NHS BLOOD AND TRANSPLANT

PANCREAS ADVISORY 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 January 2020 and 31 December 2023 and isolated pancreas transplants performed in the UK between 1 January 2018 and 31 December 2023. Pancreas after kidney (PAK) transplants performed between 1 January 2014 and 31 December 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 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 decline in one-year pancreas graft survival following first SPK transplants from DCD donors between the time periods 2020-2021 cf. 2022-2023, although this was not statistically significant (p=0.26). The one-year pancreas graft survival in these transplants from DBD donors was similar between 2020-2021 cf. 2022-2023. Three-year pancreas graft survival following first SPK transplant in 2020-2021 was 85% for DBD and 93% 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 was similar between the time periods 2020-2021 cf. 2022-2023 for SPK transplants from DBD donors, 96% and 95% respectively. There was a slight increase in one-year survival from 2020-2021 to 2021-2023 for SPK transplants from DCD donors, 94% to 98% but this difference was not statistically significant (p=0.26).

6 There was no significant difference in one-year pancreas graft survival following pancreas only transplants from DBD donors between the time periods 2018-2020 cf. 2021-2023, 81% and 72% respectively, p=0.66.

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=0.74.

8 For first pancreas after kidney transplants performed in 2014-2023, 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=0.88 and p=0.27, respectively.

9 In patients receiving a deceased donor pancreas transplant after kidney transplant in 2014-2023, there was some evidence of lower three-year kidney graft survival rate from time of pancreas transplant in PADK transplants than in PALK transplants (83% vs 100%), although this was not statistically significant (p=0.07). There was also some evidence of a difference in three-year patient survival from time of pancreas transplant between PADK and PALK transplants, 73% vs 94% respectively but this was not statistically significant (p=0.06).

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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, January 2020 – December 2021 and January 2022 – December 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 January 2020 – 31 December 2023

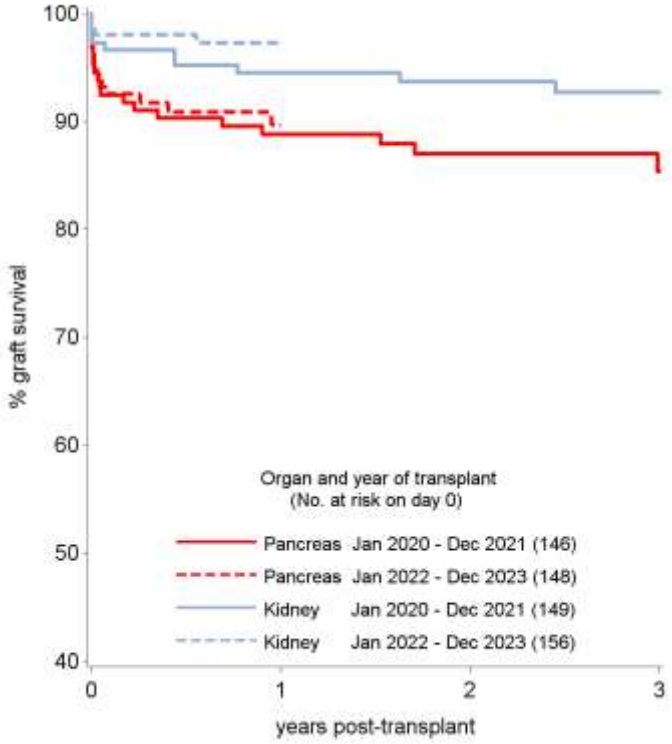

Table 1.1 Graft and patient survival after first SPK transplant from a DBD, 1 January 2020 to 31 December 2023

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=0.78)							
Jan 2020 - Dec 2021	146	89	(82 - 93)	87	(80 - 92)	85	(78 - 91)
Jan 2022 - Dec 2023	148	90	(83 - 94)				
Pancreas patient survival (one year, p=0.74)							
Jan 2020 - Dec 2021	148	96	(91 - 98)	95	(89 - 97)	95	(89 - 97)
Jan 2022 - Dec 2023	148	95	(89 - 98)				
Kidney graft survival (one year, p=0.24)							
Jan 2020 - Dec 2021	149	95	(89 - 97)	94	(88 - 97)	93	(87 - 96)
Jan 2022 - Dec 2023	156	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, January 2020 – December 2021 and January 2022 – December 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 January 2020 – 31 December 2023

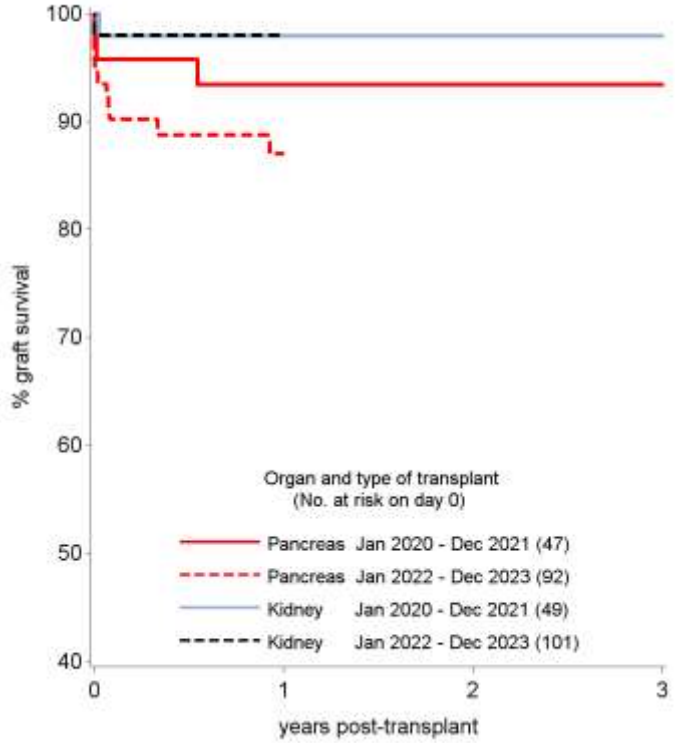

Table 1.2 Graft and patient survival after first SPK transplant from a DCD, 1 January 2020 to 31 December 2023

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=0.26)							
Jan 2020 - Dec 2021	47	93	(81 - 98)	93	(81 - 98)	93	(81 - 98)
Jan 2022 - Dec 2023	92	87	(78 - 93)				
Pancreas patient survival (one year, p=0.26)							
Jan 2020 - Dec 2021	48	94	(81 - 98)	91	(78 - 97)	91	(78 - 97)
Jan 2022 - Dec 2023	92	98	(91 - 99)				
Kidney graft survival (one year, p=0.98)							
Jan 2020 - Dec 2021	49	98	(86 - 100)	98	(86 - 100)	98	(86 - 100)
Jan 2022 - Dec 2023	101	98	(92 - 100)				

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, January 2018 – December 2020 and January 2021 – December 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 January 2018 – 31 December 2023

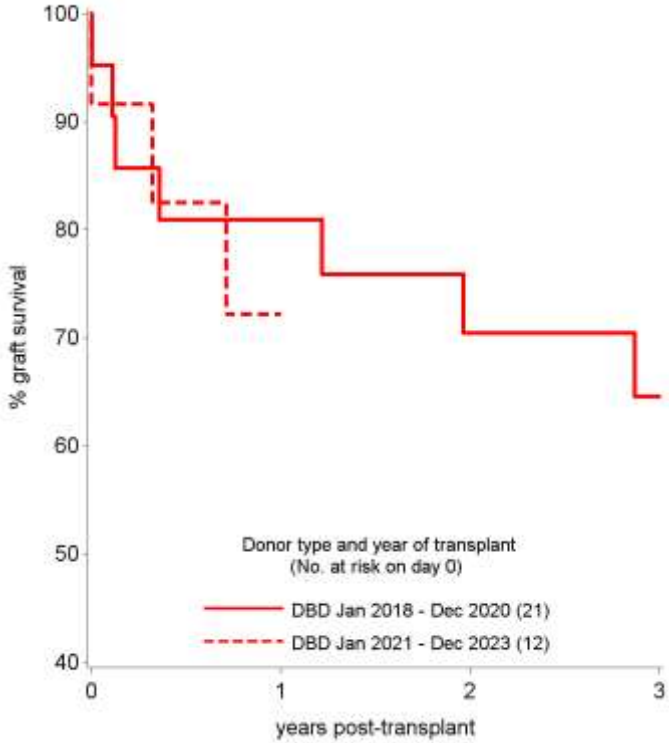

Table 1.3 Graft and patient survival after first pancreas only transplant, 1 January 2018 to 31 December 2023

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=0.66)				
Jan 2018 - Dec 2020	21	81 (57 - 92)	70 (46 - 86)	65 (39 - 81)
Jan 2021 - Dec 2023	12	72 (36 - 90)		
DBD patient survival (one year, p=0.48)				
Jan 2018 - Dec 2020	21	95 (69 - 99)	90 (65 - 97)	84 (59 - 95)
Jan 2021 - Dec 2023	12	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, January 2018 – December 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 January 2018 – 31 December 2023

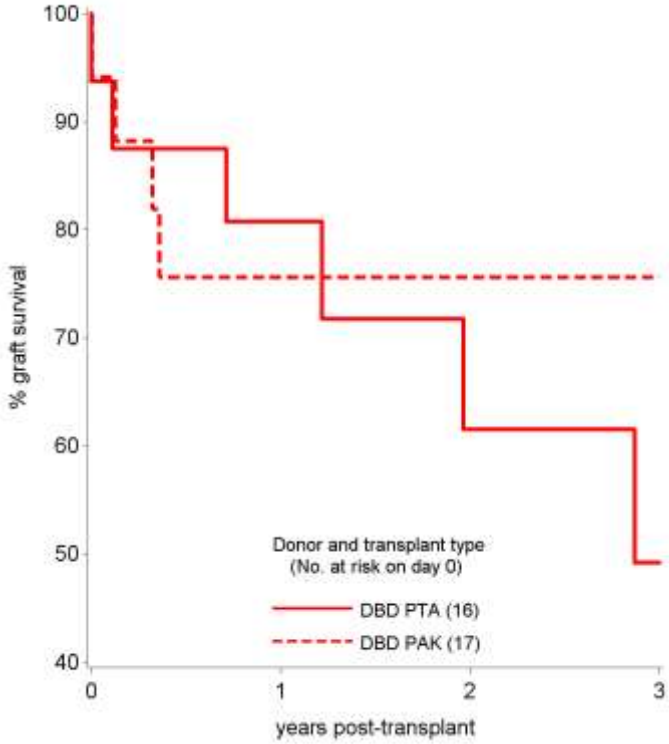

Table 1.4 Graft and patient survival after first pancreas only transplant by transplant type, 1 January 2018 to 31 December 2023

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=0.74)							
PTA	16	81	(51 - 93)	62	(29 - 83)	49	(18 - 75)
PAK	17	76	(47 - 90)	76	(47 - 90)	76	(47 - 90)
DBD patient survival (one year, p=0.35)							
PTA	16	100	-	100	-	100	-
PAK	17	94	(63 - 99)	88	(59 - 97)	80	(50 - 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, January 2014 – December 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 January 2014 – 31 December 2023

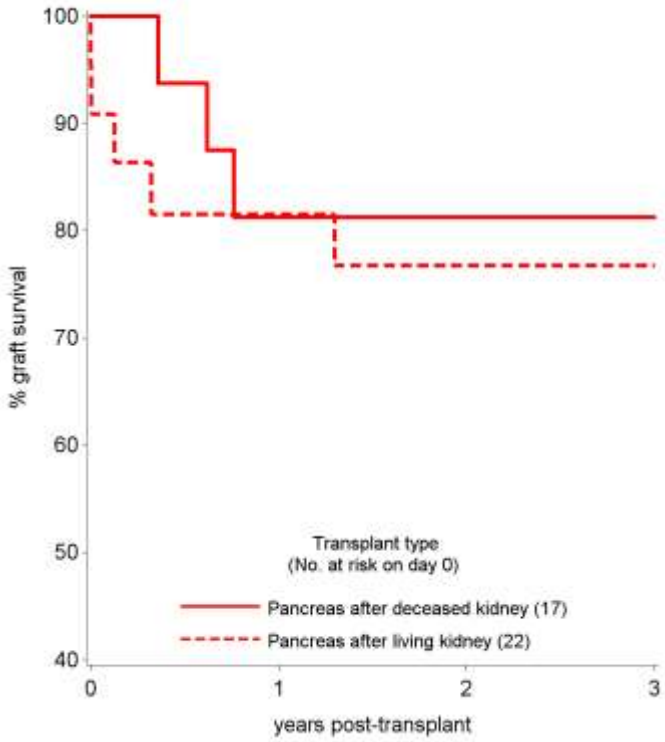

Table 1.5 Graft and patient survival after first pancreas after kidney transplant, 1 January 2014 to 31 December 2023

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=0.88)				
PADK	17	81 (52 - 94)	81 (52 - 94)	81 (52 - 94)
PALK	22	82 (58 - 93)	77 (53 - 90)	77 (53 - 90)
Pancreas patient survival (one year, p=0.27)				
PADK	17	94 (65 - 99)	88 (59 - 97)	66 (37 - 85)
PALK	22	100 -	100 -	95 (68 - 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, January 2014 – December 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 January 2014 – 31 December 2023

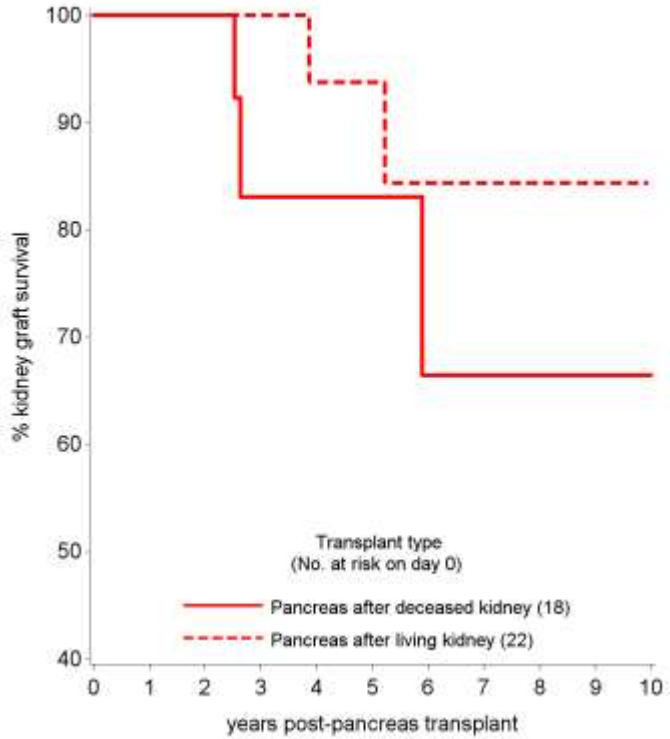

Table 1.6 Kidney graft and patient survival after first pancreas after kidney transplant, 1 January 2014 to 31 December 2023

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=0.07)				
PADK	18	83 (47 - 96)	83 (47 - 96)	66 (24 - 89)
PALK	22	100 -	94 (63 - 99)	84 (49 - 96)
Kidney patient survival (three years, p=0.06)				
PADK	17	73 (42 - 89)	73 (42 - 89)	55 (17 - 81)
PALK	22	94 (67 - 99)	94 (67 - 99)	69 (28 - 90)