

## NHS BLOOD AND TRANSPLANT

### LIVER ADVISORY GROUP

#### SUPER-URGENT OFFERING

#### SUMMARY

#### PROPOSALS

- 1 **Local prioritisation**  
The Core Group raised concerns about potential centre inequities in access to livers for super-urgent patients. They therefore propose that local prioritisation is removed as part of the national offering scheme, such that the liver is immediately offered to super-urgent patients on a national basis, rather than local patients first. This is subject to LAG approval.
- 2 **Blood group prioritisation**  
Blood group O patients often wait longer for super-urgent transplants and have a higher mortality rate on the list. It was therefore agreed by LAG in May 2016 to amend the offering of blood group O donor livers for super-urgent patients such that group O livers are offered preferentially for all non-A patients ahead of group A patients. All other super-urgent offering to remain on the basis of all compatible blood groups equally.
- 3 **DCD donor livers**  
The Core Group recommend that DCD in addition to DBD donor livers are offered for super-urgent patients as part of the new offering scheme.

#### SUMMARY OF INVESTIGATIONS

- 4 There does not appear to be any significant difference between centres in the proportion of super-urgent patients registered who receive a transplant. In a “parallel run” assuming the offers are national and blood group prioritisation is amended for blood group O donors as proposed, there is little difference in outcomes after listing and most patients reviewed in a 6 month period receive a transplant with or without these two changes in offering. However, amending blood group priorities demonstrated that one death on the list could have been avoided by prioritising non-A patients for blood group O donors. Importantly, this only made a difference when local prioritisation was removed.

#### ACTION/RECOMMENDATION

- 5 It is proposed that the new national liver offering scheme should allocate donor livers for super-urgent patients as follows:
  - Blood group O donor
    - i) All O, B, AB super-urgent patients (ordered by waiting time only)
    - ii) All A super-urgent patients (ordered by waiting time only)
  - All other donors
    - i) All blood group compatible patients (ordered by waiting time only)
  - DCD donors
    - i) It is further proposed that DCD donor livers are also offered for super-urgent patients.
- 6 Members are asked to endorse these recommendations.

**Kate Martin and Rachel Johnson**  
**NHSBT Statistics and Clinical Studies**

**May 2016**

## NHS BLOOD AND TRANSPLANT

### LIVER ADVISORY GROUP

#### SUPER-URGENT OFFERING

#### PROPOSALS

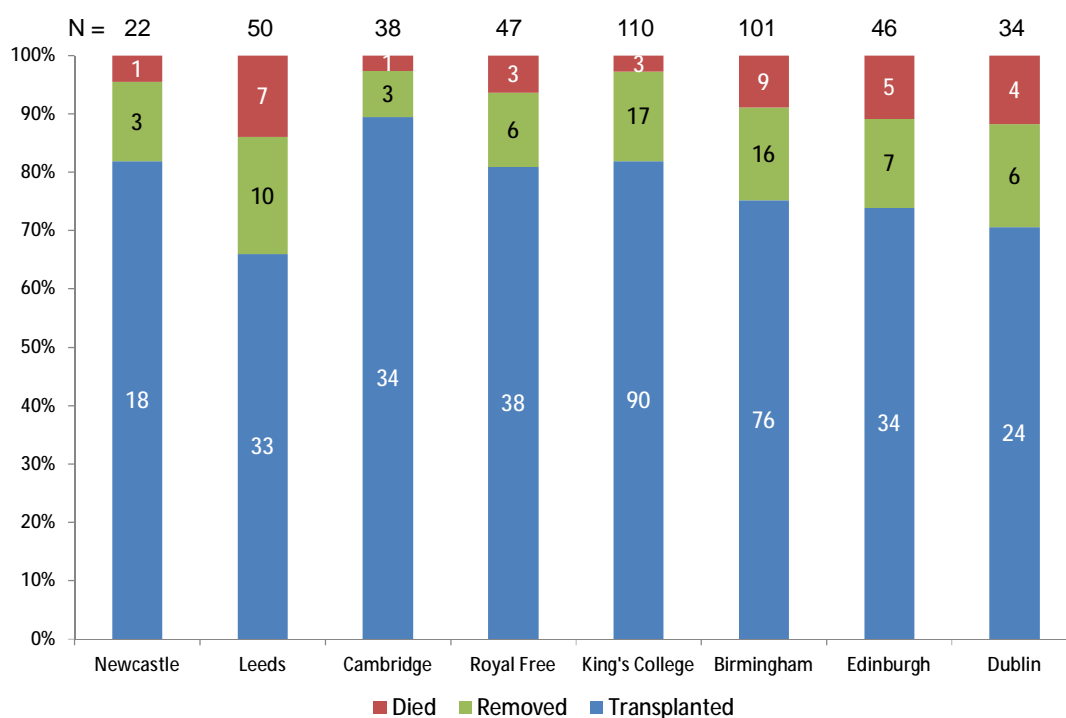
- 1      Local prioritisation  
The Core Group additionally proposed removing local prioritisation for super-urgent patients as part of the new national offering scheme, such that the liver is immediately offered to super-urgent patients on a national basis, rather than local patients first. This is subject to LAG approval. The aim of this change is to prevent smaller centres being disadvantaged by the prioritisation of local recipients.
  
- 2      Blood group prioritisation  
It was agreed by LAG in the May 2016 meeting that NHSBT would amend offering of blood group O donor livers within super-urgent offering, such that blood group O donors are allocated to the longest waiting recipient of blood group O, B or AB. Only then can they be offered to blood group A super-urgent patients. All other super-urgent offering to remain on the basis of blood group compatibility. This aims to address the issue that blood group O recipients often wait longer for super-urgent transplants and have a higher mortality rate.
  
- 3      DCD donor livers  
The Core Group recommend that DCD donor livers are offered for super-urgent patients as part of the new offering scheme.

#### INVESTIGATIONS

##### **Issue 1- does local prioritisation of super urgent patients disadvantage patients at small centres?**

- 4      **Figure 1** shows the outcome of super-urgent registrations by transplant centre, over the last three financial years. This shows that generally at least 60% of registrations lead to transplantation, and less than 20% of super-urgent patients die without transplant. There is no difference in the proportion of patients transplanted between centres (chi-square p-value=0.2).

Figure 1 Outcome of super-urgent registrations by centre, 1 April 2012 to 31 March 2015



5 **Table 1** shows the number of super-urgent transplants from zonal and non-zonal donors, by centre.

<b>Table 1 Transplanted super-urgent liver patients by centre and by allocation type (zonal and non-zonal), 1 April 2012 - 31 March 2015</b>					
Transplant centre	Non-zonal		Local (zonal)		Total SU transplants
	N	%	N	%	N
Newcastle	16	89	2	11	18
Leeds	29	88	4	12	33
Cambridge	32	82	7	18	39
Royal Free	33	87	5	13	38
King's College	67	71	27	29	94
Birmingham	54	71	22	29	76
Edinburgh	27	79	7	21	34
Dublin	15	63	9	37	24
<b>Total</b>	<b>273</b>	<b>77</b>	<b>83</b>	<b>23</b>	<b>356</b>

## Conclusion

6 Many super-urgent transplants were imported organs and there is no evidence of disadvantage for smaller centres.

## Issue 2 – could deaths on the list be reduced if non A super-urgent patients are prioritised for O donor livers?

- 7 All super-urgent liver transplants in the time period June to November 2015 were examined, excluding intestinal transplants. For each transplant we considered other patients on the SU list at that time and identified the most appropriate patient based on proposed changes in blood group priorities. We have assumed that both changes to offering were implemented (no local priority and O livers for non-A patients first). In many cases the proposed and actual patient were identical. Only donors that led to super-urgent transplants were considered in the parallel run for alternative recipients. However, when an alternative non-A patient could have been transplanted in preference to an A blood group patient, we listed potential A donors for the group A patient in the following few days. We excluded any local prioritisation and based priority on blood group match and then waiting time. This was a manual and time consuming process hence the short time period of review.
- 8 The results of this “parallel run” are shown in the **Appendix**, comparing actual and proposed recipients of super-urgent liver offers from 1 June 2015 to 30 November 2015.
- 9 In July, August and November 2015 there were differences in the actual and proposed recipients. Nine of the ten alternative recipients identified by newly proposed criteria were transplanted a few days earlier or later in reality. The remaining alternative recipient (blood group B) died without transplant. This case is highlighted in **Table 2** of the **Appendix** and shows that an O donor went to a blood group A recipient, but could have gone to this group B recipient. There was a potential A donor for the actual group A recipient that same day and another two days later.

### Conclusion

- 10 There is some evidence that a small number of patients could benefit by prioritising O donor livers to be used preferentially for non-A blood group super-urgent patients. One death would probably have been avoided in the 6 month review period. This requires removal of local prioritisation to be most effective.

### SUMMARY

- 11 There does not appear to be any significant difference between centres in the proportion of super-urgent patients registered who receive a transplant. In a “parallel run” assuming the offers are national and blood group prioritisation is amended for blood group O donors, there is little difference in outcomes and most patients reviewed in a 6 month period receive a transplant with or without these two changes in offering. However blood group priorities demonstrated that one death on the list could have been avoided by prioritising non-A patients for blood group O donors, but only when local prioritisation was removed.

**ACTION/RECOMMENDATION**

- 12 It is proposed that the new national liver offering scheme should allocate donor livers for super-urgent patients as follows:
- Blood group O donor
    - iii) All O, B, AB super-urgent patients (ordered by waiting time only)
    - iv) All A super-urgent patients (ordered by waiting time only)
  - All other donors
    - ii) All blood group compatible patients (ordered by waiting time only)
  - DCD donors
    - ii) It is further proposed that DCD donor livers are also offered for super-urgent patients.
- 13 Members are asked to endorse these recommendations.

**Kate Martin and Rachel Johnson**  
**NHSBT Statistics and Clinical Studies**

**May 2016**

## Appendix

### June 2015

There were 15 patients actively registered as super-urgent for at least one day in June 2015. Of these 3 were removed from the list and 12 were transplanted. There was no difference in actual and proposed recipients for this month.

### July 2015

There were 16 patients actively registered as super-urgent for at least one day in July 2015. Of these 3 were removed, 2 died and 11 were transplanted.

**Table 2** below shows the difference between the actual and proposed recipients for four transplants (in reality three of the proposed recipients were transplanted, and one died without transplant)

### August 2015

There were 11 patients actively registered as super-urgent for at least one day in August 2015. Of these 2 were removed and 9 were transplanted.

**Table 3** below shows the difference between the actual and proposed recipients for two transplants (in reality both of the proposed recipients were transplanted)

### September 2015

There were 9 patients actively registered as super-urgent for at least one day in September 2015. Of these 2 were removed from the list and 7 were transplanted. There was no difference in actual and proposed recipients for this month.

### October 2015

There were 8 patients actively registered as super-urgent for at least one day in October 2015. Of these 1 died without transplant and 7 were transplanted. There was no difference in actual and proposed recipients for this month.

### November 2015

There were 11 patients actively registered as super-urgent for at least one day in November 2015. Of these 1 was removed from the list and 9 were transplanted from a DBD donor. One was transplanted with a liver from a DCD donor.

**Table 4** below shows the difference between the actual and proposed recipients for two transplants (in reality both of the proposed recipients were transplanted, and one of these was re-transplanted).

Table 2 Parallel comparison of super-urgent offering					
July 2015	Donor	Actual recipient	Alternative recipient	Outcome of alternative patient	Potential A donors
ID	115061	192049	94809	Transplanted 3 days later	2 donors - same day
Zone/centre	King's College	King's College	Birmingham	Follow up unknown	
Blood group	O	A	O		
Age	40	55	14		
Waiting time (days)		7	23		
ID	115064	192196	192049	Transplanted the day before	1 donor - same day
Zone/centre	Cambridge	King's College	King's College	Alive with functioning graft at 92 days	1 donor - two days later
Blood group	A	A	A		
Age	73	31	55		
Waiting time (days)		2	8		
ID	115074	192109	192195	Did not receive a transplant	1 donor - same day
Zone/centre	Leeds	Leeds	King's College	Died 4 days later	1 donor - two days later
Blood group	O	A	B		1 donor - five days later
Age	71	64	43		
Waiting time (days)		5	3		
ID	115091	94809	192109	Transplanted 2 days earlier	<b>NOTE:</b> This O donor could go to an elective O recipient if we wait for next A donor
Zone/centre	Dublin	Birmingham	Leeds	Alive with functioning graft at 50 days	
Blood group	O	O	A		
Age	3	14	64		
Waiting time (days)		26	7		

Table 3      Parallel comparison of super-urgent offering					
August 2015	Donor	Actual recipient	Alternative recipient	Outcome of alternative patient	Potential A donors
<b>ID</b>	115416	192406	190671	Transplanted a day later	2 donors - one day later
<b>Zone/centre</b>	Leeds	Leeds	Cambridge	Died the following day	3 donors - two days later
<b>Blood group</b>	O	A	O		
<b>Age</b>	71	54	59		
<b>Waiting time (days)</b>		0	0		
<b>ID</b>	115417	190671	192406	Transplanted the day before	<b>NOTE:</b> This B donor could go to an elective recipient if we wait for next A donor
<b>Zone/centre</b>	Birmingham	Cambridge	Leeds	Alive with functioning graft at 65 days	
<b>Blood group</b>	B	O	A		
<b>Age</b>	19	59	54		
<b>Waiting time (days)</b>		1	1		

Table 4      Parallel comparison of super-urgent offering					
November 2015	Donor	Actual recipient	Alternative recipient	Outcome of alternative patient	Potential A donors
<b>ID</b>	117364	195089	179454	Transplanted two days earlier	1 donor - same day
<b>Zone/centre</b>	King's College	King's College	Leeds	Graft failed and re-txd after 3 days	1 donor - two days later
<b>Blood group</b>	O	A	O	Assume graft functions this time	3 donors - three days later
<b>Age</b>	26	7	64		
<b>Waiting time (days)</b>		0	2		
<b>ID</b>	117381	179454	195089	Transplanted two days earlier	<b>NOTE:</b> This O donor could go to an elective O recipient if we wait for next A donor
<b>Zone/centre</b>	Royal Free	Leeds	King's College	Follow up unknown	
<b>Blood group</b>	O	O	A		
<b>Age</b>	50	64	7		
<b>Waiting time (days)</b>		0	2		