

NHS BLOOD AND TRANSPLANT

BOWEL ADVISORY GROUP

POTENTIAL BOWEL DONORS

SUMMARY

BACKGROUND

- 1 Potential donors after brain death (DBD) who met the following criteria are considered for bowel donation:
Age < 56 years
Weight < 80 kg
- 2 Potential bowel donors were defined as DBD donors who donated at least one solid organ for the purpose of transplantation, who met the criteria for bowel donation and whose family gave consent for bowel donation. This paper examines the pathway from identification of potential bowel donors to transplantation of the bowel and the points at which potential bowel donors are “lost”.

DATA ANALYSIS

- 3 The last financial year, 2014/15, was analysed. In this period there were 772 UK DBD donors and 276 (36%) of these met the criteria for bowel donation. Of these, consent for bowel donation was given in 232 cases (84%). Of these 232 potential bowel donors, the bowels of 196 (84%) were offered to intestinal transplant centres and 21 (11%) bowels were transplanted. In comparison with the previous two financial years, the consent rate for bowel donation has improved as has the bowel offering rate.
- 4 Adult centres accepted and transplanted 15 donor bowels (4% of the total number of bowel offers made to them) and paediatric centres accepted and transplanted 6 donor bowels (1% of the total number of bowel offers made to them). Of the 175 bowels that were offered and declined, only 12 (7%) were from donors weighing < 50 kg. The most common reasons given by adult centres for declining bowel offers were donor history, donor size and HLA/ABO type. The vast majority of offers declined by paediatric centres were declined due to donor size.
- 5 170 (87%) livers and 92 (47%) pancreases were transplanted from the 196 potential bowel donors where bowel offering occurred, compared with just 21 (11%) bowels. These bowels came from 20 different donor hospitals across England and Wales. Three additional intestinal transplants were achieved in the time period from overseas donors (Dublin, Italy and Eurotx).

ACTION

- 6 Members are asked to consider the contents of this report and advise on what should be included in the next version, due to be run in Autumn 2016.

Sally Rushton
September 2015

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- 1 Potential donors after brain death (DBD) who met the following criteria are considered for bowel donation:
Age < 56 years
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- 2 This paper examines the pathway from identification of potential bowel donors to transplantation of the bowel and the points at which potential bowel donors are “lost”. Small potential bowel donors (weight < 50 kg) are examined in more detail as these have the greatest potential. The geographical distribution of potential bowel donors is also examined.

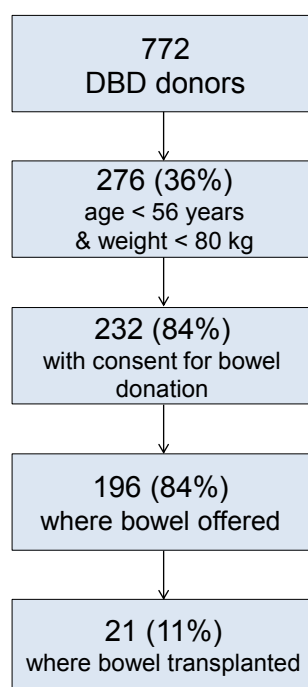
DATA AND METHODS

- 3 Potential bowel donors were defined as DBD donors who donated at least one solid organ for the purposes of transplantation, who met the criteria for bowel donation and whose family gave consent for bowel donation.
- 4 Data on 772 DBD donors who died in the UK between 1 April 2014 and 31 March 2015 were extracted from the UK Transplant Registry on 31 August 2015. Data from the previous two years were also extracted for comparison.
- 5 Reasons for the non-use of bowels from potential bowel donors were analysed. The reasons were reported by NHS Blood and Transplant’s Duty Officers or Specialist Nurses in Organ Donation in cases where no offering took place and by the centres themselves in cases where offering did take place. Donors were classed as not having consent for bowel donation if the reason recorded for non-use was that the family refused consent or consent was not sought for that organ.
- 6 There were 24 intestinal transplants carried out in the UK between 1 April 2014 and 31 March 2015. Three (13%) of these transplants used organs from overseas donors and these donors have been excluded from the analysis.

RESULTS

The pathway to bowel donation

- 7 Of the 772 DBD donors in the time period, 276 (36%) met the criteria for bowel donation. Of these, consent for bowel donation was gained from the donor family in 232 cases (84%). Of these 232 potential bowel donors, the bowels of 196 (84%) were offered to intestinal transplant centres and 21 (11%) bowels were transplanted. A flow diagram of this pathway is shown below.

Figure 1 Flow diagram of the pathway from DBD donors during 2014/15 to bowel donors

- 8 These rates are compared with the corresponding rates between 1 April 2012 and 31 March 2013 and between 1 April 2013 and 31 March 2014 in **Figure 2** and **Table 1**. The most noticeable differences across time periods are the increase in the consent rates for bowel donation (from 78% to 84%) and the increase in the bowel offering rate (also from 78% to 84%). An equivalent figure and table just for donors weighing < 50 kg is shown in the **Appendix** (page 9).

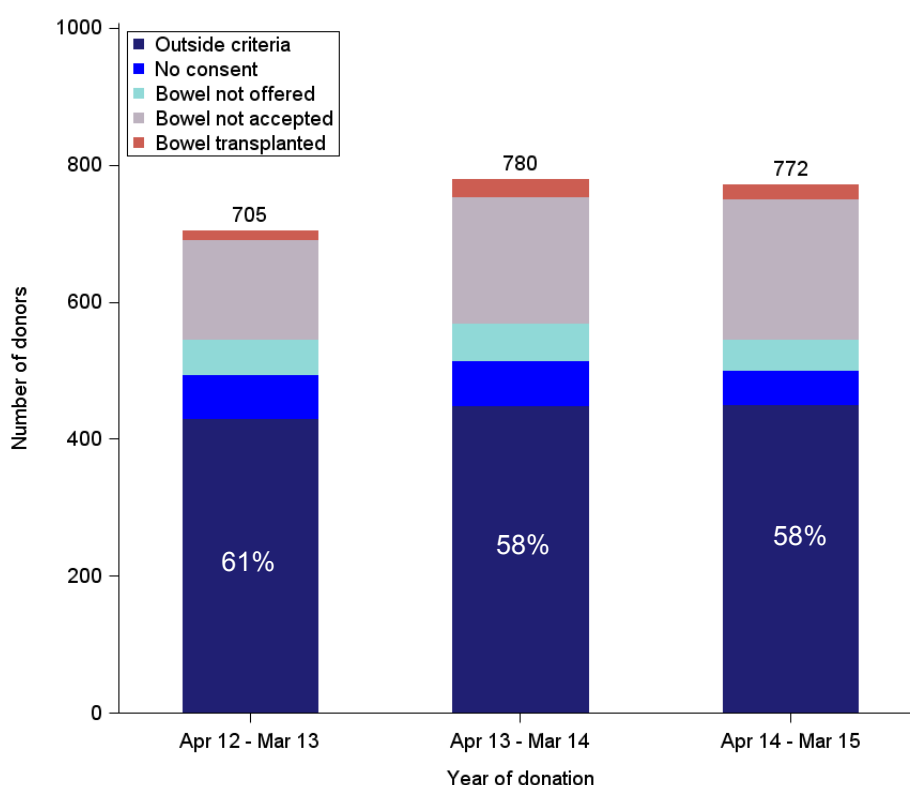
Figure 2 The pathway from DBD donors between 1 April 2012 and 31 March 2015 to bowel donors, by time period

Table 1 The pathway from DBD donors between 1 April 2012 and 31 March 2015 to bowel donors, by time period

		Time period			Total
		2012/13	2013/14	2014/15	
DBD donors	N	705	780	772	2257
Met criteria for bowel donation (age < 56 years & weight < 80 kg)	N	238	279	276	793
	% of previous	34	36	36	35
Consent given for bowel donation	N	186	223	232	641
	% of previous	78	80	84	81
Bowel offered	N	145	179	196	520
	% of previous	78	80	84	81
Bowel transplanted	N	13	23	21	57
	% of previous	9	13	11	10

Potential bowel donors

- 9 The reasons for not offering the bowels of 36 potential bowel donors between 1 April 2014 and 31 March 2015 are presented in **Table 2**. The most common reasons given were no suitable recipients on the list for that donor (44%) and donor history (22%).

Table 2 Reasons for not offering bowels from potential bowel donors during 2014/15

Reasons for not offering	Donor bowels not offered	
	N	%
Donor reasons		
History	8	22.2
Poor function	1	2.8
Organ damaged	1	2.8
Size ¹	1	2.8
Logistical reasons		
No suitable recipients ²	16	44.4
Other organs required were not available ³	6	16.7
Permission refused by coroner	3	8.3
Total	36	100.0

¹ Weight of this donor was 65 kg

² Not blood group or HLA compatible

³ For example liver accepted for super-urgent liver recipient and no blood group compatible intestinal recipients not requiring a liver

- 10 The total number of patient specific offers associated with the 196 donor bowels that were offered was reported to be 844: 391 (46%) to adult centres and 453 (54%) to paediatric centres. Adult centres accepted and transplanted 15 donor bowels (4% of offers made to them) and paediatric centres accepted and transplanted 6 donor bowels (1% of offers made to them).

Small potential bowel donors (< 50 kg)

- 11 Of the 175 bowels that were offered and declined, 12 (7%) were from donors weighing < 50 kg. The details of why these bowels were not used are shown in **Table 3 (removed as patient specific)**.

Large potential bowel donors (\geq 50 kg and < 80 kg)

- 12 The 163 declined bowels from donors who weighed \geq 50 kg corresponded to 410 paediatric offers and 330 adult offers. The reasons that these offers were declined are shown in **Table 4** and **Table 5** for paediatric and adult centres respectively. 91% of the offers declined by paediatric centres were declined on size. The most common reasons for decline cited by adult centres were donor history (25%), size (11%) and HLA/ABO type (10%). Logistical reasons such as a lack of available beds or staff were cited in 13% of the offers that were declined by adult centres.

Table 4 Reasons for the decline of bowels from potential bowel donors weighing ≥ 50 kg and < 80 kg that were offered to paediatric centres during 2014/15

Reasons for decline	Centre				Total	
	King's College		Birmingham			
	N	%	N	%	N	%
Donor reasons						
Size	182	97.3	190	85.2	372	90.7
History	0	0.0	8	3.6	8	2.0
Virology	2	1.1	6	2.7	8	2.0
Age	0	0.0	6	2.7	6	1.5
Poor function	0	0.0	1	0.4	1	0.2
Infection	0	0.0	1	0.4	1	0.2
Recipient reasons						
Recipient unfit	0	0.0	6	2.7	6	1.5
Other	3	1.6	5	2.2	8	2.0
Total	187	100.0	223	100.0	410	100.0

Table 5 Reasons for the decline of bowels from potential bowel donors weighing ≥ 50 kg and < 80 kg that were offered to adult centres during 2014/15

Reasons for decline	Centre				Total	
	Cambridge		Oxford			
	N	%	N	%	N	%
Donor reasons						
History	67	27.9	14	15.6	81	24.5
Size	20	8.3	16	17.8	36	10.9
HLA/ABO type	13	5.4	20	22.2	33	10.0
Poor function	23	9.6	3	3.3	26	7.9
Virology	16	6.7	10	11.1	26	7.9
Age	16	6.7	0	0.0	16	4.8
X-match positive	1	0.4	11	12.2	12	3.6
Centre criteria not achieved	8	3.3	0	0.0	8	2.4
Infection	4	1.7	3	3.3	7	2.1
Other	10	4.2	0	0.0	10	3.0
Recipient reasons						
Recipient unfit	1	0.4	1	1.1	2	0.6
Other	4	1.7	0	0.0	4	1.2
Logistic reasons						
Centre already transplanting	25	10.4	2	2.2	27	8.2
No time/beds	5	2.1	3	3.1	8	2.4
Distance	6	2.5	0	0.0	6	1.8
Other	0	0.0	2	2.2	2	0.6
Other	21	8.8	5	5.6	26	7.9
Total	240	100.0	90	100.0	330	100.0

Organs transplanted from potential bowel donors

- 13 **Table 6** shows summary statistics on the 196 potential bowel donors where bowel offering occurred, by whether the liver was transplanted, whether the pancreas was transplanted and whether the bowel was transplanted. Note that these are not mutually exclusive groups. Note also that those livers that went to super-urgent liver only recipients have been shown for additional information. 170 (87%) livers and 92 (47%) pancreases were transplanted compared with just 21 (11%) bowels. 37 of the livers that were transplanted were used in super-urgent liver only recipients but these were mainly the heavier donors.

Table 6 Transplants performed using organs from potential bowel donors where bowel offering occurred, during 2014/15

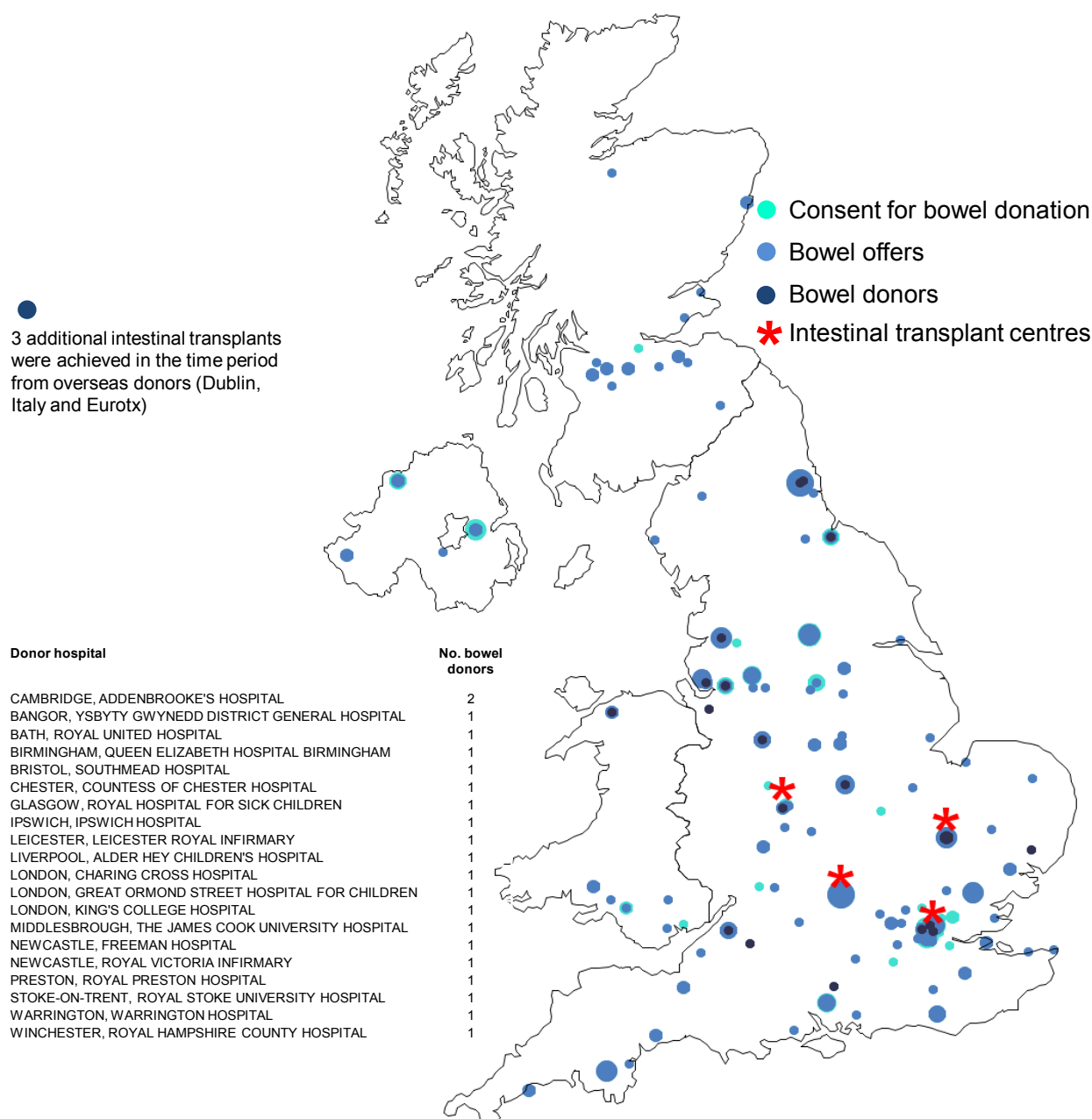
	No. donors	Organs transplanted							
		Liver		(Liver only super-urgent transplants)*		Pancreas		Bowel	
	N	N	% of donors	(N)	(% of donors)	N	% of donors	N	% of donors
Donor blood group									
O	112	95	84.8	(32)	(28.6)	53	47.3	13	11.6
A	63	56	88.9	(4)	(6.3)	29	46.0	5	7.9
B	18	17	94.4	(1)	(5.6)	10	55.6	3	16.7
AB	3	2	66.7	(0)	(0.0)	0	0.0	0	0.0
Donor weight (kg)									
<20	7	4	57.1	(0)	(0.0)	4	57.1	3	42.9
20-<35	4	2	50.0	(0)	(0.0)	1	25.0	2	50.0
35-<50	7	7	100.0	(2)	(28.6)	5	71.4	1	14.3
50-<80	178	157	88.2	(35)	(19.7)	82	46.1	15	8.4
Donor BMI (kg/m ²)									
<18.5	21	14	66.7	(1)	(4.8)	9	42.9	5	23.8
18.5-<25	125	112	89.6	(26)	(20.8)	69	55.2	16	12.8
25+	50	44	88.0	(10)	(20.0)	14	28.0	0	0.0
Donor age (years)									
0-15	19	13	68.4	(2)	(10.5)	12	63.2	6	31.6
16-35	67	59	88.1	(17)	(25.4)	41	61.2	11	16.4
36-50	87	77	88.5	(13)	(14.9)	29	33.3	3	3.4
51-55	23	21	91.3	(5)	(21.7)	10	43.5	1	4.3
Total	196	170	86.7	(37)	(18.9)	92	46.9	21	10.7

* This is a subset of the "Liver" column, showing those that were transplanted into super-urgent liver only recipients

Location of potential bowel donors

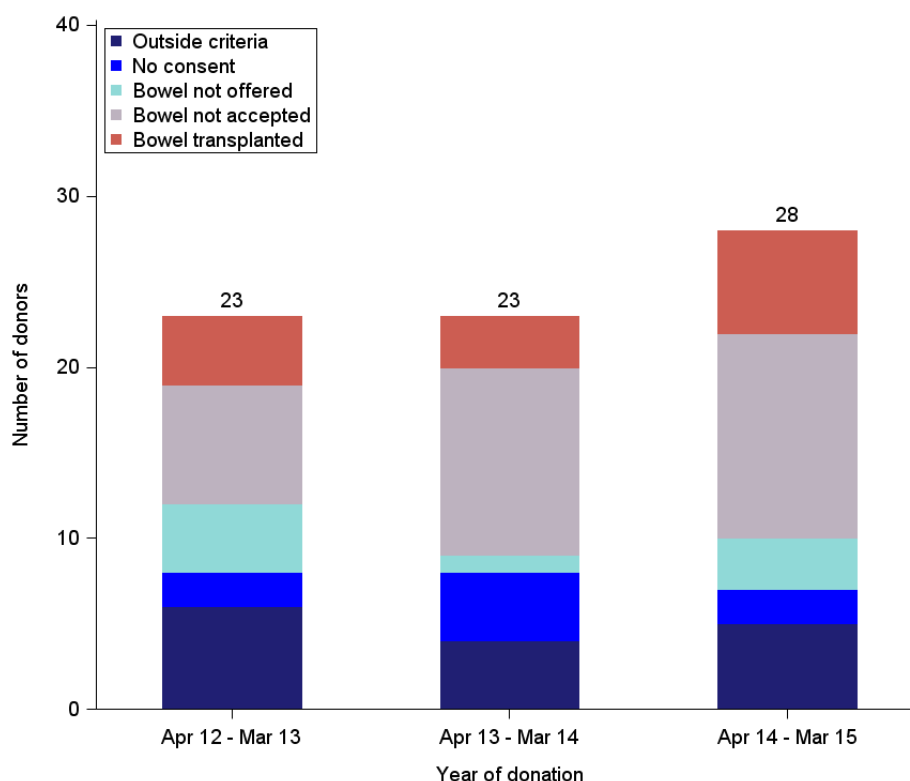
- 14 **Figure 3** shows the location of the 232 potential bowel donors during the time period. Overlaid on the potential bowel donors (those meeting the criteria and with consent) are the donors where bowel offering occurred and overlaid on those are the donors where the bowel was transplanted. See **Appendix III** for a comparison of the geographical distribution of liver offers and bowel offers.

Figure 3 Geographical distribution of potential bowel donors during 2014/15



APPENDIX

Appendix I The pathway from DBD donors weighing < 50 kg between 1 April 2012 and 31 March 2015 to bowel donors, by time period



Appendix II The pathway from DBD donors weighing < 50 kg between 1 April 2012 and 31 March 2015 to bowel donors, by time period

		Time period			Total
		2012/13	2013/14	2014/15	
DBD donors	N	23	23	28	74
Met criteria for bowel donation (age < 56 years)	N	17	19	23	59
	% of previous	74	83	82	80
Consent given for bowel donation	N	15	15	21	51
	% of previous	88	79	91	86
Bowel offered	N	11	14	18	43
	% of previous	73	93	86	84
Bowel transplanted	N	4	3	6	13
	% of previous	36	21	33	30

Appendix III Geographical comparison of liver offers and bowel offers from DBD donors during 2014/15 (note that the bowel offers are restricted to donors meeting the criteria for bowel donation while there is no restriction on the liver offers)

