according to the cardiac centre rota.

- 6 Donors were defined as:  
The total number of UK adult ( $\geq 16$  years at time of death) heart and/or lung donors after brain death over the **three year period** from 1 April 2013 to 31 March 2016. Donors whose heart or lungs were not transplanted were excluded. If only one lung from a donor was transplanted, this was included as a lung donor. Paediatric donors who donated to adult patients were included, along with adult donors whose organs are transplanted into paediatric patients. In this analysis, donors were allocated to centres as per the current allocation zones (implemented 15<sup>th</sup> January 2015) as opposed to the zones that were in place at the time of offer.

## RESULTS

- 7 **Table 1** summarises the proportion of heart and lung registrations made by each centre over the two year period, from 1 April 2014 to 31 March 2016, and compares this with the number of heart and lung donors that arose under each allocation zone as they are currently defined (as of 15<sup>th</sup> January 2015) over the three year period, from 1 April 2013 to 31 March 2016.
- 8 There were 47 lung donors in Glasgow's allocation zone between 1 April 2013 and 31 March 2016. These donors are incorporated in the 127 Newcastle donors recorded in **Table 1**.
- 9 When comparing the proportion of lung registrations made with the proportion of lung donors available at each centre in turn, there were found to be some statistically significant differences observed. The same conclusion was found for hearts. It is hopefully planned that separate heart and lung zones will be implemented with the introduction of the lung allocation scheme, and thus no changes will be made to the zones pending this separation.

**Table 1 Number of heart and lung registrations and donors by registering centre/allocation zone (2016/17)**

Centre	Heart Registrations		Heart Donors		Adjusted P-value	Lung Registrations		Lung Donors		Adjusted P-value
	N	%	N	%		N	%	N	%	
Birmingham	89	19	62	12	0.01	77	14	57	12	1.00
Glasgow	41	9	45	9	1.00	-	-	-	-	-
Harefield	69	15	121	24	0	184	33	119	25	0.05
Manchester	72	16	89	17	1.00	72	13	67	14	1.00
Newcastle	83	18	80	16	1.00	109	19	127	27	0.02
Papworth	106	23	114	22	1.00	119	21	99	21	1.00
<b>UK</b>	<b>460</b>	<b>100</b>	<b>511</b>	<b>100</b>		<b>561</b>	<b>100</b>	<b>469</b>	<b>100</b>	