

NHS BLOOD AND TRANSPLANT

LIVER ADVISORY GROUP

LIVER ALLOCATION ZONES - ANNUAL REVIEW

SUMMARY

INTRODUCTION

- 1 At the Liver Advisory Group (LAG) meeting on 6 May 2009, it was agreed that future changes to the current liver allocation zones would be based on a statistically significant difference being observed between the percentage share of registrations and the percentage share of donors for any one liver transplant centre and that the liver allocation zones would be reviewed on an annual basis.
- 2 This paper gives the results from an analysis that has been carried out on adult Group 1 elective registrations between 1 October 2014 and 30 September 2015, and donors after brain death between 1 October 2012 and 30 September 2015, to determine if any changes to the current liver allocation zones introduced on 8 January 2013 are required to be made.
- 3 For the purposes of this analysis, registrations and donors are specifically defined and the definitions are included in the main paper.

RESULTS

- 4 The difference between the percentage share of registrations in the 12 month period and donors in the three year period ranges from -2.9 at Leeds to +3.4 at Birmingham. A positive difference means the registration percentage share is greater than the donor percentage share hence an allocation zone may require more donors for their recipient pool whereas a negative difference means the converse. The larger the magnitude of the value the greater the difference.
- 5 There was no statistically significant difference observed between the proportion of patient registrations and the proportion of donors after brain death at any one of the liver allocation zones.

CONCLUSION

- 6 As there was no statistically significant difference between the donor and registration percentage share at any one of the liver allocation zones, no changes will be made to the current liver allocation zones.

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INTRODUCTION

- 1 At the Liver Advisory Group (LAG) meeting on 6 May 2009, it was agreed that future changes to the current liver allocation zones would be based on a statistically significant difference being observed between the percentage share of registrations and the percentage share of donors for any one liver transplant centre (at the 5% significance level adjusted to account for the largest difference in percentage share being tested for significance). It was also agreed that a) the liver allocation zones would be reviewed on an annual basis and b) any necessary changes to the allocation zones did not need to be ratified by the LAG before they could be introduced.
- 2 This paper gives the results from an analysis that has been carried out on adult Group 1 elective registrations between 1 October 2014 and 30 September 2015, and donors after brain death between 1 October 2012 and 30 September 2015, to determine if any changes to the current liver allocation zones introduced on 8 January 2013 are required to be made.

DATA AND METHODS

- 3 For the purposes of the analysis, registrations and donors are defined as follows:

Registrations: The total number of adult (≥ 17 years at time of registration) Group 1 elective liver registrations in the UK between 1 October 2014 and 30 September 2015 including non-UK resident EU patients, but excluding a) any registrations with a UKELD score of less than 49 and 'chronic liver disease' as their only indication and b) patient registrations for an intestinal transplant. Registrations that ended in a living donor transplant and multi-organ registrations are 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.

Donors: The total number of adult (≥ 16 years at time of death) donors after brain death in the UK over the three year period; from 1 October 2012 to 30 September 2015. Donors whose livers were not transplanted are excluded, so too are livers transplanted into super-urgent patients. If a donor liver is split and transplanted into two elective patients, this counts as one donor liver. If a donor liver is split and part transplanted into a super-urgent patient

and part into an elective patient then this too is counted as one donor liver. Paediatric donors who donated whole livers to adult patients are included as are adult donors whose livers were transplanted into paediatric patients only.

- 4 Donors during the three year period 1 October 2012 to 30 September 2015, are allocated to a zone based on the current zonal arrangements introduced on 8 January 2013. Due to the closure of Bristol's Frenchay Hospital due to the relocation and merger with Southmead Hospital during this time period, any potential donors from Frenchay have been reassigned to Southmead Hospital. Consequently, any donors from Frenchay (which was in Birmingham's allocation zone), have been allocated to King's College (whose allocation zone includes Southmead Hospital) in our analysis.

RESULTS

- 5 **Table 1** details the number and percentage share of liver donors (over the three year period) and the number and percentage share of registrations (in the 12 month period), by liver allocation zone.
- 6 The difference between the percentage share of registrations and donors is also presented in this table. A positive difference means the registration percentage share is greater than the donor percentage share hence an allocation zone may require more donors for their recipient pool whereas a negative difference means the converse. This difference ranges from -2.9 at Leeds to +3.4 at Birmingham and equates to a required change in the number of liver donors per year of a decrease of 15 donors at Leeds to an increase of 18 donors at Birmingham. However, there was no statistically significant difference observed between the proportion of patient registrations and the proportion of donors after brain death at any one of the liver allocation zones.

CONCLUSION

- 7 Given that the information in **Table 1** shows that there is no statistically significant difference between the donor and registration percentage for any one of the liver allocation zones, no changes will be made to the current liver allocation zones at this time.

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Table 1 **Adult Group 1 elective liver registrations in the UK between 1 October 2014 and 30 September 2015, and adult liver donors after brain death in the UK between 1 October 2012 and 30 September 2015, by liver allocation zone, based on allocation zones designated from 8 January 2013**

	No. of registrations over 12 months	Registration percentage share	No. and % of livers in local zone that were subsequently transplanted over three years		Difference between registration and donor percentage share	p-value	Adjusted p-value*
	N	%	N	%	%		
Birmingham	229	24.5	335	21.1	3.4	0.050	0.35
Cambridge	119	12.7	155	9.8	2.9	0.021	0.15
Edinburgh	110	11.8	204	12.9	-1.1	0.419	>0.99
King's College	209	22.4	376	23.7	-1.3	0.435	>0.99
Leeds	126	13.5	260	16.4	-2.9	0.049	0.34
Newcastle	39	4.2	94	5.9	-1.7	0.057	0.40
Royal Free	102	10.9	160	10.1	0.8	0.515	>0.99
Total	934	100.0	1584	100.0			

* Adjusted p-values take account of the fact that the centre with the largest difference between registration and donor percentage share will be of interest. The adjustment made is the Bonferroni correction, so that each p-value is multiplied by the total number of centres (7) to produce the adjusted values.