

NHS BLOOD AND TRANSPLANT
MULTI-VISCERAL AND COMPOSITE ADVISORY GROUP
PATIENT SURVIVAL AFTER INTESTINAL TRANSPLANT

INTRODUCTION

1. This regular paper reports on patient survival following deceased donor intestinal transplantation for transplants performed nationally. The period analysed was 1 January 2004 to 31 December 2019, in which 233 elective intestinal transplants were carried out in first time recipients. Follow-up data were available on the UK Transplant Registry (UKTR) as at 10 February 2020 for 230 (99%) patients. Note that this report excludes one living donor transplant performed at King's College in 2017.

DATA ANALYSIS

2. Kaplan-Meier survival curves were produced separately for paediatric and adult patients and within these cohorts, by transplant type and era. Short/medium-term survival rates are displayed within the plots. The results are based on small numbers and are not risk-adjusted so for these reasons should be treated as guidance only. Ten-year survival rates are presented for the first time in this report.
3. The key messages are:
 - Ten year survival rate estimates for paediatric and adult elective intestinal transplant recipients are 49.7% and 32.6%, respectively (**Figure 1**). **Table 1** shows the 90 day, 1 year, 5 year, and 10 year survival rate estimates. At each time point survival was not significantly different between adult and paediatric recipients.
 - Bowel only (BO) transplants appear to have superior outcomes compared with multivisceral (MV) or liver, bowel and pancreas (LBP) transplants and modified multivisceral (MMV) or bowel and pancreas (BP) transplants in both the paediatric and adult analyses, especially when analysed out to ten years post-transplant which has been added for the first time in this report (**Table 2**, **Table 3**). However, note that there were too few paediatric BP or MMV transplants to be included in **Table 2** and **Figure 2**.
 - Survival estimates by era have been removed as comparisons are not significant.
4. Additional information:
 - There have been seven super-urgent intestinal transplants performed in the UK to date in six different patients, with the last occurring in November 2017. No further deaths for these patients have been recorded since last report, details can be found in **Table 5 (removed as patient identifiable)**.
 - There have been 29 transplants including abdominal wall in the time period into 28 different adult patients: 16 bowel only, 1 MV and 12 MMV¹. Oxford performed 26 (90%) of these transplants with the remaining three at Cambridge. No further deaths for these patients have been recorded since last report. **Figure 4** and **Table 4** shows the Kaplan-Meier estimates for abdominal wall recipients where survival data are available (N=28), which is similar to the 5 year rate for all adult patients (**Table 1**).
 - A variety of causes of death have been reported to the UKTR for the 91 patients who are deceased within 10 years following intestinal transplantation (**Table 6** and **Table 7 (both removed as patient identifiable)**).

¹ In addition, we are aware of at least two cases of abdominal wall only registrations in the time period. Transplant and outcome data are not available for this type of transplants in the UKTR.

ACTION

5. Members are asked to review the contents of this paper, in particular:
- The level of detail required in Table 1
 - Whether cause of death for abdominal wall recipients is still required
 - If Table 6 and Table 7 are still required, potential groupings for causes of death to improve reporting

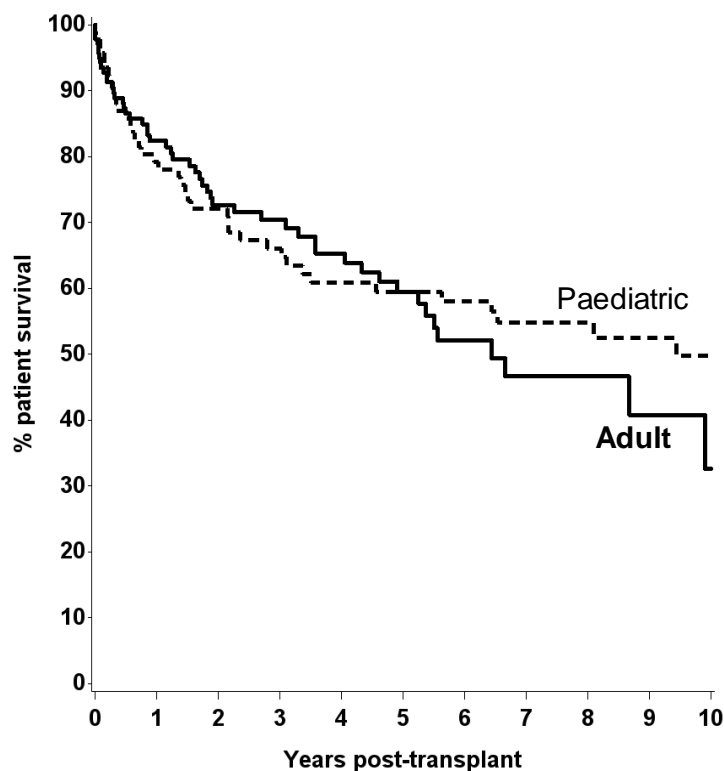
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ALL PATIENTS

Table 1 Patient survival for first intestinal transplants between 1 January 2004 and 31 December 2019, by age group									
Age group	No. of patients	% 90 day survival (95% CI)		% 1 year survival (95% CI)		% 5 year survival (95% CI)		% 10 year survival (95% CI)	
Adult	138	91.3	(85.2 - 95.0)	82.4	(74.7 - 88.0)	59.5	(48.8 - 68.7)	32.6	(15.4 - 51.1)
Paediatric	92	91.3	(83.4 - 95.6)	79.1	(69.3 - 86.2)	59.5	(48.3 - 69.1)	49.7	(37.3 - 61.0)
Log-rank p-value		0.97		0.59		0.80		0.62	

Figure 1 10 year patient survival following intestinal transplantation, by age group

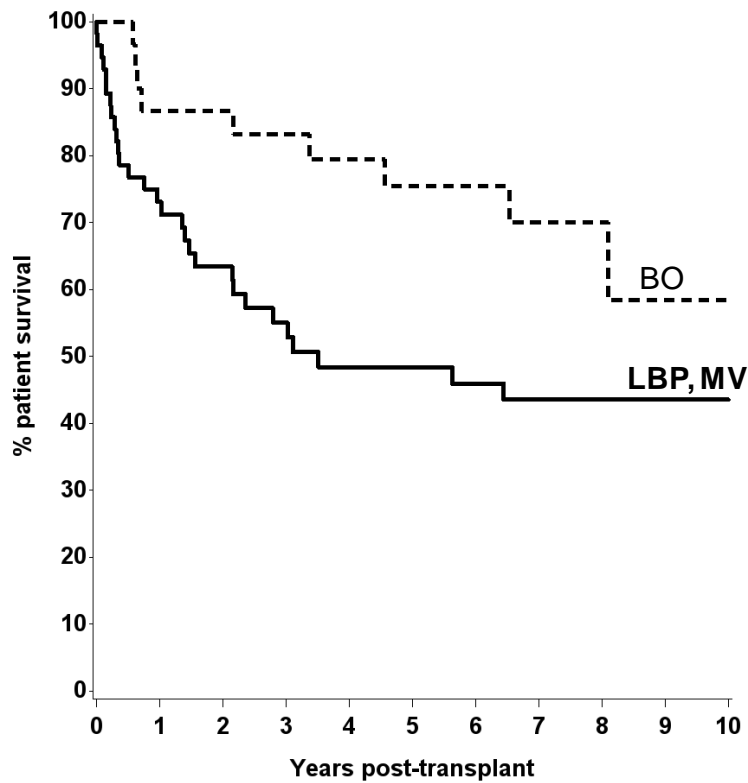


PAEDIATRIC PATIENTS

Table 2 Paediatric patient survival for first intestinal transplants between 1 January 2004 and 31 December 2019, by transplant type

Transplant type	No. of patients	% 90 day survival (95% CI)	% 1 year survival (95% CI)	% 5 year survival (95% CI)	% 10 year survival (95% CI)
BO	31	100 -	86.7 (68.3 - 94.8)	75.4 (55.1 - 87.5)	58.4 (29.5 - 78.9)
LBP, MV	56	85.7 (73.5 - 92.6)	73.1 (59.4 - 82.8)	48.4 (34.1 - 61.3)	43.5 (29.4 - 56.8)
Log-rank p-value		0.03	0.12	0.01	0.03

Figure 2 10 year paediatric patient survival following intestinal transplantation, by transplant type

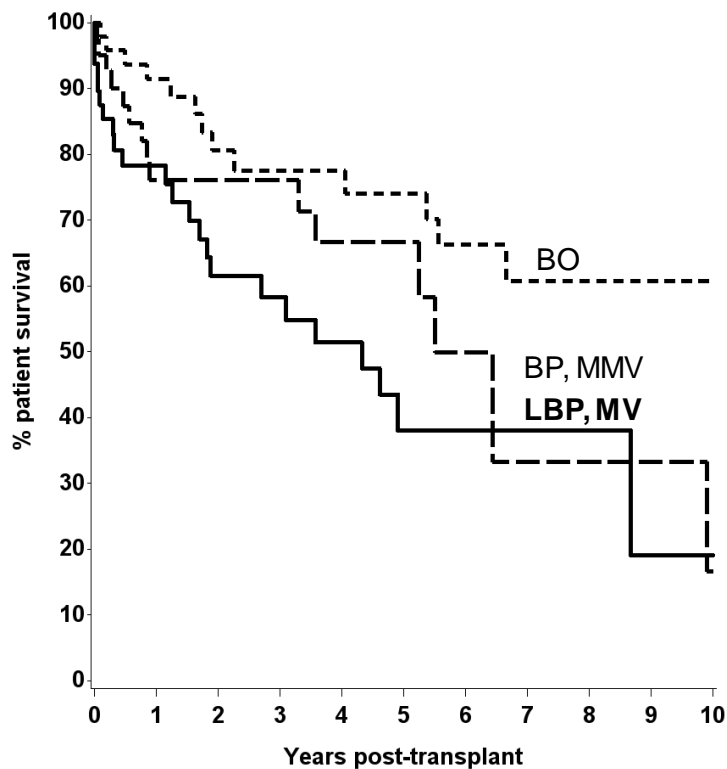


ADULT PATIENTS

Table 3 Adult patient survival for first intestinal transplants between 1 January 2004 and 31 December 2019, by transplant type

Transplant type	No. of patients	% 90 day survival (95% CI)	% 1 year survival (95% CI)	% 5 year survival (95% CI)	% 10 year survival (95% CI)
BO	49	95.9 (84.5 - 99.0)	91.4 (78.7 - 96.7)	74.0 (56.6 - 85.3)	60.7 (40.3 - 76.1)
LBP, MV	48	85.4 (71.8 - 92.8)	78.3 (63.3 - 87.7)	38.1 (20.7 - 55.4)	19.0 (1.8 - 50.4)
BP, MMV	41	92.7 (79.0 - 97.6)	76.1 (59.0 - 86.9)	66.6 (46.4 - 80.6)	16.7 (1.1 - 49.4)
Log-rank p-value		0.16	0.12	0.01	0.02

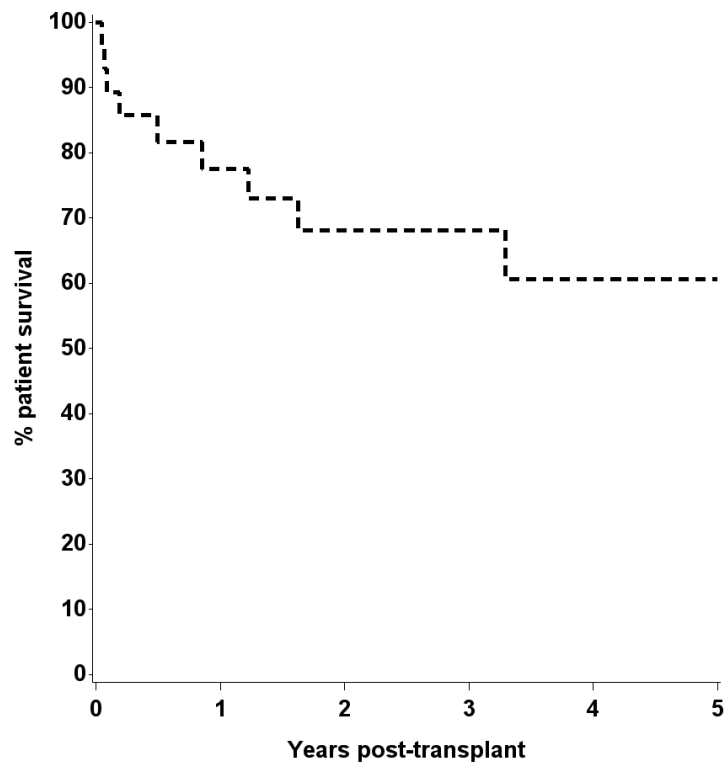
Figure 3 10 year adult patient survival following intestinal transplantation, by transplant type



ABDOMINAL WALL PATIENTS

Table 4 Patient survival for first intestinal transplants containing abdominal wall, between 1 January 2004 and 31 December 2019						
No. of patients	% 90 day survival (95% CI)		% 1 year survival (95% CI)		% 5 year survival (95% CI)	
28	85.7	(66.3 - 94.4)	77.6	(56.6 - 89.3)	60.6	(35.9 - 78.2)

Figure 4 5 year adult patient survival following abdominal wall transplantation



SUPER-URGENT PATIENTS

CAUSES OF DEATH