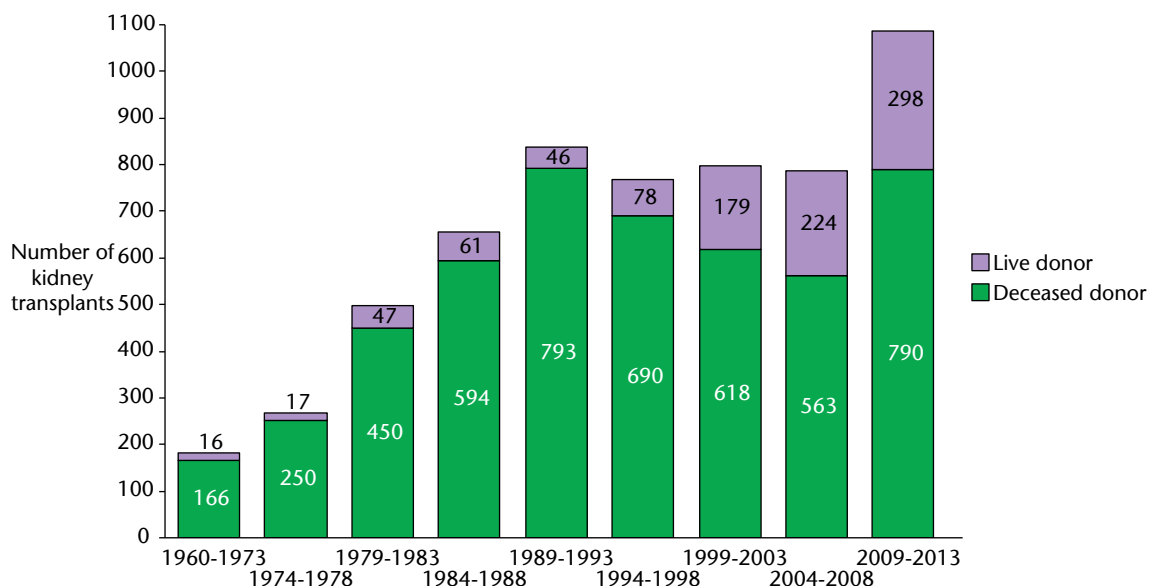


## SECTION D KIDNEY TRANSPLANTATION

### D1 Frequency of kidney transplantation in Scotland

#### D1.1 Frequency and donor type, kidney transplants performed in Scotland 1960 - 2013



Between 1960 and 31 December 2013, 5880 kidney transplants were performed in Scotland in 4931 patients with postcode of residence in Scotland.

The kidney donor was deceased for 4914 (83.6%) transplants, 966 (16.4%) of transplanted kidneys were donated by live donors.

4939 first kidney transplants were performed, 770 second transplants, 148 third transplants and 23 fourth or subsequent kidney transplants.

181 patients have received a simultaneous kidney and pancreas transplant, 13 patients have received a simultaneous kidney and liver transplant.

Kidney transplants performed outside of Scotland are excluded. Transplants performed in Scotland for patients not resident in Scotland are also excluded.

**D1.2 Frequency, transplant type and donor type, kidney transplants performed in Scotland 2004-2013**

Year of transplant	Deceased donor kidney alone		Live donor kidney		Kidney and pancreas		Kidney and Liver		Total kidney transplants
	n	%	n	%	n	%	n	%	
2004	82	66.1	29	23.4	13	10.5	0	-	124
2005	87	62.1	40	28.6	12	8.6	1	0.7	140
2006	89	69.0	28	21.7	11	8.5	1	0.8	129
2007	102	56.0	58	31.9	22	12.1	0	-	182
2008	128	60.4	69	32.5	13	6.1	2	0.9	212
2009	146	69.2	49	23.2	15	7.1	1	0.5	211
2010	127	69.0	50	27.2	7	3.8	0	-	184
2011	127	65.1	53	27.2	14	7.2	1	0.5	195
2012	146	63.8	63	27.5	18	7.9	2	0.9	229
2013	165	61.3	83	30.9	21	7.8	0	-	269

**D1.3 Age of patients at the time of kidney transplantation**

Year of transplant	First kidney transplants				Second and subsequent transplants			
	n	Mean Age	SD	Age Range	n	Mean Age	SD	Age Range
1960-1973	167	31.5	12.2	8.0 - 64.8	15	26.9	8.4	11.6 - 39.8
1974-1978	235	34.5	11.3	12.0 - 65.1	32	32.8	9.9	13.0 - 55.2
1979-1983	420	37.5	14.1	4.7 - 68.6	77	35.1	11.1	13.5 - 68.9
1984-1988	527	39.6	15.9	1.3 - 77.6	128	35.8	13.0	3.4 - 63.6
1989-1993	709	42.5	15.6	0.3 - 76.2	130	37.3	12.9	5.1 - 69.5
1994-1998	633	42.1	15.2	2.1 - 76.1	135	36.8	12.2	3.9 - 65.5
1999-2003	663	41.9	15.7	4.0 - 78.4	134	38.5	12.3	5.2 - 71.3
2004-2008	658	43.5	15.1	4.4 - 77.7	129	41.0	10.7	16.4 - 69.2
2009-2013	927	47.7	14.9	2.4 - 79.3	161	43.3	12.0	8.2 - 75.5

**D1.4 Year of first kidney transplant and diagnosis group**

Year of transplant	Glomerulonephritis		Interstitial		Multisystem		Diabetes		Unknown	
	n	%	n	%	n	%	n	%	n	%
1960-1973*	66	<b>39.5</b>	57	<b>34.1</b>	15	<b>9.0</b>	0	-	28	<b>16.8</b>
1974-1978	105	<b>44.7</b>	84	<b>35.7</b>	25	<b>10.6</b>	0	-	21	<b>8.9</b>
1979-1983	134	<b>31.9</b>	178	<b>42.4</b>	46	<b>11.0</b>	20	<b>4.8</b>	42	<b>10.0</b>
1984-1988	149	<b>28.3</b>	215	<b>40.8</b>	64	<b>12.1</b>	36	<b>6.8</b>	63	<b>12.0</b>
1989-1993	191	<b>26.9</b>	258	<b>36.4</b>	113	<b>15.9</b>	61	<b>8.6</b>	86	<b>12.1</b>
1994-1998	187	<b>29.5</b>	228	<b>36.0</b>	75	<b>11.8</b>	81	<b>12.8</b>	62	<b>9.8</b>
1999-2003	160	<b>24.1</b>	247	<b>37.3</b>	84	<b>12.7</b>	70	<b>10.6</b>	102	<b>15.4</b>
2004-2008	140	<b>21.3</b>	245	<b>37.2</b>	86	<b>13.1</b>	100	<b>15.2</b>	87	<b>13.2</b>
2009-2013	213	<b>23.0</b>	358	<b>38.6</b>	112	<b>12.1</b>	129	<b>13.9</b>	115	<b>12.4</b>

\* One patient who received a first kidney transplant between 1960-1973 has missing PRD.

## D2 Transplanted Kidney Survival

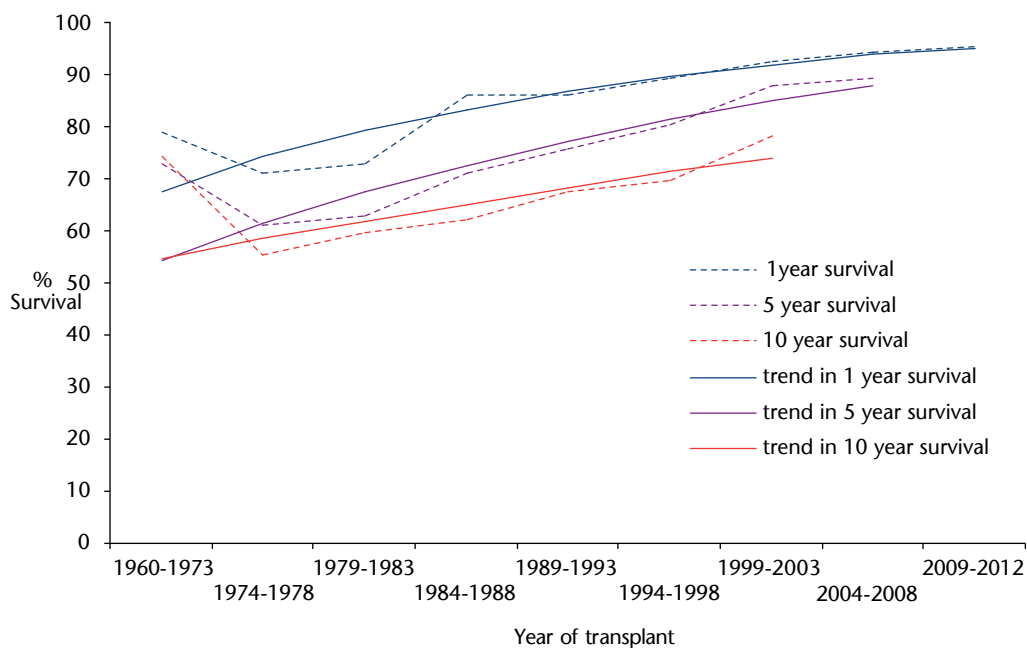
### D2.1 Graft survival of first kidney transplants by year of transplantation 1960 - 2012

Year of transplant	Grafts surviving 1 year		Grafts surviving 5 years		Grafts surviving 10 years	
	n	%	n	%	n	%
1960-1973	99	<b>79.2</b>	65	<b>73.0</b>	52	<b>74.3</b>
1974-1978	134	<b>71.3</b>	97	<b>61.0</b>	75	<b>55.6</b>
1979-1983	285	<b>73.1</b>	205	<b>63.1</b>	152	<b>59.8</b>
1984-1988	428	<b>86.3</b>	305	<b>71.1</b>	208	<b>62.1</b>
1989-1993	573	<b>86.3</b>	430	<b>75.8</b>	299	<b>67.5</b>
1994-1998	540	<b>89.4</b>	437	<b>80.5</b>	322	<b>69.5</b>
1999-2003	591	<b>92.5</b>	505	<b>88.0</b>	401	<b>78.2</b>
2004-2008	612	<b>94.3</b>	539	<b>89.5</b>	/	/
2009	161	<b>97.0</b>	/	/	/	/
2010	145	<b>93.5</b>	/	/	/	/
2011	149	<b>93.7</b>	/	/	/	/
2012	186	<b>97.9</b>	/	/	/	/

Survival of first kidney transplants only, for transplants performed in Scotland, are shown in the table.

Grafts with insufficient follow-up and those that did not fail in patients dying within the relevant period have been excluded from the table.

**D2.2 Trends in first graft survival by year of transplantation 1960-2012**



Trend in 1 year survival: year to year OR 1.06 (95% CI 1.05-1.07)

Trend in 5 year survival: year to year OR 1.05 (95% CI 1.04-1.06)

Trend in 10 year survival: year to year OR 1.03 (95% CI 1.02-1.04)

The trends in 1 year, 5 year and 10 year graft survival are all statistically significant (Wald-statistic, df=1, p<0.001).

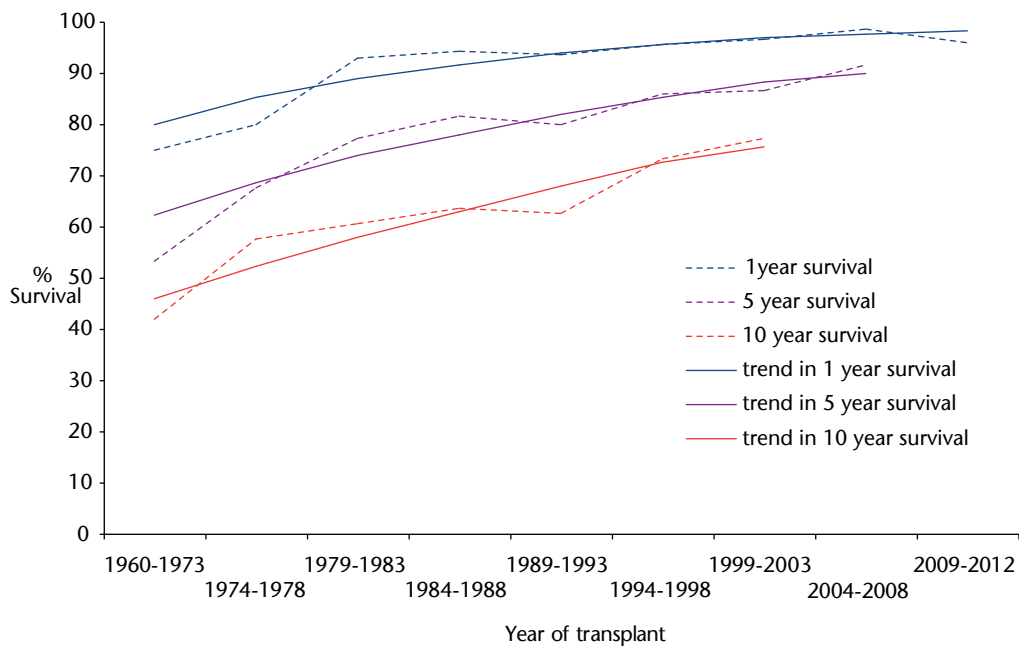
### D3 Patient survival after Kidney Transplantation

#### D3.1 Patient survival after first kidney transplant by year of transplantation 1960-2012

Year of transplant	Patients surviving 1 year		Patients surviving 5 years		Patients surviving 10 years	
	n	%	n	%	n	%
1960-1973	125	<b>74.9</b>	89	<b>53.3</b>	70	<b>41.9</b>
1974-1978	188	<b>80.0</b>	159	<b>67.7</b>	135	<b>57.4</b>
1979-1983	390	<b>92.9</b>	325	<b>77.4</b>	254	<b>60.5</b>
1984-1988	496	<b>94.1</b>	429	<b>81.4</b>	335	<b>63.6</b>
1989-1993	664	<b>93.7</b>	567	<b>80.0</b>	443	<b>62.5</b>
1994-1998	604	<b>95.4</b>	543	<b>85.8</b>	463	<b>73.1</b>
1999-2003	639	<b>96.4</b>	574	<b>86.6</b>	513	<b>77.4</b>
2004-2008	649	<b>98.6</b>	602	<b>91.5</b>	/	/
2009	166	<b>92.2</b>	/	/	/	/
2010	155	<b>98.7</b>	/	/	/	/
2011	159	<b>97.5</b>	/	/	/	/
2012	190	<b>96.0</b>	/	/	/	/

Patient survival is reported from the time of first kidney transplant for transplants performed in Scotland. Patients with insufficient follow-up are excluded.

**D3.2 Trends in patient survival by year of first kidney transplant 1960 -2012**



Trend in 1 year survival: year to year OR 1.07 (95% CI 1.06-1.08)

Trend in 5 year survival: year to year OR 1.05 (95% CI 1.04-1.06)

Trend in 10 year survival: year to year OR 1.05 (95% CI 1.04-1.06)

The trends in 1 year, 5 year and 10 year patient survival are all statistically significant (Wald-statistic, df=1, p<0.001).

## D4 Transplant Kidney Function

<b>D4.1 Transplanted kidney function at one year post transplant in adult recipients with transplant performed 2003-2012</b>								
Year	Transplants performed	Functioning at 1 year		Patients with creatinine result	Serum creatinine (micromole/L)		eGFR (ml/min)	
		n	%		n	Median	IQR	Median
2003	113	100	<b>88.5</b>	98	135	111 - 165	48.0	36.2 - 55.7
2004	95	90	<b>94.7</b>	82	137	111 - 173	46.4	34.6 - 56.2
2005	106	98	<b>92.5</b>	98	131	106 - 159	51.2	39.3 - 62.7
2006	98	93	<b>94.9</b>	89	132	108 - 161	49.7	39.1 - 59.6
2007	147	132	<b>89.8</b>	131	118	100 - 143	55.0	43.9 - 64.9
2008	167	154	<b>92.2</b>	153	118	102 - 145	55.2	42.4 - 66.9
2009	171	153	<b>89.5</b>	145	123	95 - 152	54.4	40.2 - 68.6
2010	151	140	<b>92.7</b>	118	111	93 - 137	58.8	46.0 - 73.9
2011	158	145	<b>91.8</b>	131	119	102 - 152	52.6	42.0 - 67.4
2012	191	179	<b>93.7</b>	166	120	97 - 144	54.9	44.6 - 72.0

Kidney transplants that did not fail in patients dying within the relevant period are excluded.

Patients aged under 18 years at the time of transplantation are excluded.



## D5 Listing for Kidney Transplantation

### D5.1 Percentage and prevalence per 100000 population of RRT patients with functioning kidney transplant or on transplant waiting list 31 December 2013 by NHS Board area of residence

	All RRT patients 31/12/2013	Patients with kidney transplant		Transplant or transplant listed		NHS Board population	Prevalence per 100000 population
		n	%	n	%		
A&A	355	168	47.3	233	65.6	372210	62.6
BORD	99	58	58.6	70	70.7	113870	61.5
D&G	124	62	50.0	81	65.3	150270	53.9
FIFE	329	152	46.2	194	59.0	366910	52.9
FV	243	127	52.3	167	68.7	299680	55.7
GG&C	1151	666	57.9	851	73.9	1215148	70.0
GRAM	500	262	52.4	340	68.0	579220	58.7
HIGH	277	173	62.5	201	72.6	321000	62.6
LAN	515	295	57.3	384	74.6	575362	66.7
LOTH	592	331	55.9	421	71.1	849700	49.5
ORKN	19	8	42.1	11	57.9	21570	61.0
SHET	11	6	54.5	7	63.6	23200	30.2
TAY	366	186	50.8	230	62.8	412160	55.8
WI	17	9	52.9	10	58.8	27400	36.5
<b>Scotland</b>	<b>4598</b>	<b>2503</b>	<b>54.4</b>	<b>3200</b>	<b>69.9</b>	<b>5327700</b>	<b>60.1</b>

The percentage of patients in each NHS Board area treated by all forms of RRT (PD, HD, Transplant) who are either on the transplant waiting list or have a functioning transplant are shown.

Patients who were on the transplant waiting list but had suspended rather than active status are included.

## D5.2 Frequency of first kidney transplants and time from start of RRT to activation on transplant waiting list, by NHS Board area of residence at transplantation 2004-2008

	First transplants 2004-2008					
	n	Pre-emptive transplants (DD)	LD Tx in first year of RRT*	Patients with listing date**	Days from start of RRT to listing***	
					Median	IQR
A&A	53	2 (2)	3	50	288	173 - 574
BORD	8	1 (0)	1	7	40	-145 - 654
D&G	20	7 (1)	2	19	207	102 - 318
FIFE	46	3 (2)	2	42	98	-112 - 330
FV	28	3 (1)	6	23	262	24 - 377
GG&C	162	22 (6)	28	129	183	70 - 345
GRAM	59	5 (1)	8	51	154	66 - 284
HIGH	56	7 (1)	13	45	93	-22 - 237
LAN	64	3 (0)	7	56	276	161 - 463
LOTH	108	9 (3)	14	96	97	-86 - 329
ORKN	4	0 -	0	4	391	82 - 568
SHET	2	0 -	0	2	207	-
TAY	43	6 (2)	10	35	59	-18 - 182
WI	3	2 (2)	0	3	-4	-
<b>Scotland</b>	<b>656</b>	<b>70 (21)</b>	<b>94</b>	<b>562</b>	<b>166</b>	<b>31 - 350</b>

\* Includes pre-emptive LD transplants

\*\* Patients receiving LD pre-emptive transplants excluded

\*\*\* Truncated to -182.5

### D5.3 Frequency of first kidney transplants and time from start of RRT to activation on transplant waiting list, by NHS Board area of residence at transplantation 2009-2013

	First transplants 2009-2013					
	n	Pre-emptive transplants (DD)	LD Tx in first year of RRT*	Patients with listing date**	Days from start of RRT to listing***	
					Median	IQR
A&A	53	7 (3)	5	46	114	-127 - 571
BORD	27	2 (2)	2	25	82	-182 - 249
D&G	23	3 (1)	2	20	78	27 - 336
FIFE	59	8 (4)	6	54	38	-115 - 285
FV	60	5 (3)	5	53	211	11.5 - 411
GG&C	236	40 (12)	42	201	138	-55 - 393
GRAM	105	11 (3)	13	95	97	-47 - 337
HIGH	55	7 (3)	7	50	201	-23 - 393
LAN	120	14 (6)	15	110	329	120 - 614
LOTH	120	12 (4)	16	105	154	-45 - 382
ORKN	0	0 -	0	-	-	-
SHET	3	0 -	1	2	427	-
TAY	52	8 (1)	10	35	150	-32 - 301
WI	2	0 -	0	3	103	-
<b>Scotland</b>	<b>915</b>	<b>117 (42)</b>	<b>124</b>	<b>562</b>	<b>152</b>	<b>-37.5 - 397</b>

\* Includes pre-emptive LD transplants

\*\* Patients receiving LD pre-emptive transplants excluded

\*\*\* Truncated to -182.5

12 patients received a kidney transplant in Scotland in this time period who were not Scottish residents, they are excluded from the analyses.

117 patients received a pre-emptive transplant in 2009-2013, 75 from a live donor (LD), 42 from a deceased donor (DD).

A further 49 patients received a LD transplant within one year of starting RRT.

Renal Association guidelines suggest that patients with progressive deterioration in renal function who are suitable for transplantation should be placed on the national transplant list within six months (-182.5 days) of their anticipated dialysis start date. Patients listed from transplantation for longer than six months prior to starting RRT have their duration of listing truncated to six months for the analysis.