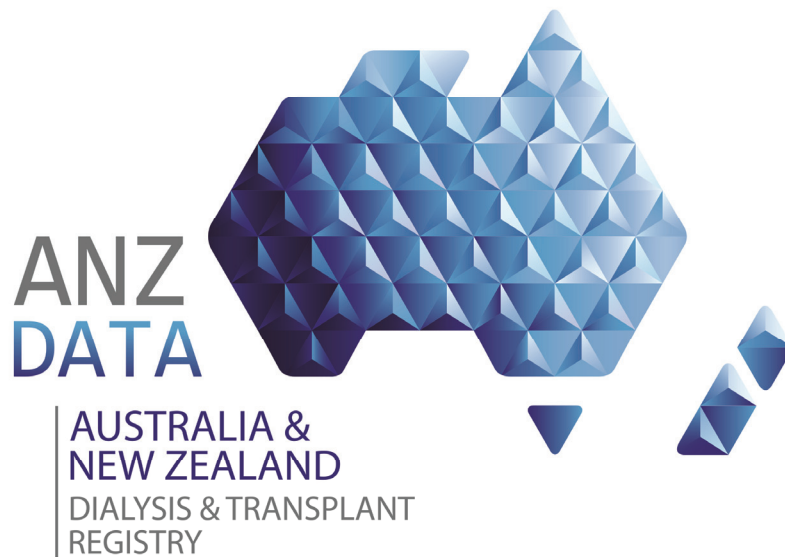


Chapter 7

Australian Waiting List



2016

ANZDATA Registry

39th Annual Report

Data to 31-Dec-2015

Stock and Flow

The waiting list data reported here are derived from the Australian National Organ Matching System (NOMS) and ANZDATA. Waiting list data refers to waiting for deceased donor (DD) kidney-only transplants. Patients wait-listed for multi-organ transplants are excluded. Recipients of living donor (LD) transplants may or may not be on the waiting list prior to transplantation.

To understand the relative contributions of deceased and living donor transplants to patients on (and off) the kidney-only waiting list, LD transplants to recipients not on the kidney-only waiting list are also included.

The numbers of people moving on and off the active waiting list for any reason are shown. Patients are categorised as either active or off the list - an "interim" or "temporarily off list" status is considered to be off list, since these patients will not be allocated kidneys. A number of de-listed patients may return to the list in subsequent years. If a patient was listed and de-listed more than once in a calendar year, only the net change is counted.

In the tables below, the rows describe:

- Number on the active list at the beginning of the year
- Number added to the active list during the year
- Number removed from the active list during the year
- Number of deceased donor (DD) transplants to people on the waiting list
- Number of living donor (LD) transplants to people on the waiting list
- Number of transplants performed outside Australia / New Zealand to people on the waiting list
- Number who died while on the active waiting list
- Number on the waiting list at the end of the year

Table 7.1 shows the basic stock and flow tables for Australia for each year. The recent increase in deceased organ donor numbers has been matched by an increase in the number of patients being listed, such that overall numbers on the waiting list are stable.

Table 7.1. Australian Kidney Transplant Waiting List Stock and Flow 2010-2015

Event	2010	2011	2012	2013	2014	2015
Active start of year	1266	1185	1089	1077	1075	1141
Made active	630	709	746	778	852	760
Taken off list	149	199	154	141	148	155
DD graft	499	533	553	581	573	633
LD graft	58	62	45	54	56	42
Overseas graft	1	2	0	1	0	2
Died on list	4	9	6	3	9	8
Active end of year	1185	1089	1077	1075	1141	1061

Table 7.2 shows data for non-indigenous and indigenous patients respectively.

Table 7.2. Australian Kidney Transplant Waiting List Stock and Flow by Ethnicity 20010-2015							
	Event	2010	2011	2012	2013	2014	2015
Non-indigenous	Active start of year	1221	1136	1053	1041	1035	1096
	Made active	592	677	714	738	796	701
	Taken off list	141	180	145	137	137	143
	DD graft	474	508	532	551	533	591
	LD graft	58	61	44	53	56	41
	Overseas graft	1	2	0	1	0	2
	Died on list	3	9	5	2	9	8
	Active end of year	1136	1053	1041	1035	1096	1012
Indigenous	Active start of year	45	49	33	34	36	32
	Made active	38	29	30	37	44	41
	Taken off list	8	19	8	4	11	10
	DD graft	25	25	20	29	37	32
	LD graft	0	1	0	1	0	0
	Overseas graft	0	0	0	0	0	0
	Died on list	1	0	1	1	0	0
	Active end of year	49	33	34	36	32	31
Not Reported	Active start of year	0	0	3	2	4	13
	Made active	0	3	2	3	12	18
	Taken off list	0	0	1	0	0	2
	DD graft	0	0	1	1	3	10
	LD graft	0	0	1	0	0	1
	Overseas graft	0	0	0	0	0	0
	Died on list	0	0	0	0	0	0
	Active end of year	0	3	2	4	13	18

The numbers of both dialysis patients and transplants vary with age; in table 7.3 the stock and flow for the years 2010-15 is shown by broad age groups. As expected, older patients are less likely to be listed than younger patients, and the proportion removed from the list is higher.

Table 7.3. Australian Kidney Transplant Waiting List Stock and Flow by Age 2010-2015							
Age Group	Event	2010	2011	2012	2013	2014	2015
0-14	Active start of year	5	6	5	7	12	12
	Made active	9	14	13	21	20	18
	Taken off list	0	0	1	0	2	1
	DD graft	8	15	8	15	16	12
	LD graft	0	0	2	1	2	0
	Overseas graft	0	0	0	0	0	0
	Died on list	0	0	0	0	0	0
	Active end of year	6	5	7	12	12	17
15-44	Active start of year	307	316	335	340	377	403
	Made active	174	218	217	261	267	269
	Taken off list	33	38	32	35	49	43
	DD graft	109	132	156	164	162	205
	LD graft	23	27	21	24	29	16
	Overseas graft	0	1	0	0	0	1
	Died on list	0	1	3	1	1	0
	Active end of year	316	335	340	377	403	407
45-54	Active start of year	323	297	284	282	281	312
	Made active	144	180	201	187	226	193
	Taken off list	35	42	36	36	39	47
	DD graft	125	133	155	140	146	157
	LD graft	9	13	11	12	9	10
	Overseas graft	1	0	0	0	0	1
	Died on list	0	5	1	0	1	3
	Active end of year	297	284	282	281	312	287
55-64	Active start of year	393	362	316	303	289	300
	Made active	193	200	215	220	242	216
	Taken off list	44	69	55	39	43	40
	DD graft	163	161	165	179	172	189
	LD graft	14	12	6	14	11	11
	Overseas graft	0	1	0	1	0	0
	Died on list	3	3	2	1	5	3
	Active end of year	362	316	303	289	300	273
65+	Active start of year	238	204	149	145	116	114
	Made active	110	97	100	89	97	64
	Taken off list	37	50	30	31	15	24
	DD graft	94	92	69	83	77	70
	LD graft	12	10	5	3	5	5
	Overseas graft	0	0	0	0	0	0
	Died on list	1	0	0	1	2	2
	Active end of year	204	149	145	116	114	77

Differences between states (combined into transplanting regions) are shown in table 7.4. Waiting list numbers in each state are reflective of both listing practices and donation rates, both current and historical.

Table 7.4. Australian Kidney Transplant Waiting List Stock and Flow by State 2010-2015							
State	Event	2010	2011	2012	2013	2014	2015
NSW	Active start of year	615	550	519	533	477	509
	Made active	200	252	268	227	292	237
	Taken off list	71	110	81	75	70	69
	DD graft	163	132	143	167	151	207
	LD graft	28	32	28	38	36	23
	Overseas graft	1	2	0	0	0	2
	Died on list	2	7	2	3	3	5
	Active end of year	550	519	533	477	509	440
VIC	Active start of year	353	354	323	340	383	393
	Made active	212	212	247	268	278	252
	Taken off list	38	44	43	45	55	52
	DD graft	155	180	172	166	192	200
	LD graft	17	19	12	13	16	11
	Overseas graft	0	0	0	1	0	0
	Died on list	1	0	3	0	5	2
	Active end of year	354	323	340	383	393	380
QLD	Active start of year	163	141	127	106	112	116
	Made active	101	116	112	128	129	131
	Taken off list	22	15	12	14	10	20
	DD graft	94	109	120	108	114	99
	LD graft	7	5	1	0	1	5
	Overseas graft	0	0	0	0	0	0
	Died on list	0	1	0	0	0	0
	Active end of year	141	127	106	112	116	123
SA	Active start of year	51	52	57	56	65	65
	Made active	61	72	76	82	80	91
	Taken off list	5	8	10	2	10	8
	DD graft	50	56	63	68	67	69
	LD graft	5	3	3	3	2	3
	Overseas graft	0	0	0	0	0	0
	Died on list	0	0	1	0	1	1
	Active end of year	52	57	56	65	65	75
WA	Active start of year	84	88	63	42	38	58
	Made active	56	57	43	73	73	49
	Taken off list	13	22	8	5	3	6
	DD graft	37	56	55	72	49	58
	LD graft	1	3	1	0	1	0
	Overseas graft	0	0	0	0	0	0
	Died on list	1	1	0	0	0	0
	Active end of year	88	63	42	38	58	43

Table 7.5 shows the same data by blood group. Turnover is highest for blood group AB patients.

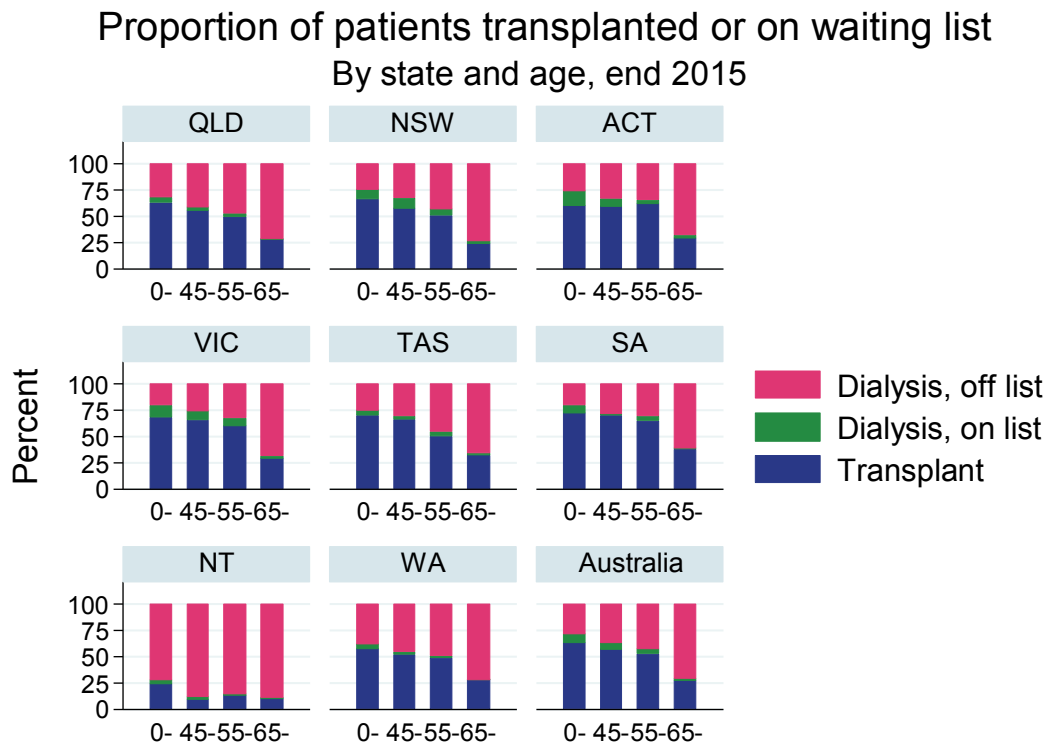
Table 7.5. Australian Kidney Transplant Waiting List Stock and Flow by Blood Group 2010-2015							
Blood Group	Event	2010	2011	2012	2013	2014	2015
A	Active start of year	417	359	295	310	327	329
	Made active	233	242	292	291	311	299
	Taken off list	57	60	44	39	56	40
	DD graft	209	217	219	212	225	255
	LD graft	21	25	11	20	25	19
	Overseas graft	0	0	0	0	0	1
	Died on list	4	4	3	3	3	3
	Active end of year	359	295	310	327	329	310
AB	Active start of year	17	11	23	20	21	24
	Made active	25	36	29	24	37	36
	Taken off list	2	2	2	3	2	2
	DD graft	29	22	27	20	32	41
	LD graft	0	0	3	0	0	1
	Overseas graft	0	0	0	0	0	0
	Died on list	0	0	0	0	0	0
	Active end of year	11	23	20	21	24	16
B	Active start of year	164	169	161	179	178	210
	Made active	80	93	111	102	128	97
	Taken off list	17	27	26	23	19	32
	DD graft	50	65	63	77	66	83
	LD graft	7	7	4	3	10	3
	Overseas graft	1	2	0	0	0	0
	Died on list	0	0	0	0	1	2
	Active end of year	169	161	179	178	210	187
O	Active start of year	668	646	610	568	549	578
	Made active	292	338	314	361	376	328
	Taken off list	73	110	82	76	71	81
	DD graft	211	229	244	272	250	254
	LD graft	30	30	27	31	21	19
	Overseas graft	0	0	0	1	0	1
	Died on list	0	5	3	0	5	3
	Active end of year	646	610	568	549	578	548

Proportion of Patients Transplanted or on Waiting List

Figure 7.1 shows the proportion of prevalent RRT patients who were either transplanted or actively wait-listed at the end of 2015, by state and age group. In all states and all age groups, the majority of dialysis patients were not actively wait-listed at the end of 2015.

Younger patients are more likely to be transplanted or wait-listed, and the proportion of dialysis patients wait-listed varies substantially by state.

Figure 7.1

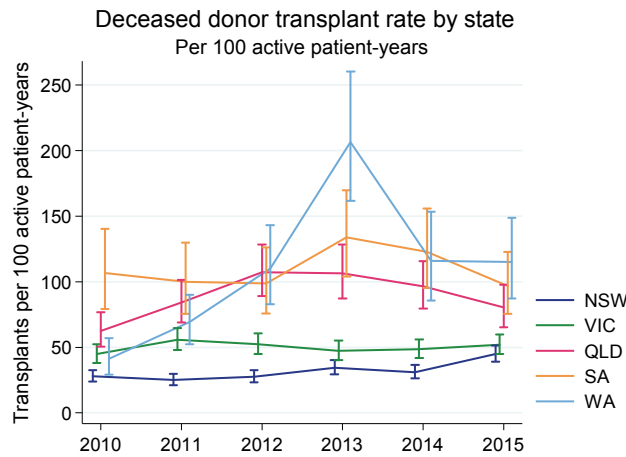


Transplant Rate

The transplant rate represents the likelihood of receiving a kidney transplant in patients who are actively wait-listed. For these analyses the transplant rate was calculated as the number of deceased donor kidney-only transplants performed (numerator) per 100 patient-years on the active kidney-only waiting list (denominator). The transplant rate depends on the number of organs available, the number of patients on the waiting list, and the kidney allocation system. Figures 7.2-7.5 show the transplant rate by state, age, race and blood group respectively.

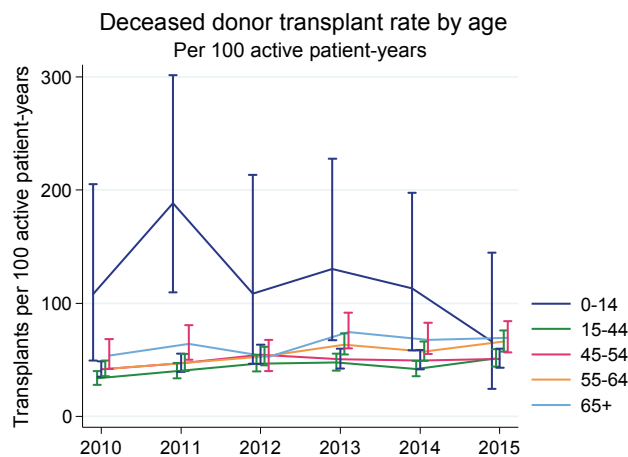
The transplant rate is typically highest in WA (figure 7.2).

Figure 7.2



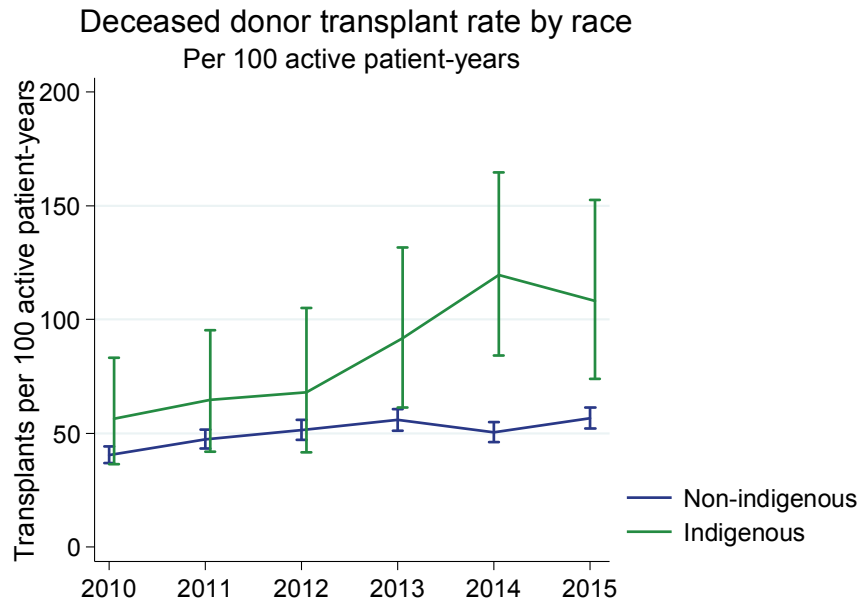
Paediatric patients are preferentially allocated kidneys and so have a higher transplant rate than adult patients; since the allocation system otherwise ignores age, patients in other age groups have the same transplant rate (figure 7.3).

Figure 7.3



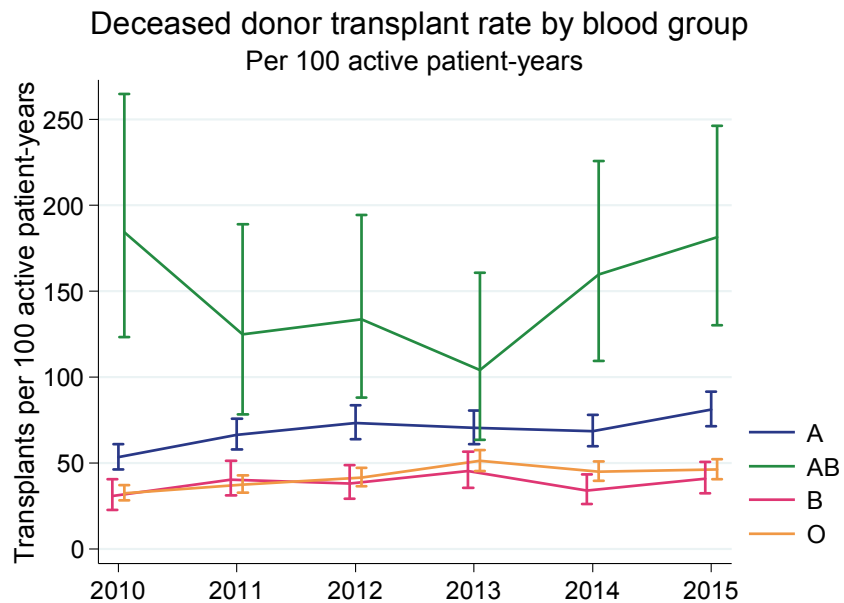
Despite a slightly different HLA profile, indigenous patients do not have a lower transplant rate once actively wait-listed (figure 7.4).

Figure 7.4



Blood group AB patients have the highest transplant rate due to their compatibility with all donors (Figure 7.5)

Figure 7.5



Waiting List Demographics

Table 7.6 shows the demographic characteristics of actively wait-listed patients over 2010-2015. In general the demographics are very stable. However, there has been a slight increase in the proportion of highly sensitised patients (historical peak PRA \geq 80%, from 10% in 2010 to 14% in 2015) and in the proportion of patients with diabetes (from 16% in 2010 to 21% in 2015).

Note that the peak PRA data presented here are calculated as the highest class I PRA ever recorded, whereas for the purposes of kidney allocation the peak PRA is the PRA of the peak serum still available for testing. Thus, the values reported here are slightly higher than those reported by NOMS and used for allocation.

Table 7.6. Demographics of the Australian Kidney Transplant Waiting List 2010-2015

Factor	2010	2011	2012	2013	2014	2015
N	1185	1089	1077	1075	1141	1061
Waiting time (years), median (IQR)	2.9 (1.7, 4.7)	2.8 (1.6, 4.5)	2.8 (1.5, 4.5)	2.6 (1.4, 4.5)	2.6 (1.4, 4.4)	2.4 (1.3, 4.1)
Historical peak PRA (%)						
0-19	825 (69.6%)	736 (67.6%)	725 (67.3%)	725 (67.5%)	743 (65.2%)	688 (65.5%)
20-39	100 (8.4%)	100 (9.2%)	89 (8.3%)	89 (8.3%)	99 (8.7%)	96 (9.1%)
40-59	60 (5.1%)	60 (5.5%)	61 (5.7%)	60 (5.6%)	74 (6.5%)	61 (5.8%)
60-79	80 (6.8%)	74 (6.8%)	72 (6.7%)	72 (6.7%)	72 (6.3%)	63 (6.0%)
80-100	120 (10.1%)	119 (10.9%)	130 (12.1%)	128 (11.9%)	151 (13.3%)	142 (13.5%)
Blood group						
A	359 (30.3%)	295 (27.1%)	310 (28.8%)	327 (30.4%)	329 (28.8%)	310 (29.2%)
AB	11 (0.9%)	23 (2.1%)	20 (1.9%)	21 (2.0%)	24 (2.1%)	16 (1.5%)
B	169 (14.3%)	161 (14.8%)	179 (16.6%)	178 (16.6%)	210 (18.4%)	187 (17.6%)
O	646 (54.5%)	610 (56.0%)	568 (52.7%)	549 (51.1%)	578 (50.7%)	548 (51.6%)
Previous grafts						
0	942 (79.5%)	859 (78.9%)	829 (77.0%)	802 (74.6%)	836 (73.3%)	765 (72.1%)
1	201 (17.0%)	194 (17.8%)	213 (19.8%)	233 (21.7%)	253 (22.2%)	241 (22.7%)
2	34 (2.9%)	28 (2.6%)	28 (2.6%)	33 (3.1%)	45 (3.9%)	49 (4.6%)
3	8 (0.7%)	6 (0.6%)	7 (0.6%)	7 (0.7%)	7 (0.6%)	6 (0.6%)
4	0 (0.0%)	2 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

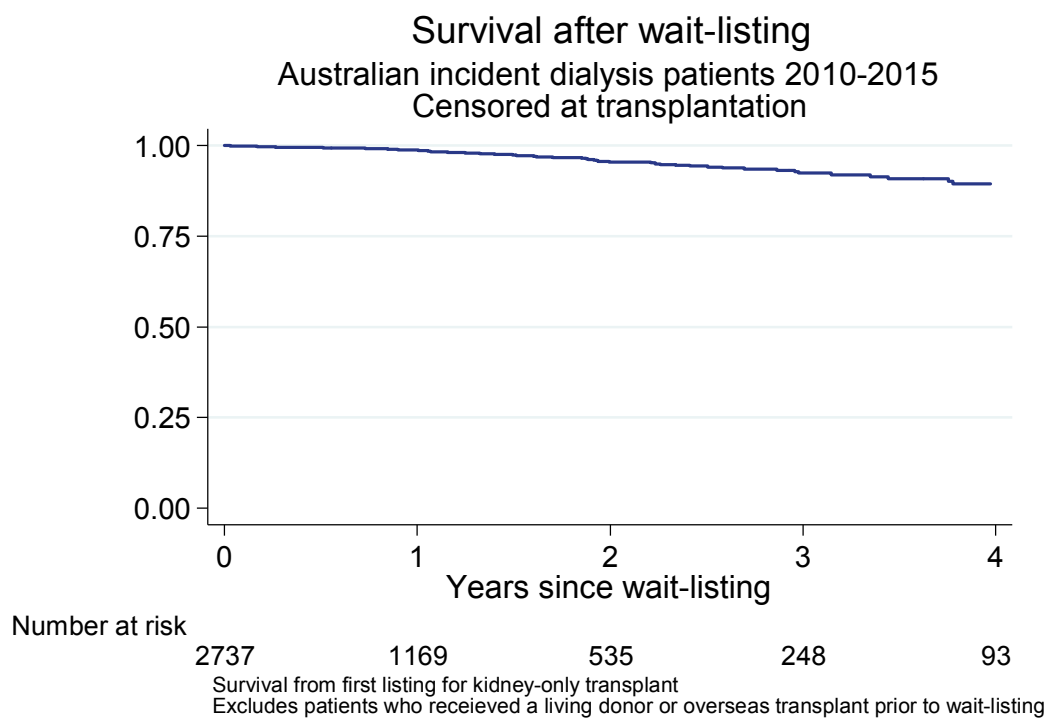
Table 7.6. Cont.....Demographics of the Australian Kidney Transplant Waiting List 2010-2015

Factor	2010	2011	2012	2013	2014	2015
Age (years)						
0-44	363 (30.6%)	364 (33.4%)	347 (32.2%)	364 (33.9%)	355 (31.1%)	356 (33.6%)
45-54	320 (27.0%)	289 (26.5%)	282 (26.2%)	278 (25.9%)	305 (26.7%)	261 (24.6%)
55-64	371 (31.3%)	319 (29.3%)	303 (28.1%)	293 (27.3%)	308 (27.0%)	288 (27.1%)
65+	131 (11.1%)	117 (10.7%)	145 (13.5%)	140 (13.0%)	173 (15.2%)	156 (14.7%)
Male	680 (57.4%)	634 (58.2%)	630 (58.5%)	654 (60.8%)	710 (62.2%)	655 (61.7%)
Ethnicity						
Caucasian	864 (72.9%)	770 (70.7%)	758 (70.4%)	756 (70.3%)	768 (67.3%)	703 (66.3%)
Aboriginal/Torres Strait Islander	49 (4.1%)	33 (3.0%)	34 (3.2%)	36 (3.3%)	32 (2.8%)	31 (2.9%)
Asian	194 (16.4%)	203 (18.6%)	205 (19.0%)	199 (18.5%)	235 (20.6%)	206 (19.4%)
Māori	16 (1.4%)	19 (1.7%)	14 (1.3%)	13 (1.2%)	10 (0.9%)	8 (0.8%)
Pacific	30 (2.5%)	27 (2.5%)	29 (2.7%)	32 (3.0%)	35 (3.1%)	34 (3.2%)
Other	32 (2.7%)	34 (3.1%)	35 (3.2%)	35 (3.3%)	48 (4.2%)	61 (5.7%)
Not reported	0 (0.0%)	3 (0.3%)	2 (0.2%)	4 (0.4%)	13 (1.1%)	18 (1.7%)
Primary renal disease						
GN	536 (45.2%)	504 (46.3%)	473 (43.9%)	440 (40.9%)	488 (42.8%)	451 (42.5%)
Analgesic	9 (0.8%)	5 (0.5%)	3 (0.3%)	5 (0.5%)	5 (0.4%)	3 (0.3%)
Polycystic	171 (14.4%)	144 (13.2%)	149 (13.8%)	141 (13.1%)	140 (12.3%)	134 (12.6%)
Reflux	103 (8.7%)	85 (7.8%)	79 (7.3%)	85 (7.9%)	92 (8.1%)	79 (7.4%)
Hypertension	76 (6.4%)	66 (6.1%)	89 (8.3%)	87 (8.1%)	81 (7.1%)	77 (7.3%)
Diabetes	131 (11.1%)	123 (11.3%)	131 (12.2%)	146 (13.6%)	147 (12.9%)	138 (13.0%)
Other	110 (9.3%)	111 (10.2%)	111 (10.3%)	129 (12.0%)	142 (12.4%)	139 (13.1%)
Uncertain	49 (4.1%)	49 (4.5%)	42 (3.9%)	41 (3.8%)	45 (3.9%)	35 (3.3%)
Not reported	0 (0.0%)	2 (0.2%)	0 (0.0%)	1 (0.1%)	1 (0.1%)	5 (0.5%)
Diabetes	192 (16.2%)	193 (17.7%)	204 (18.9%)	225 (20.9%)	228 (20.1%)	225 (21.4%)
Coronary artery disease	194 (16.4%)	220 (20.2%)	199 (18.5%)	198 (18.4%)	177 (15.6%)	146 (13.9%)
Peripheral vascular disease	89 (7.5%)	110 (10.1%)	98 (9.1%)	108 (10.0%)	104 (9.1%)	84 (8.0%)
Cerebrovascular disease	61 (5.1%)	59 (5.4%)	65 (6.0%)	55 (5.1%)	63 (5.5%)	51 (4.8%)
Chronic lung disease	77 (6.5%)	87 (8.0%)	92 (8.5%)	97 (9.0%)	98 (8.6%)	86 (8.2%)

Survival on the Waiting List

Figure 7.6 shows the survival of patients who commenced dialysis in Australia over 2010-2015 and were subsequently wait-listed for a deceased donor kidney-only transplant. Survival is shown from the time of listing and is censored at transplantation (but not at removal from the list). The mortality rate of this highly selected patient group was low at 2.2 deaths per 100 patient-years (95% CI 1.7-2.8).

Figure 7.6



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