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) and isolated pancreas transplants performed in the UK between 1 April 2019 and 31 March 2023. Pancreas after kidney (PAK) transplants performed between 1 April 2013 and 31 March 2023 were also analysed. Transplants using pancreases from donors after brain death (DBD) and donors after circulatory death (DCD) are analysed separately.

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 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 decline in one-year pancreas graft survival following first SPK transplants from DBD donors and DCD donors between the time periods 2019-2021 cf. 2021-2023, although neither were statistically significant p=0.20, p=0.06, respectively. Three-year pancreas graft survival following first SPK transplant in 2019-2021 was 91% for DBD and 94% for DCD donors. One-year kidney graft survival following first SPK transplant in 2021-2023 was 97% for both DBD and DCD donors.

5 There was a decline in one-year patient survival between the time periods 2019-2021 cf. 2021-2023 for SPK transplants from DBD donors, 98% and 96% respectively, but this was not statistically significant, p=0.41. There was no significant difference between these time periods for SPK transplants from DCD donors, both with 97% one-year patient survival, p=0.98.

6 There was no significant difference in one-year pancreas graft survival following pancreas only transplants from DBD donors between the time periods 2019-2021 cf. 2021-2023, 80% and 71% respectively, p=0.64.

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, p=0.79.

8 For first pancreas after kidney transplants performed between 2013-2023, 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=0.50 and p=0.85, respectively.

9 In patients receiving a deceased donor pancreas transplant after kidney transplant between 2013-2023, there was some evidence of lower three-year kidney graft survival rate from time of pancreas transplant in PADK transplants than in PALK transplants (84% vs 100%), although this was not statistically significant (p=0.06). There was no significant difference in three-year patient survival from time of pancreas transplant between PADK and PALK transplants, (p=0.16).

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Statistics and Clinical Research **October 2024**

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 2019 – March 2021 and April 2021 – March 2023. 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 2019 – 31 March 2023

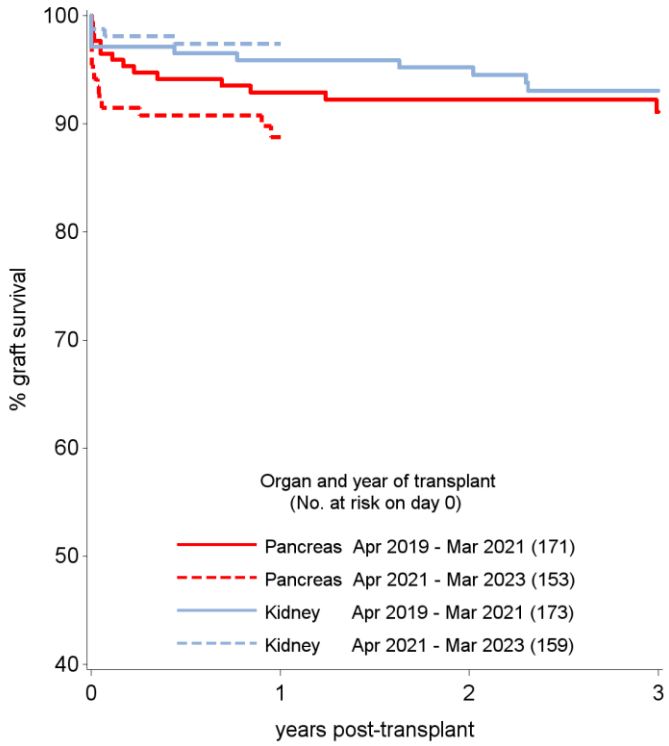

Table 1.1 Graft and patient survival after first SPK transplant from a DBD, 1 April 2019 to 31 March 2023

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=0.20)							
Apr 2019 - Mar 2021	171	93	(88 - 96)	92	(87 - 95)	91	(85 - 95)
Apr 2021 - Mar 2023	153	89	(82 - 93)				
Pancreas patient survival (one year, p=0.41)							
Apr 2019 - Mar 2021	173	98	(94 - 99)	98	(94 - 99)	96	(91 - 98)
Apr 2021 - Mar 2023	153	96	(91 - 98)				
Kidney graft survival (one year, p=0.46)							
Apr 2019 - Mar 2021	173	96	(92 - 98)	95	(91 - 98)	93	(88 - 96)
Apr 2021 - Mar 2023	159	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 2019 – March 2021 and April 2021 – March 2023. 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 2019 – 31 March 2023

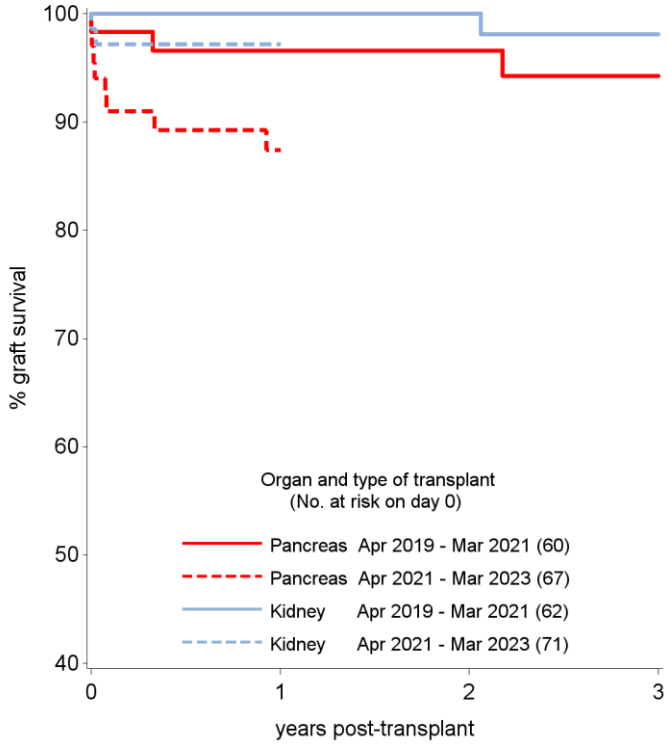

Table 1.2 Graft and patient survival after first SPK transplant from a DCD, 1 April 2019 to 31 March 2023

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=0.06)							
Apr 2019 - Mar 2021	60	97	(87 - 99)	97	(87 - 99)	94	(83 - 98)
Apr 2021 - Mar 2023	67	87	(76 - 94)				
Pancreas patient survival (one year, p=0.98)							
Apr 2019 - Mar 2021	61	97	(87 - 99)	95	(85 - 98)	95	(85 - 98)
Apr 2021 - Mar 2023	67	97	(88 - 99)				
Kidney graft survival (one year, p=0.18)							
Apr 2019 - Mar 2021	62	100	-	100	-	98	(87 - 100)
Apr 2021 - Mar 2023	71	97	(89 - 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 2019 – March 2021 and April 2021 – March 2023. 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 deceased donors, by donor type and year, 1 April 2019 – 31 March 2023

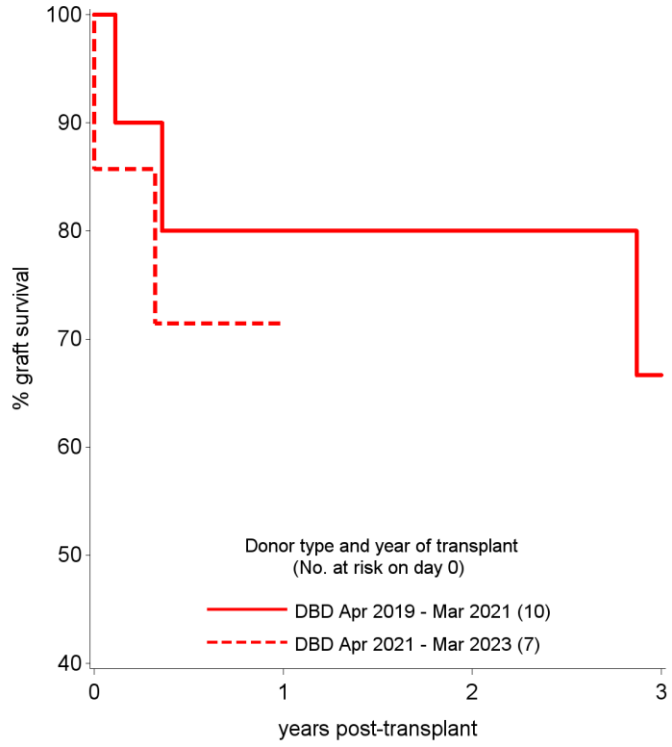

Table 1.3 Graft and patient survival after first pancreas only transplant, 1 April 2019 to 31 March 2023

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=0.64)							
Apr 2019 - Mar 2021	10	80	(41 - 95)	80	(41 - 95)	67	(27 - 88)
Apr 2021 - Mar 2023	7	71	(26 - 92)				
DBD patient survival (one year, p=0.41)							
Apr 2019 - Mar 2021	10	89	(43 - 98)	89	(43 - 98)	78	(36 - 94)
Apr 2021 - Mar 2023	7	100	-				

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 2019 – March 2023. 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 deceased donors, by donor and transplant type, 1 April 2019 – 31 March 2023

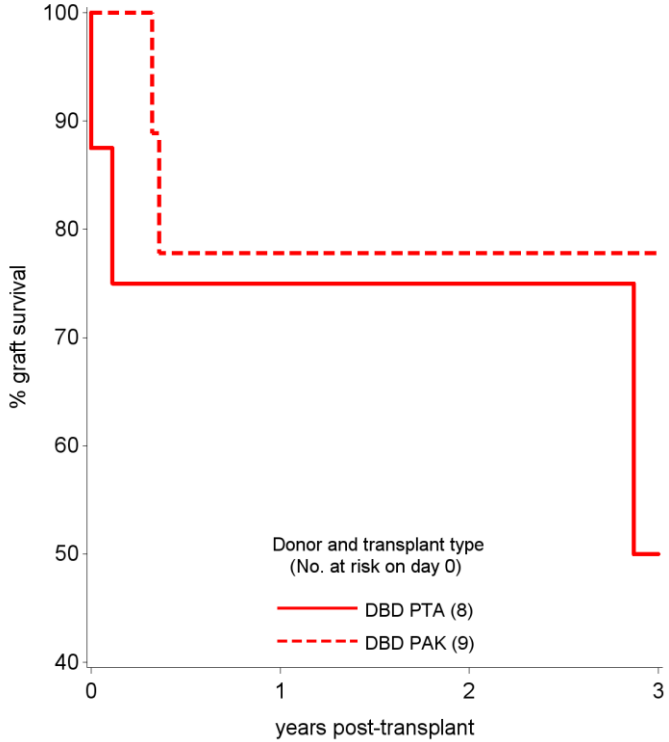

Table 1.4 Graft and patient survival after first pancreas only transplant by transplant type, 1 April 2019 to 31 March 2023

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=0.79)							
PTA	8	75	(31 - 93)	75	(31 - 93)	50	(8 - 83)
PAK	9	78	(36 - 94)	78	(36 - 94)	78	(36 - 94)
DBD patient survival (one year, p=0.41)							
PTA	8	100	-	100	-	100	-
PAK	9	89	(43 - 98)	89	(43 - 98)	67	(16 - 91)

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 2013 – March 2023. 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 2013 – 31 March 2023

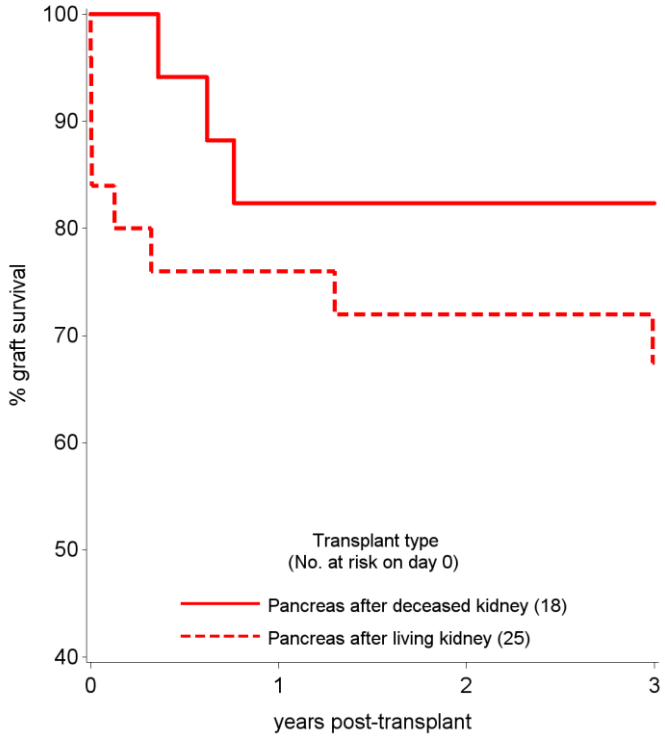

Table 1.5 Graft and patient survival after first pancreas after kidney transplant, 1 April 2013 to 31 March 2023

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=0.50)				
PADK	18	82 (55 - 94)	82 (55 - 94)	82 (55 - 94)
PALK	25	76 (54 - 88)	72 (50 - 86)	68 (45 - 82)
Pancreas patient survival (one year, p=0.85)				
PADK	18	94 (67 - 99)	88 (60 - 97)	68 (39 - 85)
PALK	25	96 (74 - 99)	96 (74 - 99)	91 (69 - 98)

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 2013 – March 2023. 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 April 2013 – 31 March 2023

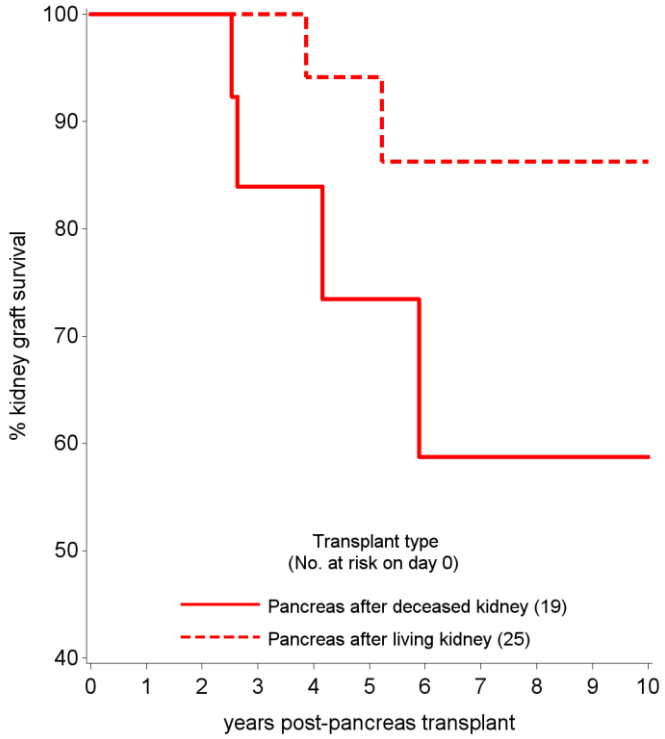

Table 1.6 Kidney graft and patient survival after first pancreas after kidney transplant, 1 April 2013 to 31 March 2023

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=0.06)				
PADK	19	84 (49 - 96)	73 (37 - 91)	59 (21 - 83)
PALK	25	100 -	94 (65 - 99)	86 (55 - 96)
Kidney patient survival (three years, p=0.16)				
PADK	18	74 (45 - 90)	74 (45 - 90)	56 (17 - 82)
PALK	25	91 (69 - 98)	86 (61 - 95)	62 (27 - 84)