10.1071/AH22291
Australian Health Review

Supplementary Material

Projecting the future: modelling Australian dialysis prevalence 2021–30

Dominic Keuskamp[A,B,*] (PhD, Postdoctoral Fellow), *Christopher E. Davies*[A,B] (PhD, Lead Biostatistician), *Georgina L. Irish*[A,B,C] (MBBS MClinEpi FRACP, Nephrologist), *Shilpanjali Jesudason*[A,B,C] (MBBS PhD FRACP, Senior Nephrologist) and *Stephen P. McDonald*[A,B,C] (MBBS PhD FRACP, Senior Nephrologist)

[A]Australia & New Zealand Dialysis & Transplant Registry, South Australian Health & Medical Research Institute, Adelaide, SA, Australia

[B]Faculty of Health & Medical Sciences, University of Adelaide, Adelaide, SA, Australia

[C]Central Northern Adelaide Renal & Transplantation Service, Royal Adelaide Hospital, Adelaide, SA, Australia

*Correspondence to: Email: dominic@anzdata.org.au

Supplementary table S1. Description of dialysis modalities

Dialysis modality		Description
Haemodialysis (HD)		Mechanised blood filtration using a dialyser
Facility or centre-based HD	Hospital HD	HD in a metropolitan hospital renal unit with dialysis performed by dialysis staff
	Satellite HD	HD in a regional hospital or community-based dialysis unit with lower acuity care with dialysis performed by dialysis staff
Home HD		HD at home, with dialysis performed by patient and care givers
Peritoneal dialysis (PD)		Blood filtration using the peritoneum as a filter, at home performed by patient and care givers.
Continuous Ambulatory PD (CAPD)		PD where the dialysate exchanges are manually transferred
Automated PD (APD)		PD where the dialysate exchanges are mechanically transferred

Supplementary table S2. Transition rates (per million per year): incident dialysis and incident KRT.

Transition (denominator)	Age group	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Incident dialysis	0-19	5.4	(constant)								
(age-specific	20-39	33.8	(constant)								
Australian population)	40-59	135.6	136	137	138	139	140	141	142	143	144
	60-69	285.0	290	294	299	303	308	313	317	322	324
	70+	348.8	(constant)								
Incident KRT	0-19	8.2	(constant)								
(age-specific	20-39	42.7	(constant)								
Australian population)	40-59	156.7	(constant)								
	60-69	311.9	314	316	318	320	322	324	326	328	330
	70+	371.1	(constant)								

11 Supplementary table S3. Transition rates (per million per year): transplant, graft failure and mortality.

Transition (denominator)	Age group	2021-2030
Deceased donor transplant from dialysis	0-19	0.788
- 'transplant stable' only	20-39	5.470
(total Australian population)	40-59	13.93
	60-69	7.701
	70+	1.512
Living donor transplant from dialysis	0-19	0.122
(dialysis population)	20-39	0.033
	40-59	0.011
	60-69	0.006
	70+	0.001
Incident deceased donor transplant	0-19	0.145
(total Australian population)	20-39	0.471
	40-59	1.326
	60-69	0.615

Transition (denominator)	Age group	2021-2030
	70+	0.153
Incident living donor transplant	0-19	0.251
(incident KRT population)	20-39	0.112
	40-59	0.060
	60-69	0.031
	70+	0.005
Graft failure	0-19	0.018
(transplant population)	20-39	0.029
	40-59	0.020
	60-69	0.013
	70+	0.012
Dialysis mortality	0-19	0.024
(dialysis population)	20-39	0.042
	40-59	0.082
	60-69	0.126

Transition (denominator)	Age group	2021-2030
	70+	0.194
Transplant mortality	0-19	0.002
(transplant population)	20-39	0.003
	40-59	0.011
	60-69	0.032
	70+	0.070

Supplementary table S4. Transition rates (per million per year): deceased donor transplant from dialysis ('transplant growth'). Denominator: total Australian population.

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0-19	0.86	0.88	0.90	0.91	0.93	0.95	0.97	0.99	1.00	1.02
20-39	5.89	6.00	6.10	6.21	6.31	6.42	6.52	6.63	6.73	6.84
40-59	14.6	14.9	15.1	15.4	15.6	15.9	16.1	16.4	16.6	16.9
60-69	8.83	9.11	9.39	9.67	9.95	10.2	10.5	10.8	11.1	11.4
70+	2.29	2.37	2.45	2.52	2.60	2.68	2.76	2.84	2.92	3.00

15

16 Supplementary table S5. Projected dialysis and transplant prevalences by scenario, age, modality and year.

'Transplant Stable'		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Dialysis by age	0-19	70	71	72	74	75	78	79	79	80	80
	20-39	1035	1048	1062	1075	1088	1101	1115	1129	1141	1154
	40-59	4278	4342	4409	4482	4561	4649	4742	4842	4945	5054
	60-69	3579	3703	3830	3960	4087	4209	4325	4439	4553	4661
	70+	5985	6192	6406	6625	6849	7078	7311	7547	7785	8025
Dialysis by modality	Hospital HD	3194	3283	3375	3470	3567	3666	3765	3866	3968	4070
	Satellite HD	7876	8097	8325	8560	8800	9044	9290	9540	9793	10046
	Home HD	1188	1215	1244	1273	1303	1333	1364	1396	1428	1460
	Automated PD	1837	1885	1936	1987	2040	2095	2149	2203	2259	2314
	Continuous Ambulatory PD	850	874	899	925	951	977	1003	1030	1057	1084
	Total	14946	15355	15779	16216	16660	17115	17571	18036	18505	18973
Transplant by age	0-19	322	332	340	349	356	363	371	379	386	393
	20-39	1739	1785	1830	1874	1915	1954	1994	2032	2070	2106

	40-59	5550	5726	5897	6066	6231	6393	6553	6709	6863	7015
	60-69	3726	3875	4022	4166	4307	4444	4581	4714	4845	4974
	70+	2327	2471	2616	2761	2906	3052	3196	3340	3484	3626
	Total	13664	14188	14706	15215	15714	16206	16693	17173	17647	18113
'Transplant Growth'		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Dialysis by age	0-19	68	68	68	68	68	67	66	64	63	61
	20-39	1024	1026	1026	1026	1024	1021	1018	1014	1009	1003
	40-59	4259	4299	4339	4381	4427	4476	4530	4587	4647	4709
	60-69	3550	3642	3735	3827	3916	3998	4073	4143	4213	4273
	70+	5965	6151	6343	6540	6740	6944	7152	7361	7572	7783
Dialysis by modality	Hospital HD	3177	3248	3319	3392	3465	3539	3612	3685	3759	3831
	Satellite HD	7836	8011	8189	8370	8552	8736	8918	9101	9286	9466
	Home HD	1181	1200	1219	1239	1258	1277	1296	1315	1335	1353
	Automated PD	1826	1863	1900	1938	1975	2013	2050	2087	2124	2160
	Continuous Ambulatory PD	846	864	884	903	922	942	961	980	1000	1018
	Total	14865	15185	15512	15842	16174	16506	16838	17169	17504	17829

Transplant by age	0-19	324	334	345	355	364	374	385	395	405	415
	20-39	1750	1808	1867	1924	1981	2038	2096	2154	2211	2269
	40-59	5569	5770	5972	6177	6383	6593	6803	7016	7230	7446
	60-69	3755	3939	4126	4317	4507	4700	4896	5095	5295	5498
	70+	2347	2514	2685	2861	3039	3222	3408	3597	3790	3986
	Total	13745	14365	14994	15633	16275	16927	17587	18257	18931	19614

Supplementary table S6. Percentage change by age in projected dialysis prevalence for ‘transplant growth’ model.

	2020 – 2030 Percentage Increase	
Age in years	Projected Dialysis Prevalence	Australian Population Prevalence
0-19	-12.6	16.6
20-39	-1.9	13.9
40-59	11.6	13.4
60-69	23.5	11.3
70+	34.6	34.4
Total	22.5	16.5

Supplementary Fig. S1. Transplant prevalence (actual 2011-2020; projected 2021-2030) by age for 'transplant stable' (solid lines) & 'transplant growth' (dashed lines) models.