

NHS BLOOD AND TRANSPLANT
PANCREAS ADVISORY GROUP AND ISLET STEERING GROUP
PANCREAS TRANSPLANT OUTCOME

INTRODUCTION

- 1 For information, national data on outcomes following vascularised pancreas transplantation are presented.

DATA & METHODS

- 2 Data were obtained from the UK Transplant Registry and include deceased donor simultaneous pancreas and kidney (SPK) the UK between 1 April 2020 and 31 March 2024 and isolated pancreas transplants performed in the UK between 1 April 2018 and 31 March 2024. Pancreas after kidney (PAK) transplants performed between 1 April 2014 and 31 March 2024 were also analysed. Transplants using pancreases from donors after brain death (DBD) and donors after circulatory death (DCD) are analysed separately where there are sufficient data.
- 3 Pancreas and kidney one, two and three year graft and patient survival are reported and presented in **Figures 1 to 5**. Kidney three, five and ten year graft and patient survival following a pancreas after kidney graft is presented in **Figure 6**. The survivor function was estimated using the Kaplan-Meier method. Graft survival is measured from date of transplant to graft failure, censoring for death with a functioning graft or, if functioning, the date of last known follow-up. Patient survival is measured from date of transplant to patient death, censoring for patients who were alive at their last known follow-up.

RESULTS

- 4 There was a slight decline in one-year pancreas graft survival following first SPK transplants from DCD donors between the time periods 2020-2022 cf. 2022-2024, although this was not statistically significant ($p=0.49$). The one-year pancreas graft survival in these transplants from DBD donors was similar between 2020-2022 cf. 2022-2024. Three-year pancreas graft survival following first SPK transplant in 2020-2022 was 87% for DBD and 91% for DCD donors. One-year kidney graft survival following first SPK transplant was similar in both periods from both DBD and DCD donors.
- 5 The one-year patient survival slightly decreased between the time period 2020-2022 cf. 2022-2024 for SPK transplants from DBD donors, 97% and 95% respectively, but not statistically significant (0.39). There was a slight increase in one-year survival from 2020-2022 to 2022-2024 for SPK transplants from DCD donors, 94% to 98% but this difference was not statistically significant ($p=0.30$).
- 6 There was no significant difference in one-year pancreas graft survival following pancreas only transplants from DBD donors between the time periods 2018-2021 cf. 2021-2024, 79% and 67% respectively, $p=0.48$.
- 7 Further, there was not a significant difference in one-year pancreas graft survival between pancreas transplants alone (PTA) and pancreas after kidney transplants (PAK) from DBD donors, $p=0.81$.
- 8 For first pancreas after kidney transplants performed in 2014-2024, there was no difference in one-year pancreas graft or patient survival between pancreas after living kidney (PALK) and pancreas after deceased kidney (PADK), $p=0.65$ and $p=0.25$, respectively.

- 9 In patients receiving a deceased donor pancreas transplant after kidney transplant in 2014-2024, there was evidence of lower three-year kidney graft survival rate from time of pancreas transplant in PADK transplants than in PALK transplants (81% vs 100%), $p=0.05$. There was a significant difference in three-year patient survival from time of pancreas transplant between PADK and PALK transplants, 70% vs 95% respectively, $p=0.04$. There were no early kidney graft failures, and none within 2 years, following a PADK or PALK in this cohort.

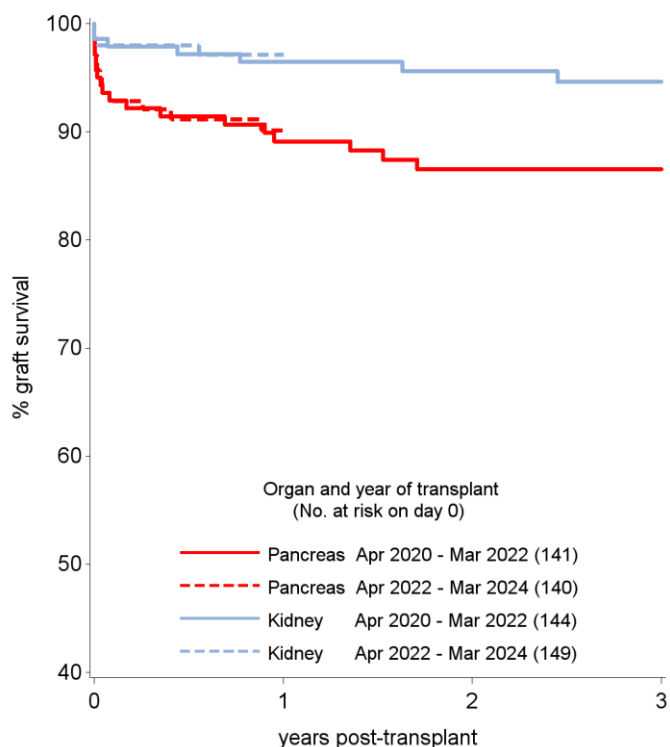
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1 Simultaneous kidney/pancreas transplants - donor after brain death (DBD)

Figure 1 shows pancreas graft survival and kidney graft survival in recipients receiving their first simultaneous kidney/pancreas (SPK) transplant performed from donors after brain death, April 2020 – March 2022 and April 2022 – March 2024. Pancreas graft, kidney graft and patient survival estimates and confidence intervals are shown at one year, two years and three years in **Table 1.1**. Results are for adult patients only.

Figure 1 Graft survival after first SPK transplants from donors after brain death, 1 April 2020 – 31 March 2024



Year of transplant	No. at risk on day 0	% Survival (95% confidence interval)			
		One year	Two year	Three year	
Pancreas graft survival (one year, p=0.82)					
Apr 2020 - Mar 2022	141	89 (83 - 93)	87 (79 - 91)	87 (79 - 91)	
Apr 2022 - Mar 2024	140	90 (84 - 94)			
Pancreas patient survival (one year, p=0.39)					
Apr 2020 - Mar 2022	142	97 (92 - 99)	96 (91 - 98)	96 (91 - 98)	
Apr 2022 - Mar 2024	140	95 (89 - 98)			
Kidney graft survival (one year, p=0.77)					
Apr 2020 - Mar 2022	144	96 (92 - 99)	96 (90 - 98)	95 (89 - 97)	
Apr 2022 - Mar 2024	149	97 (93 - 99)			

2 Simultaneous kidney/pancreas transplants - donor after circulatory death (DCD)

Figure 2 shows pancreas graft survival and kidney graft survival in recipients receiving their first simultaneous kidney/pancreas (SPK) transplant performed from donors after circulatory death, April 2020 – March 2022 and April 2022 – March 2024. Pancreas graft, kidney graft and patient survival estimates and confidence intervals are shown at one year, two years and three years in **Table 1.2**. Results are for adult patients only.

Figure 2 Graft survival after first SPK transplants from donors after circulatory death, 1 April 2020 – 31 March 2024

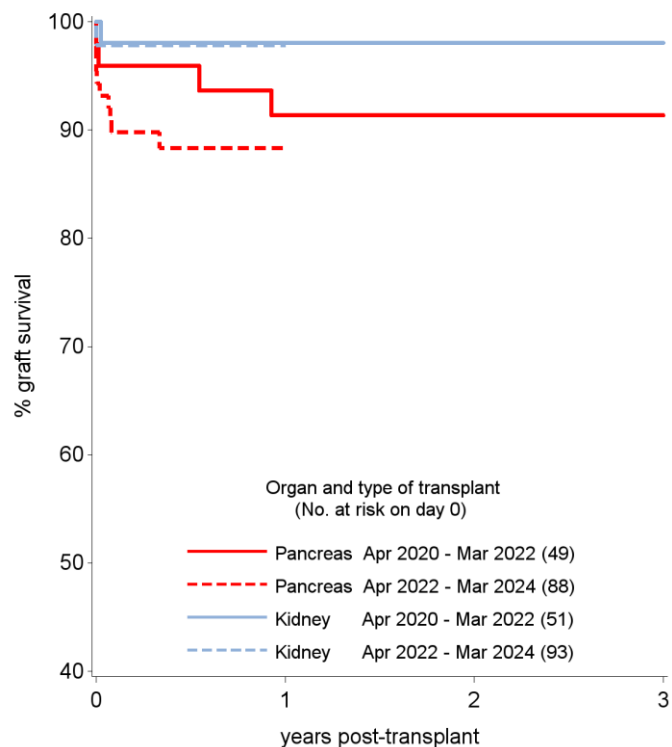


Table 1.2 Graft and patient survival after first SPK transplant from a DCD, 1 April 2020 to 31 March 2024

Year of transplant	No. at risk on day 0	% Survival (95% confidence interval)			
		One year	Two year	Three year	
Pancreas graft survival (one year, p=0.49)					
Apr 2020 - Mar 2022	49	91 (79 - 97)	91 (79 - 97)	91 (79 - 97)	
Apr 2022 - Mar 2024	88	88 (79 - 94)			
Pancreas patient survival (one year, p=0.30)					
Apr 2020 - Mar 2022	50	94 (82 - 98)	94 (82 - 98)	94 (82 - 98)	
Apr 2022 - Mar 2024	88	98 (91 - 99)			
Kidney graft survival (one year, p=0.93)					
Apr 2020 - Mar 2022	51	98 (87 - 100)	98 (87 - 100)	98 (87 - 100)	
Apr 2022 - Mar 2024	93	98 (92 - 99)			

3 Pancreas only transplants – donor after brain death (DBD)

Figure 3 shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from DBD donors, April 2018 – March 2021 and April 2021 – March 2024. There were too few DCD donor pancreas only transplants in each time period to analyse (n<5). Graft and patient survival estimates and confidence intervals are shown at one year, two years and three years in **Table 1.3**. Results are for adult patients only and survival estimates should be interpreted with caution due to small numbers.

Figure 3 Graft survival after first pancreas only transplant from DBD donors, by year, 1 April 2018 – 31 March 2024

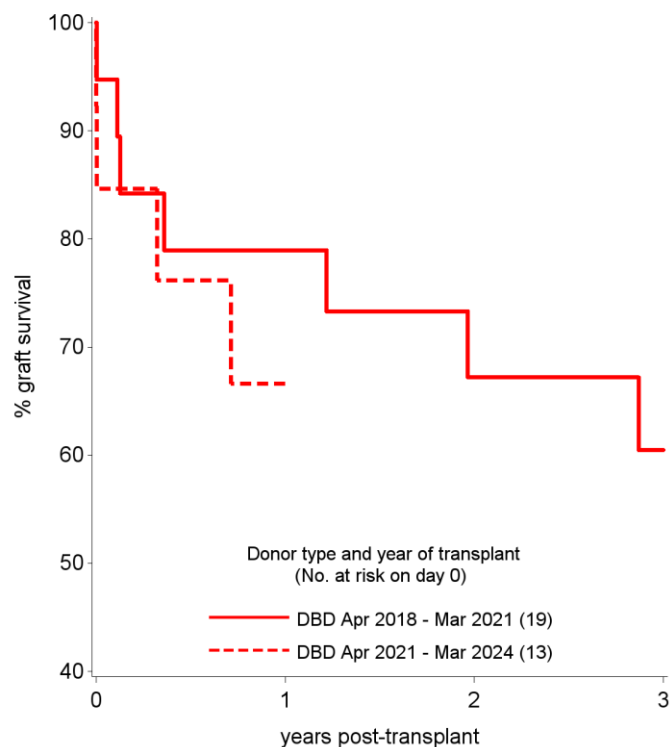


Table 1.3 Graft and patient survival after first pancreas only transplant, 1 April 2018 to 31 March 2024

Year of transplant	No. at risk on day 0	% Survival (95% confidence interval)		
		One year	Two year	Three year
DBD graft survival (one year, p=0.48)				
Apr 2018 - Mar 2021	19	79 (53 - 92)	67 (41 - 84)	60 (34 - 79)
Apr 2021 - Mar 2024	13	67 (33 - 86)	67 (41 - 84)	60 (34 - 79)
DBD patient survival (one year, p=0.44)				
Apr 2018 - Mar 2021	19	94 (65 - 99)	88 (59 - 97)	82 (53 - 94)
Apr 2021 - Mar 2024	13	100 -	88 (59 - 97)	82 (53 - 94)

4 Pancreas only transplants by transplant type – donor after brain death (DBD)

Figure 4 shows pancreas graft survival in recipients receiving their first pancreas only transplant performed from DBD donors, April 2018 – March 2024. There were too few DCD donor pancreas only transplants in each time period to analyse (n<5). Graft and patient survival estimates and confidence intervals are shown at one year, two years and three years in **Table 1.4**. Results are for adult patients only and survival estimates should be interpreted with caution due to small numbers.

Figure 4 Graft survival after first pancreas only transplant from DBD donors, by transplant type, 1 April 2018 – 31 March 2024

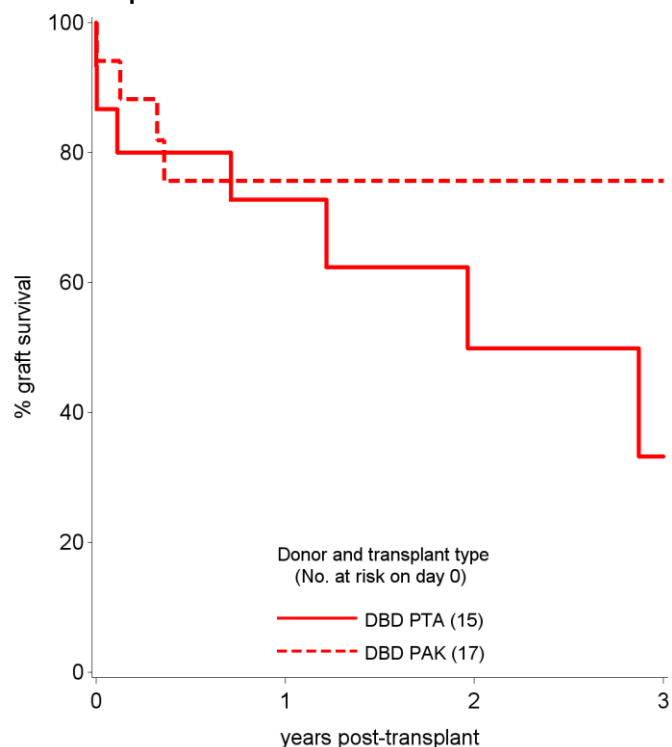


Table 1.4 Graft and patient survival after first pancreas only transplant by transplant type, 1 April 2018 to 31 March 2024

Year of transplant	No. at risk on day 0	% Survival (95% confidence interval)			
		One year	Two year	Three year	
DBD graft survival (one year, p=0.81)					
PTA	15	73 (43 - 89)	50 (18 - 75)	33 (6 - 64)	
PAK	17	76 (47 - 90)	76 (47 - 90)	76 (47 - 90)	
DBD patient survival (one year, p=0.37)					
PTA	15	100 -	100 -	100 -	
PAK	17	93 (61 - 99)	87 (56 - 96)	79 (47 - 93)	

5 Pancreas after kidney transplants by kidney donor type – deceased donors

Figure 5 shows pancreas graft survival in recipients receiving their first pancreas after kidney transplant performed from deceased (DBD and DCD) donors, April 2014 – March 2024. Graft and patient survival estimates and confidence intervals are shown at one year, two years and three years in **Table 1.5**. Results are for adult patients only and survival estimates should be interpreted with caution due to small numbers.

Figure 5 Graft survival after deceased donor pancreas after kidney transplant by kidney donor type, 1 April 2014 – 31 March 2024

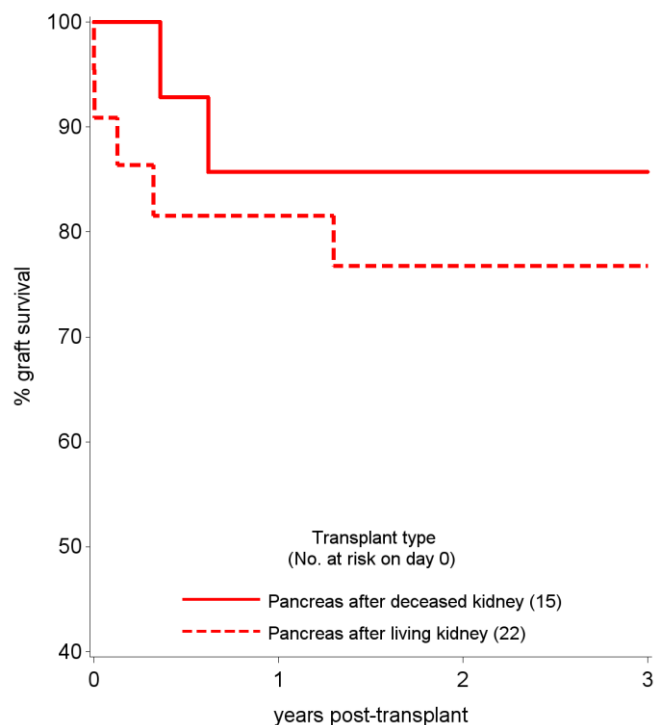


Table 1.5 Graft and patient survival after first pancreas after kidney transplant, 1 April 2014 to 31 March 2024

Year of transplant	No. at risk on day 0	% Survival (95% confidence interval)			
		One year	Two year	Three year	
Pancreas graft survival (one year, p=0.65)					
PADK	15	86 (54 - 96)	86 (54 - 96)	86 (54 - 96)	
PALK	22	82 (58 - 93)	77 (53 - 90)	77 (53 - 90)	
Pancreas patient survival (one year, p=0.25)					
PADK	15	93 (61 - 99)	86 (55 - 96)	63 (32 - 83)	
PALK	22	100 -	100 -	94 (67 - 99)	

Figure 6 shows kidney graft survival from time of pancreas transplant in recipients receiving their first pancreas after kidney transplant performed from deceased (DBD and DCD) donors, April 2014 –March 2024. Graft and patient survival estimates and confidence intervals are

shown at three years, five years and ten years in **Table 1.6**. Results are for adult patients only and survival estimates should be interpreted with caution due to small numbers.

Figure 6 Kidney graft survival after deceased donor pancreas after kidney transplant by kidney donor type, 1 January 2014 – 31 December 2023

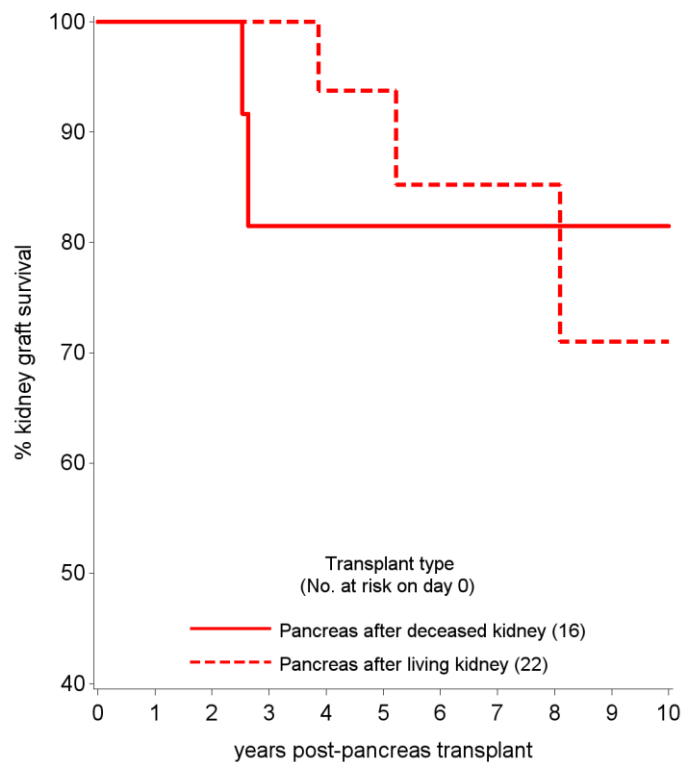


Table 1.6 Kidney graft and patient survival after first pancreas after kidney transplant, 1 April 2014 to 31 March 2024

Year of transplant	No. at risk on day 0	% Survival (95% confidence interval)			
		Three year	Five year	Ten year	
Kidney graft survival (three years, p=0.05)					
PADK	16	81 (44 - 95)	81 (44 - 95)	81 (44 - 95)	
PALK	22	100 -	94 (63 - 99)	71 (31 - 91)	
Kidney patient survival (three years, p=0.04)					
PADK	15	70 (38 - 88)	70 (38 - 88)	53 (16 - 80)	
PALK	22	95 (69 - 99)	95 (69 - 99)	65 (30 - 86)	