NHS BLOOD AND TRANSPLANT
ORGAN DONATION AND TRANSPLANTATION DIRECTORATE

KIDNEY ADVISORY GROUP

OUTCOMES OF TRANSPLANTED KIDNEYS THAT WERE PREVIOUSLY ACCEPTED WITH THE PANCREAS

INTRODUCTION

1 Concerns have been raised about the outcomes of kidneys which were accepted with the pancreas as an SPK offer, where the pancreas was later declined on inspection, increasing cold ischaemic time for the kidney which was offered on. Outcomes were analysed where both kidneys from the same donor were transplanted.

DATA AND METHODS

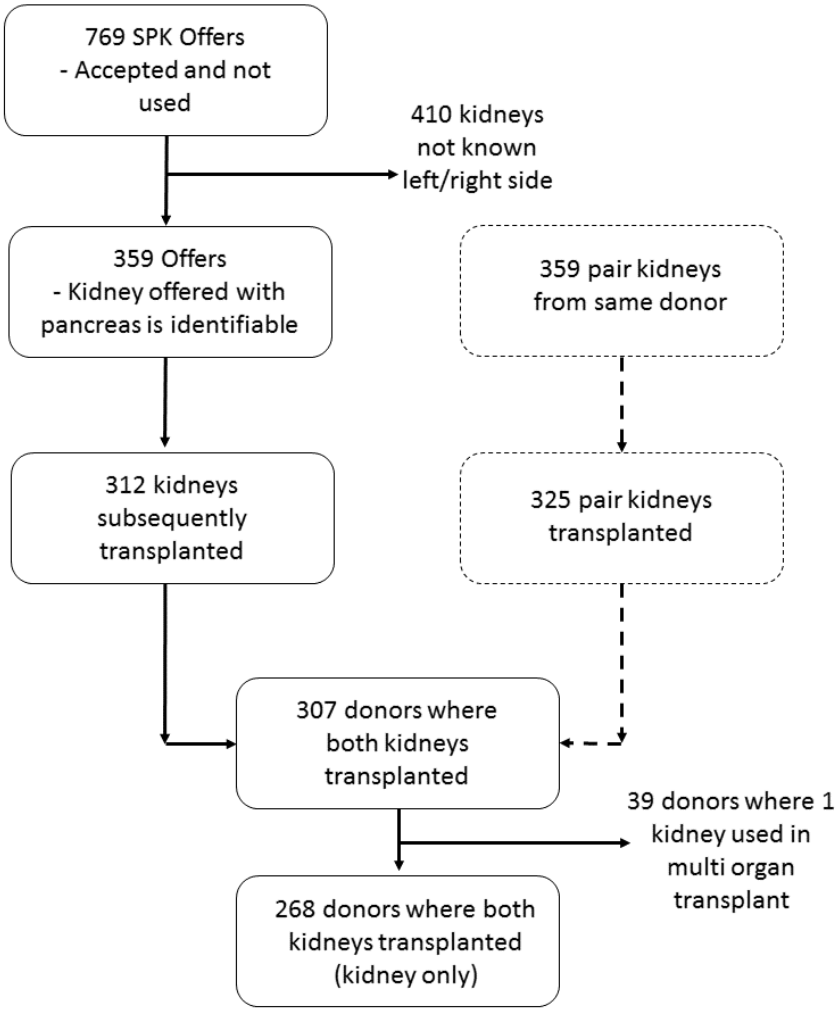
2 Data were obtained from the UK Transplant Registry on offers made from donors where an SPK was offered between 1 April 2014 and 31 March 2019. The outcomes of the kidneys transplanted were subsequently analysed.

3 Unadjusted univariate analysis was performed using the Kaplan-Meier method to estimate 3-year death censored graft survival of kidney transplants for the kidneys offered with the pancreas, and those from the same donor which were offered without the pancreas. The survival curves were compared using log-rank tests. Cold ischemic times were also compared between the two groups using a Wilcoxon signed-rank test.

RESULTS

4 **Figure 1** shows the number of SPK offers that were accepted but not used as an SPK over this time period and the subsequent use. In total there were 769 offers, but the kidney (left or right) that was offered with the pancreas is only known in 359 cases. Of these, the kidney was subsequently transplanted in 312 cases, with both kidneys from those donors transplanted in 307 cases. After excluding the 39 cases where one of the kidneys was transplanted as part of a multi-organ transplant, there were 268 cases where both kidneys were used in kidney only transplants.

Figure 1



5 The characteristics of the 268 donors where both kidneys were transplanted are shown in **Table 1**.

Table 1 Characteristics of 268 identified donors where both kidneys were transplanted

Factor		**Median**	**IQR**
Donor Age		46	(33-53)
Factor		**N (%)**	
Ethnic group	White	249	(93%)
	Other/Unknown	19	(7%)
Sex	Male	163	(61%)
	Female	105	(39%)
Donor type	DBD	199	(74%)
	DCD	69	(26%)

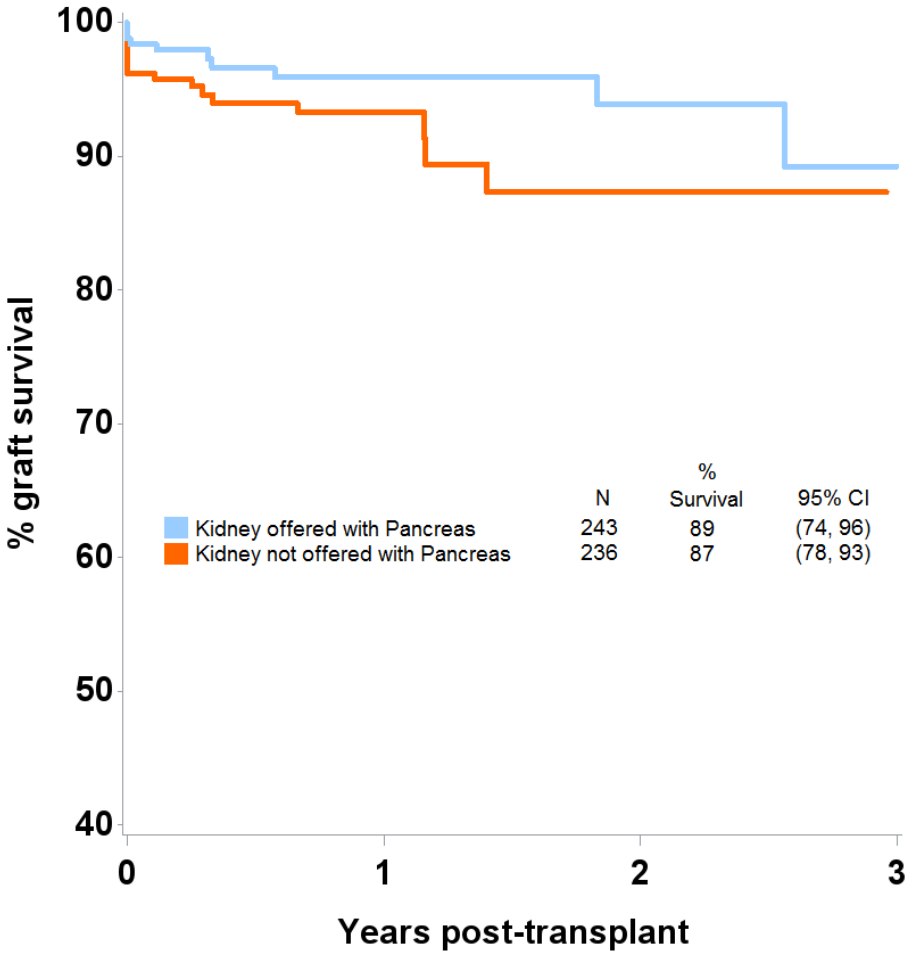
6 The demographics of the recipients and the transplant characteristics are shown in **Table 2**. Of the 268 pairs of kidneys, the median cold ischaemic time for the kidneys that were previously offered with the pancreas was 19.3 hours, whereas the median of the kidneys not offered with pancreas was 12.8 hours ($p<0.0001$).

Table 2 Recipient and transplant characteristics of kidney transplants from 268 identified donors

Factor		Kidneys offered with pancreas		Kidneys not offered with pancreas	
		Median	**IQR**	**Median**	**IQR**
Recipient Age		48	(37-55)	45	(34-54)
Waiting time (days)		757	(321-1304)	878.5	(397.5-1535)
		N	**%**	**N**	**%**
Recipient Ethnic group	White	179	(67)	189	(71)
	Non-White	84	(31)	77	(29)
	Unknown	5	(2)	2	(1)
Recipient Sex	Male	179	(67)	173	(65)
	Female	88	(33)	95	(35)
	Unknown	1	(0)	0	(0)
Highly Sensitised	No	245	(91)	239	(89)
	Yes	23	(9)	29	(29)
		Median	**IQR**	**Median**	**IQR**
Cold Ischaemic time (hours)		19.3	(15.8- 22.6)	12.8	(10.3-16.4)
		N	**%**	**N**	**%**
HLA Mismatch level	1	20	(7)	26	(10)
	2	104	(39)	110	(41)
	3	135	(50)	127	(47)
	4	9	(3)	5	(2)
Left/right kidney	Left	203	(76)	65	(24)
	Right	65	(24)	203	(76)
Offering Method	EOS/Duty Office	228	(85)	253	(94)
	Fast track	40	(15)	15	(6)

7 **Figure 2** shows the Kaplan-Meier estimates of 3-year graft survival, comparing the outcomes in kidneys that were offered with the pancreas, and those originally offered as kidney only. There is no evidence of a difference in graft survival (p=0.13, 1 degree of freedom). In total there were 10 graft failures in the kidneys that were offered with the pancreas and 17 graft failures in the kidneys not offered with the pancreas.

Figure 2 - Three-year graft survival comparing kidneys offered with the pancreas and those not offered with the pancreas



8 However, from data previously presented at KAG in November 2018 (M. Ibrahim et al.), we know that there is evidence of an association between longer cold ischaemic time and graft survival outcomes in DCD transplanted kidneys. **Table 3** taken from this paper shows the results from Cox proportional hazards models looking at 5-year graft survival, based on transplants from 2006 until 2017.

Table 3 Cox proportional hazards model for 5-year graft survival

CIT Group (Hours)	Hazard Ratio	95% CI	p-value
DBD			
0-<12	1.00	-	-
12-<18	1.04	0.88 – 1.18	0.6
18-<24	1.11	0.91 – 1.30	0.3
24+	1.14	0.90 – 1.43	0.3
DCD			
0-<12	1.00	-	-
12-<18	1.28	1.04 – 1.56	0.02
18-<24	1.63	1.24 – 1.99	0.0002
24+	1.73	1.08 – 2.39	0.02

SUMMARY

9 There is evidence that kidneys that are offered with the pancreas which are accepted but subsequently declined have longer cold ischaemic times than kidneys not offered with the pancreas.

10 There is no evidence of a difference in 3-year graft survival outcomes between the kidneys offered with the pancreas and those not offered with the pancreas.

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Statistics and Clinical Studies **May 2019**