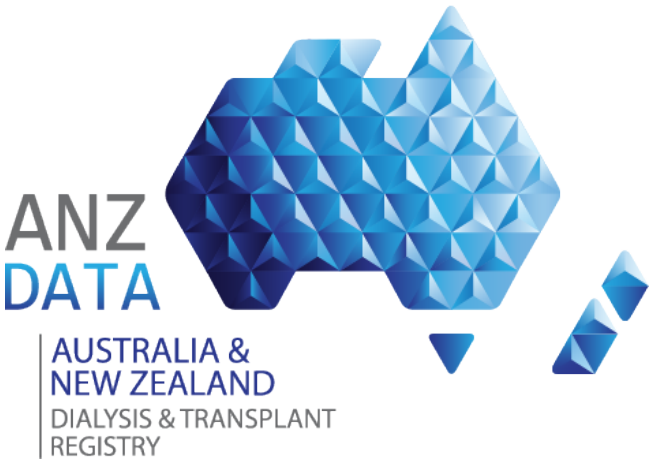


CHAPTER 10

Kidney Failure in Aboriginal and Torres Strait Islander Australians

Reporting the incidence, prevalence and survival of Aboriginal and Torres Strait Islander Australians receiving kidney replacement therapy.

Contents

Summary and Highlights

In this chapter, the rates and practice patterns for kidney failure for people identifying as Aboriginal and Torres Strait Islander living in Australia are reported. We acknowledge the distinctiveness of many Nations of Aboriginal and Torres Strait Islander peoples, and respectfully refer to them as First Nations Australians within this report. Self-identified ethnicity is reported by renal units on behalf of patients.

Please note that collection of ethnicity data in ANZDATA has evolved to align with Australian Bureau of Statistics Australian Standard Classification of Cultural and Ethnic Groups[1]. Data collection now allows for a person to nominate more than one ethnicity group, however, consultation regarding reporting of ethnicity data is ongoing and reporting guidelines have not been finalised at the time of publication. As a result, ethnicity data throughout this report includes only the first ethnicity category entered for each patient. Future reporting will aim to report more accurately on patients identifying as more than one ethnicity.

Denominator population statistics were sourced from the Australian Bureau of Statistics (2021)[2] and are stratified by ethnicity. For example, the incidence of kidney replacement therapy (KRT) for First Nations Australians includes the First Nations Australian population as the denominator. In Australia, First Nations and non-Indigenous populations have different age structures: First Nations populations tend to be younger.

The incidence of kidney failure experienced by First Nations Australians continues to be disproportionally higher than non-Indigenous Australians. This is seen most dramatically in the younger and middle age ranges and in those living in remote areas. First Nations Australians commence kidney replacement therapy with lower remaining kidney function (eGFR), while rates of late referral and vascular access are similar to the non-Indigenous population. There is a persisting difference in treatment modalities between First Nations and non-Indigenous Australians, with overall lower rates of home-based therapies (transplantation, home haemodialysis, peritoneal dialysis) among First Nations people. This is changing over time and since 2018 there has been a sustained increase in prevalent transplant recipients. This change reflects both an increase in numbers of incident First Nations transplant recipients and also improved transplant survival with transplant outcomes in First Nations populations comparable to the non-Indigenous population.

Suggested Citation

ANZDATA Registry. 45th Report, Chapter 10: Kidney Failure in Aboriginal and Torres Strait Islander Australians. Australia and New Zealand Dialysis and Transplant Registry, Adelaide, Australia. 2022. Available at: http://www.anzdata.org.au

New Patients

A total of 325 Aboriginal and 26 Torres Strait Islander people (n=351 total First Nations Australians) commenced kidney replacement therapy (KRT) for kidney failure in Australia during 2021 (table 10.1). The majority (88%) were treated with haemodialysis as their initial KRT modality (figure 10.1). Haemodialysis incidence was approximately 5-fold higher for First Nations Australians (351 per million population) than for non-Indigenous Australians (78 pmp).

In 2021, only 11% of First Nations Australians accessed peritoneal dialysis as first treatment compared with over one-quarter of non-Indigenous Australians (figure 10.2). Pre-emptive kidney transplants were accessed by two First Nations Australians in 2021 (figure 10.3).

Table 10.1 New Patients (pmp) Australia 2017-2021

Year	Modality	First Nations	Non-Indigenous	Total
2017	**HD**	316 (388)	1783 (75)	**2099 (85)**
	PD	49 (60)	711 (30)	**760 (31)**
	Pre-emptive Transplant	0 (0)	111 (5)	**111 (5)**
2018	**HD**	290 (349)	1896 (79)	**2186 (88)**
	PD	40 (48)	726 (30)	**766 (31)**
	Pre-emptive Transplant	2 (2)	100 (4)	**102 (4)**
2019	**HD**	334 (394)	2011 (82)	**2345 (92)**
	PD	54 (64)	688 (28)	**742 (29)**
	Pre-emptive Transplant	2 (2)	102 (4)	**104 (4)**
2020	**HD**	281 (325)	1991 (80)	**2272 (88)**
	PD	41 (47)	842 (34)	**883 (34)**
	Pre-emptive Transplant	0 (0)	81 (3)	**81 (3)**
2021	**HD**	310 (351)	1950 (78)	**2260 (88)**
	PD	39 (44)	845 (34)	**884 (34)**
	Pre-emptive Transplant	2 (2)	67 (3)	**69 (3)**

Figure 10.1 - Percentage of New Patients Commencing on Haemodialysis – Australia

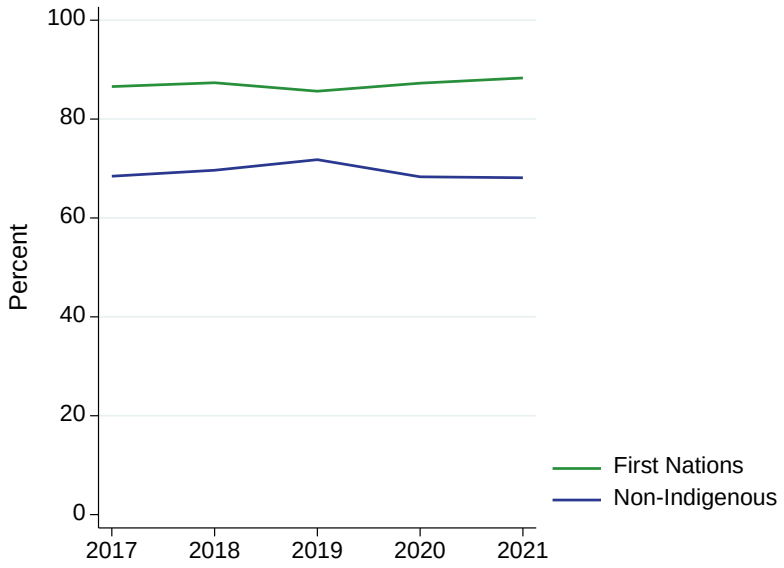


Figure 10.2 - Percentage of New Patients Commencing on Peritoneal Dialysis – Australia

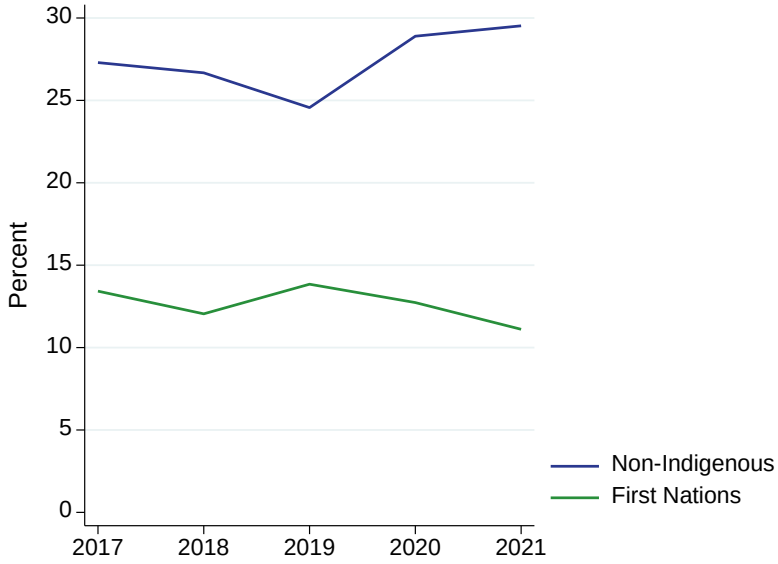
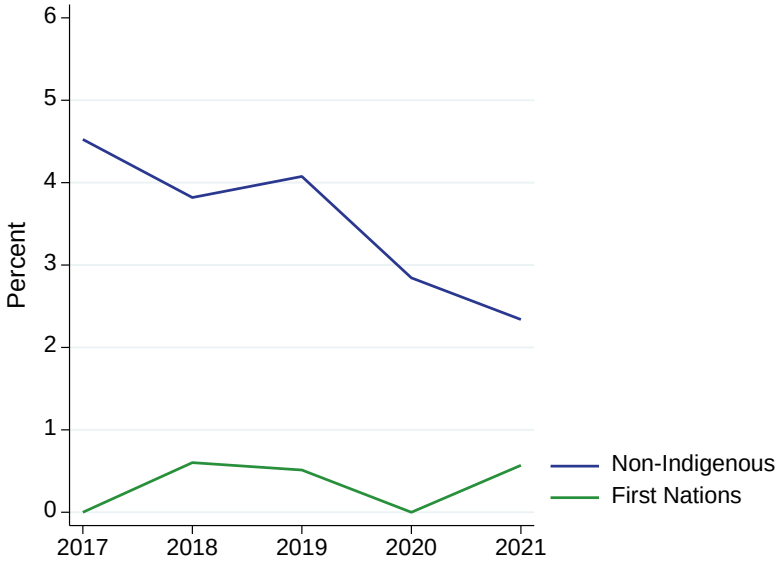


Figure 10.3 - Percentage of New Patients Commencing with Pre-emptive Kidney Transplant – Australia



Primary Kidney Disease

The primary kidney diseases of new Australian patients over 2017-2021 are shown in table 10.2. The proportion of First Nations patients with diabetic nephropathy was substantially higher than for non-Indigenous patients.

Please note that primary kidney disease coding in ANZDATA is currently based on a legacy classification system derived from historical European Renal Association/European Dialysis and Transplantation Association classifications. The Registry recognises that in some cases, these diagnoses have failed to keep up to date with an evolving understanding of kidney pathology, particularly in the categorisation of glomerular disease and inherited conditions. New categories of primary kidney disease are being introduced for the 2022 survey.

ANZDATA appreciates that the underlying aetiology of kidney disease for many First Nations Australians is a combination of complex factors many of which are reflective of the ongoing impacts of colonisation in Australia. The data collected by ANZDATA is limited to one nominated primary kidney disease aetiology which oversimplifies and underrepresents these impacts and should be interpreted as such.

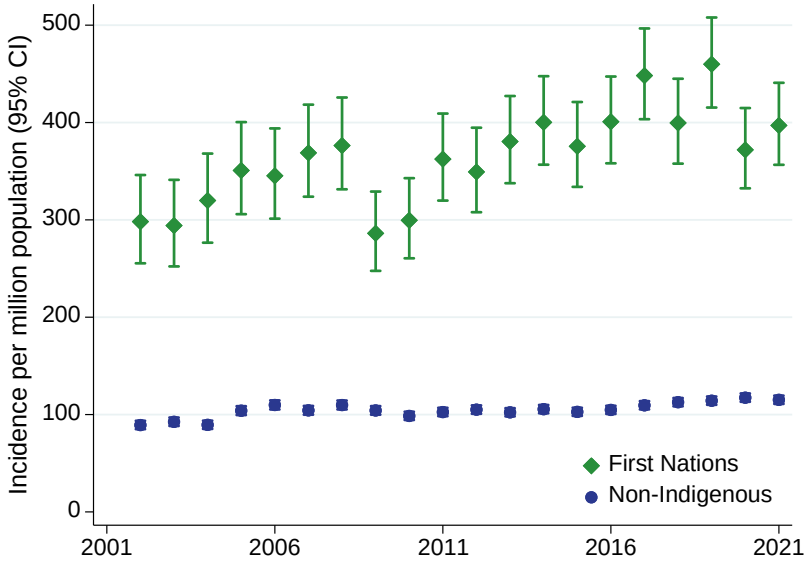
Table 10.2 Primary Kidney Disease of New Patients Australia 2017-2021

Primary Kidney Disease	First Nations	Non-Indigenous
Diabetic Kidney Disease	1213 (69%)	4822 (35%)
Glomerular Disease	149 (8%)	2540 (18%)
Hypertension	109 (6%)	1847 (13%)
Polycystic Disease	12 (1%)	941 (7%)
Reflux Nephropathy	24 (1%)	274 (2%)
Other	137 (8%)	2443 (18%)
Uncertain	86 (5%)	849 (6%)
Not reported	30 (2%)	188 (1%)
Total	**1760**	**13904**

Incidence Rates

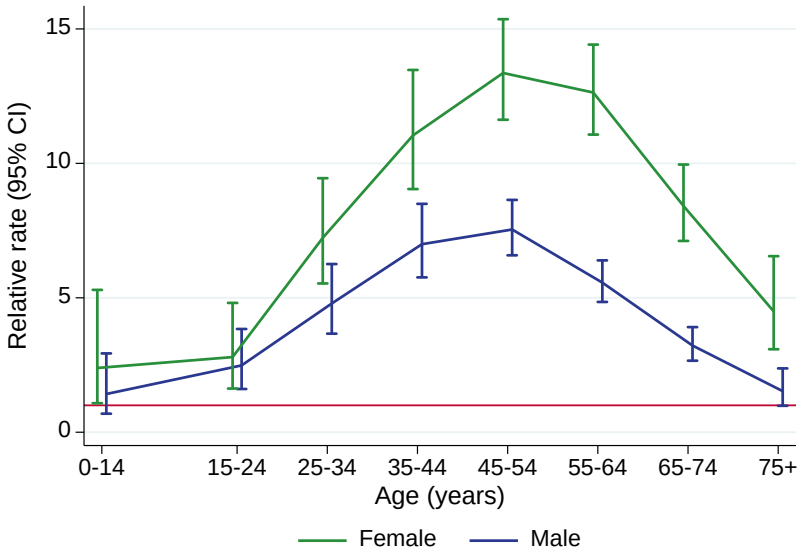
Overall, the incidence rates (per million of population) of kidney failure with replacement therapy for First Nations patients were markedly and persistently higher than those for non-Indigenous patients (figure 10.4). There are a number of factors which contribute to incident numbers of KRT (among both First Nations and non-Indigenous people). These may include: underlying rates of diabetes or other medical conditions, rates of disease progression, referral patterns, access to treatment and patient treatment decisions. First Nations Australians also experience the ongoing health impacts of institutional racism and colonisation.

Figure 10.4 - Unadjusted Incident KRT Rate – Australia



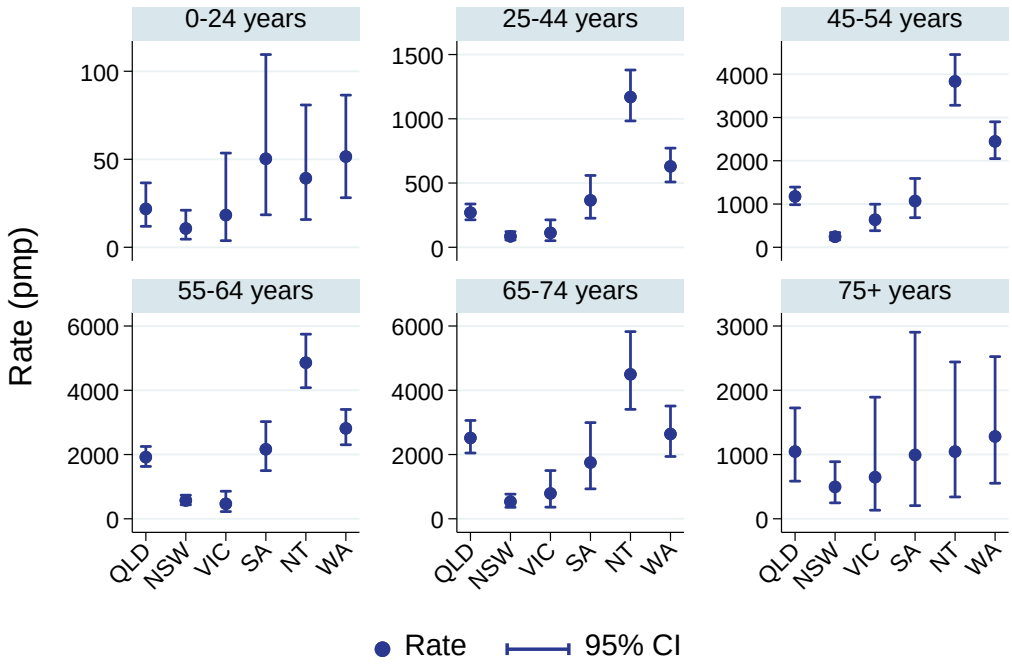
First Nations Australians experience higher rates of kidney failure at all age groups over 15 years of age. This disparity is greater among First Nations women and shows a particular pattern with age with the highest relative rates in the 35-64 year age group (figure 10.5).

Figure 10.5 - Relative Incidence Rate of Treated Kidney Failure for First Nations Patients by Gender (Comparison to Non-Indigenous Australians) - 2017-2021



There is also considerable variation in the incidence of kidney replacement therapy for First Nations Australians across Australian States and Territories (figure 10.6; note that the Y axis scales vary). Data are shown for a five-year period given the small numbers in some locations.

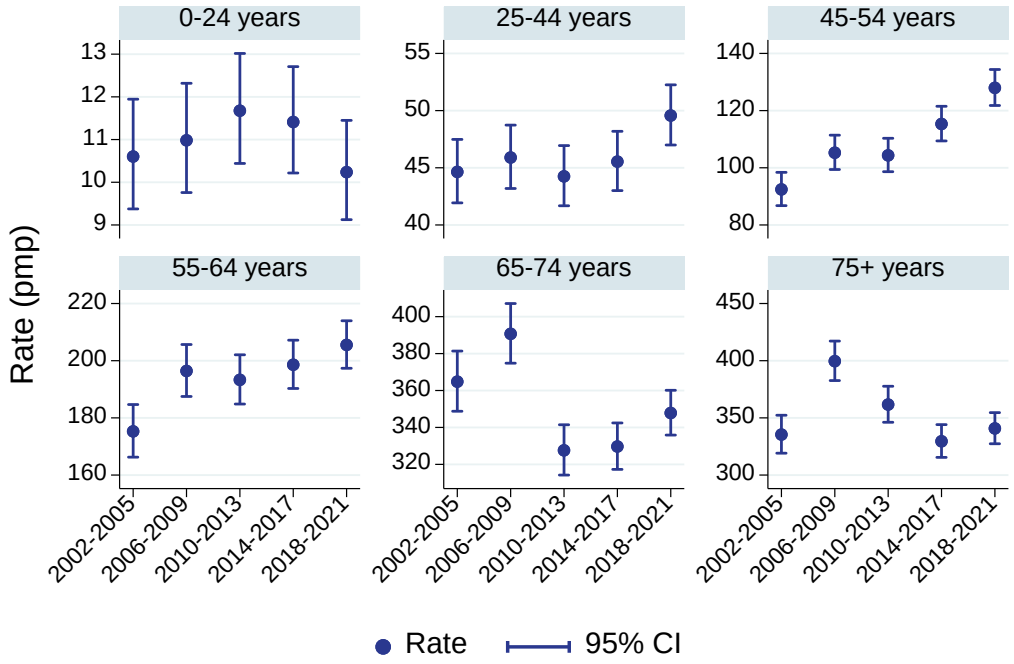
Figure 10.6 - Age-specific Incidence Rates of Treated Kidney Failure - Among First Nations Australians, by State and Age at KRT start 2017-2021



Note the Y axis scales vary between panels

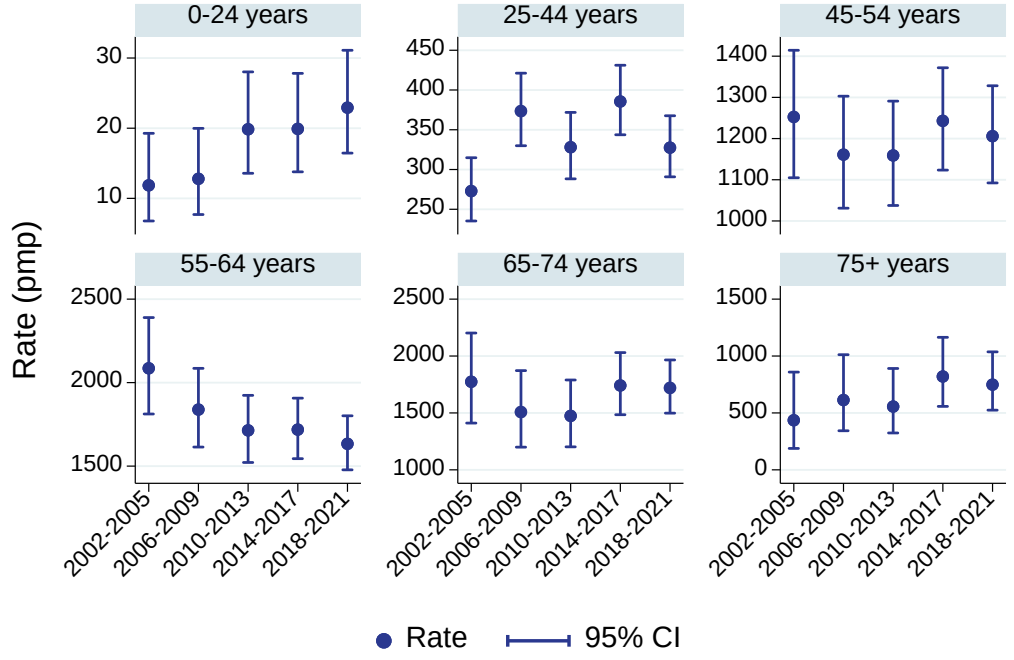
The trends in age-specific rates for the non-Indigenous and First Nations populations are shown in figure 10.7 (note that the Y axis scales vary).

Figure 10.7.1 - Age-specific Incidence Rates of Treated Kidney Failure - Non-Indigenous, Australia



Note the Y axis scales vary between panels

Figure 10.7.2 - Age-specific Incidence Rates of Treated Kidney Failure - First Nations, Australia



Note the Y axis scales vary between panels

Prevalent Patients

The number of First Nations Australians with treated kidney failure at the end of 2021 increased from 2488 persons in 2020 to 2568 persons (table 10.3).

There were marked differences in treatment modalities for First Nations Australians (figures 10.8 and 10.9). Most First Nations Australians were treated with facility-based haemodialysis (74%), with very few accessing home haemodialysis (5%), long-term peritoneal dialysis (6%), or kidney transplantation (15%). The proportion of First Nations Australians with a kidney transplant as long-term treatment for kidney failure was 15% during 2021 compared with half (49%) of non-Indigenous Australians. Only 5% of First Nations Australians accessed home-based haemodialysis compared with 10% of non-Indigenous Australians.

Table 10.3 Prevalent Patients by Ethnicity and Treatment Modality Australia 2017-2021

Year	Modality	First Nations	Non-Indigenous
2017	**HD**	1767 (81%)	8654 (40%)
	% HD at home*	6%	11%
	PD	147 (7%)	2197 (10%)
	Transplant	279 (13%)	10573 (49%)
2018	**HD**	1826 (80%)	8975 (40%)
	% HD at home*	5%	10%
	PD	154 (7%)	2208 (10%)
	Transplant	309 (13%)	11068 (50%)
2019	**HD**	1922 (79%)	9417 (41%)
	% HD at home*	5%	10%
	PD	161 (7%)	2174 (9%)
	Transplant	341 (14%)	11546 (50%)
2020	**HD**	1969 (79%)	9811 (41%)
	% HD at home*	6%	10%
	PD	150 (6%)	2338 (10%)
	Transplant	369 (15%)	11838 (49%)
2021	**HD**	2021 (79%)	10241 (41%)
	% HD at home*	5%	10%
	PD	149 (6%)	2470 (10%)
	Transplant	398 (15%)	12063 (49%)

*Includes Community House HD

Figure 10.8.1 - Prevalent Patients by Modality - Australia - First Nations

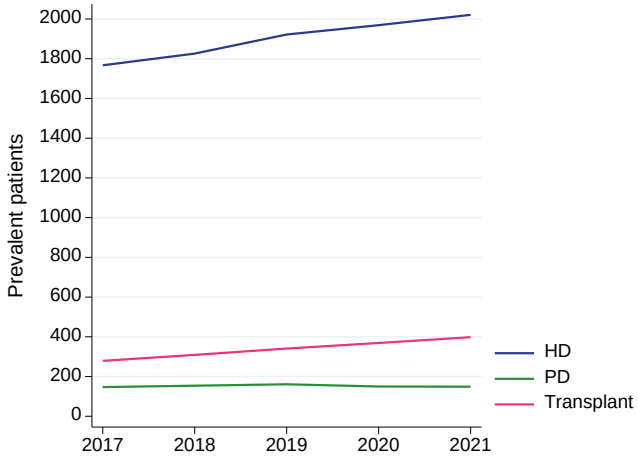


Figure 10.8.2 - Prevalent Patients by Modality - Australia - Non-Indigenous

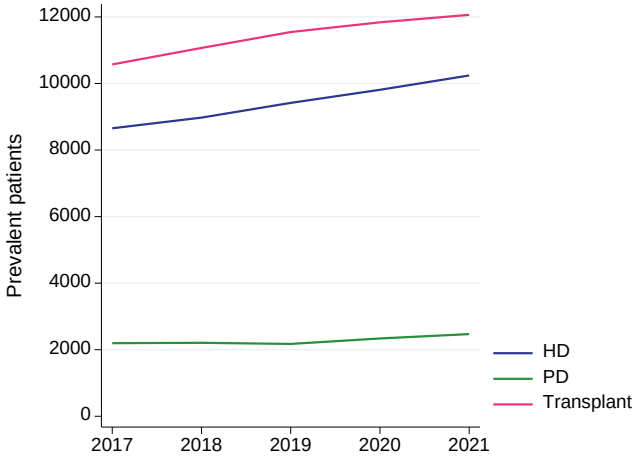
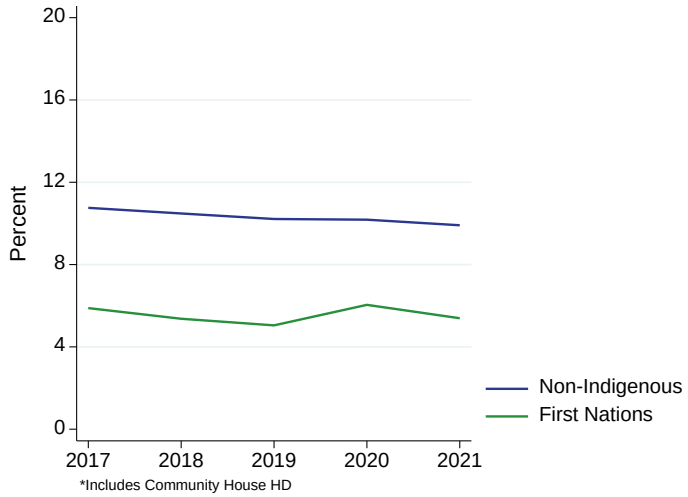


Figure 10.9 - Prevalent Haemodialysis at Home (% of all HD) by Ethnicity – Australia*



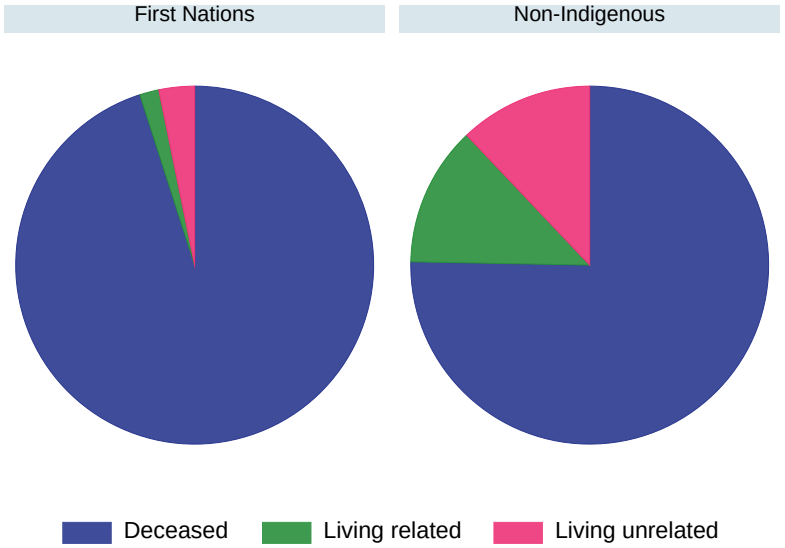
Transplantation

In Australia, the proportion of First Nations patients with kidney failure who receive a kidney transplant is very low relative to the number receiving dialysis (table 10.4). Information on donor type is shown in figure 10.10 and trends are shown in figure 10.11. There are substantially lower rates of transplantation from living donor for First Nations Australians.

Table 10.4 Number of Transplant Recipients (per 1000 dialysis patients) by Ethnicity Australia 2012-2021

Year	Donor Type	First Nations	Non-Indigenous
2012	DD	21 (15)	558 (56)
	LD	0 (0)	217 (22)
	Total	**21 (15)**	**775 (77)**
2013	DD	30 (20)	579 (56)
	LD	1 (1)	237 (23)
	Total	**31 (21)**	**816 (80)**
2014	DD	35 (22)	584 (55)
	LD	4 (2)	246 (23)
	Total	**39 (24)**	**830 (79)**
2015	DD	33 (19)	653 (61)
	LD	3 (2)	218 (20)
	Total	**36 (21)**	**871 (81)**
2016	DD	32 (18)	761 (71)
	LD	2 (1)	227 (21)
	Total	**34 (19)**	**988 (92)**
2017	DD	33 (17)	770 (71)
	LD	2 (1)	245 (23)
	Total	**35 (18)**	**1015 (94)**
2018	DD	49 (25)	796 (71)
	LD	3 (2)	215 (19)
	Total	**52 (26)**	**1011 (90)**
2019	DD	54 (26)	763 (66)
	LD	2 (1)	223 (19)
	Total	**56 (27)**	**986 (85)**
2020	DD	48 (23)	626 (52)
	LD	0 (0)	172 (14)
	Total	**48 (23)**	**798 (66)**
2021	DD	49 (23)	579 (46)
	LD	3 (1)	188 (15)
	Total	**52 (24)**	**767 (60)**

Figure 10.10 - Donor Type by Ethnicity - Australia 2012-2021



Trends in the number of kidney transplants for First Nations and non-Indigenous patients are shown in figure 10.11 (note differences in y-axes). There has been a sustained increase in transplantation rates for First Nations Australians since 2018. Overall transplant numbers decreased in both populations in 2020, likely in part due to the impacts of the global COVID-19 pandemic.

Figure 10.11 - Donor Type by Ethnicity and Year – Australia

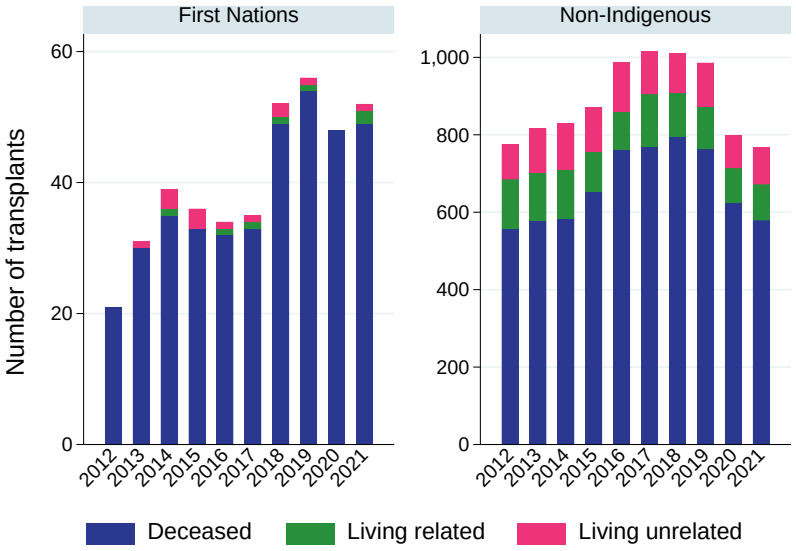


Figure 10.12 shows the cumulative incidence curve of primary transplant after starting KRT (utilising competing risk techniques to account for the effect of the competing risk of death). Figure 10.13 shows the cumulative incidence curves of primary transplant after starting KRT by era.

Figure 10.12 - Time to Primary Transplant from KRT Start - Australian Incident KRT Patients 2012-2021

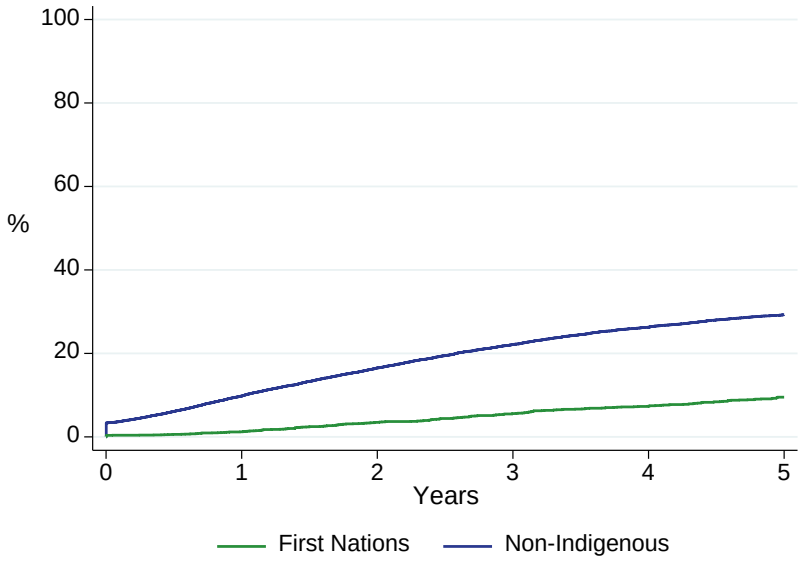
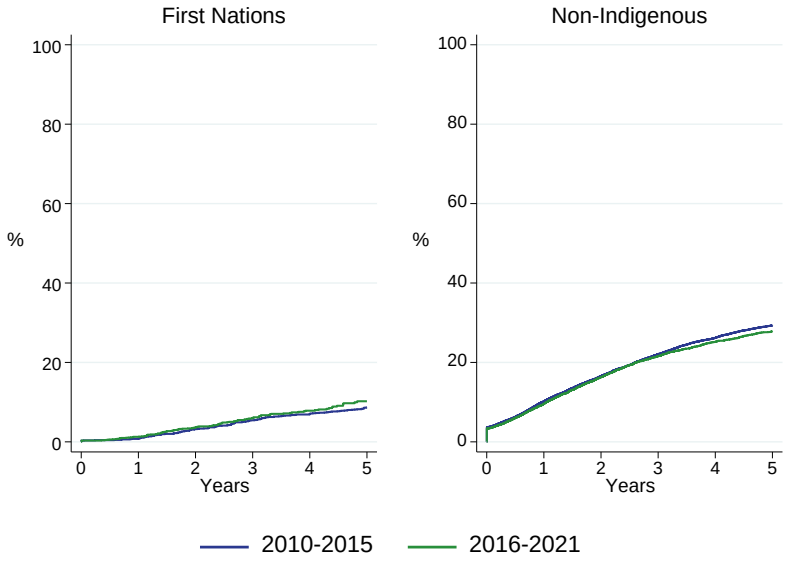


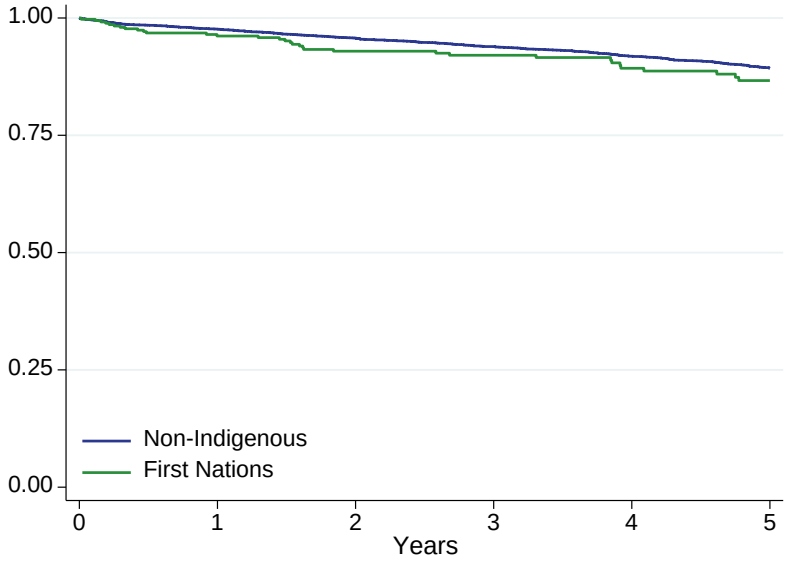
Figure 10.13 - Time to Primary Transplant from KRT Start by Era - Australian Incident KRT Patients



Transplant Survival

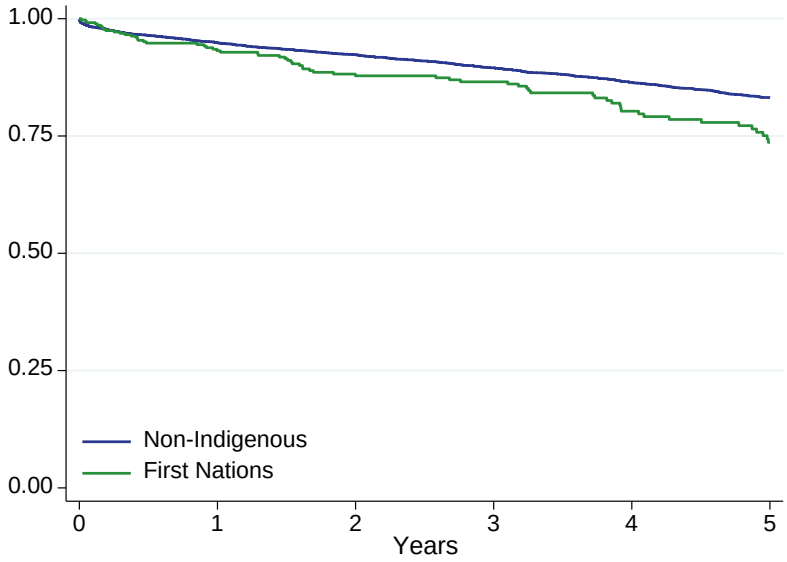
Patient survival after kidney transplantation from a deceased donor (DD) for First Nations and non-Indigenous recipients is shown in figure 10.14. 87% of First Nations Australians and 89% of non-Indigenous persons were alive 5 years after kidney transplantation from a deceased donor.

Figure 10.14 - Patient Survival, Recipients of Primary DD Transplants - Australia 2012-2021



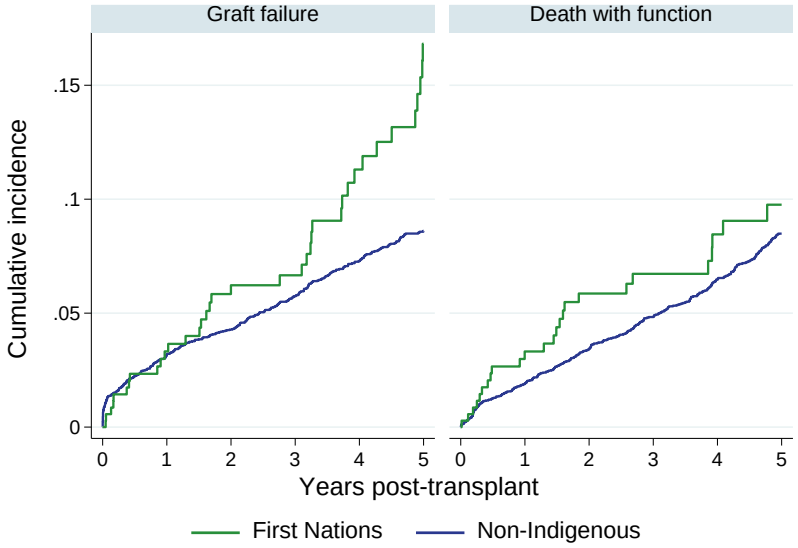
Kidney transplants may be lost, either through the transplant failing or the patient dying with a functioning kidney. Transplant kidney function at 5 years post-transplant was recorded in 74% of First Nations recipients compared with 83% of non-Indigenous persons (figure 10.15).

Figure 10.15 - Graft Survival, Recipients of Primary DD Transplants - Australia 2012-2021



Cumulative incidence curves (utilising competing risk techniques to account for the effects of both components of graft failure) are shown for First Nations transplant outcomes in figure 10.16.

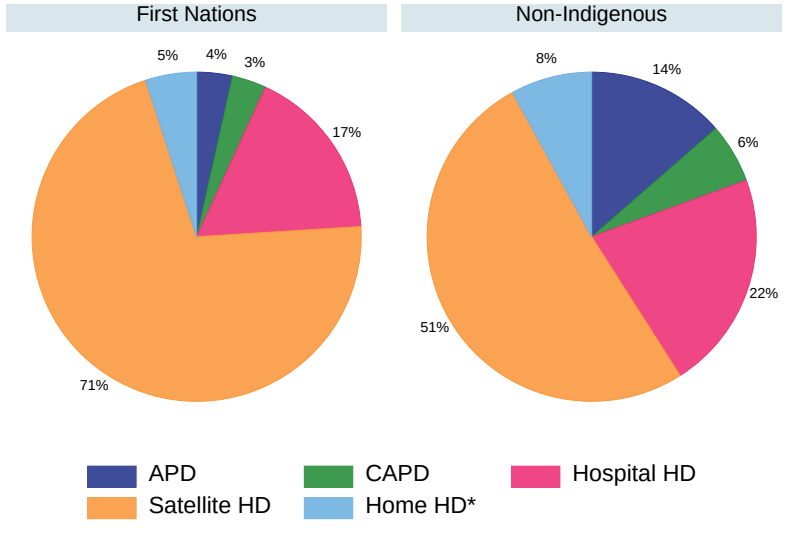
Figure 10.16 - Transplant Outcomes - Primary Deceased Donor Kidney-only Transplants Australia 2012-2021



Dialysis

The distribution of dialysis modality is shown graphically in figure 10.17. For First Nations Australians, the predominant modality is satellite haemodialysis. Access to home-based dialysis care including home and community house haemodialysis and peritoneal dialysis is proportionally much lower. First Nations Australians utilise automated peritoneal dialysis (APD) at much lower rates than non-Indigenous Australians.

Figure 10.17 - Dialysis Modality End 2021 - Australia, by Ethnicity



*Includes Community House HD

Figure 10.18 shows the cumulative incidence curve of patient mortality after starting dialysis (utilising competing risk techniques to account for the effect of the competing risk of transplantation). These are unadjusted figures and differences between populations including age distribution impact mortality estimates. Figure 10.19 shows the cumulative incidence curves of patient mortality after starting dialysis by age group.

Figure 10.18 - Incident Dialysis Patient Mortality - Australia 2012-2021

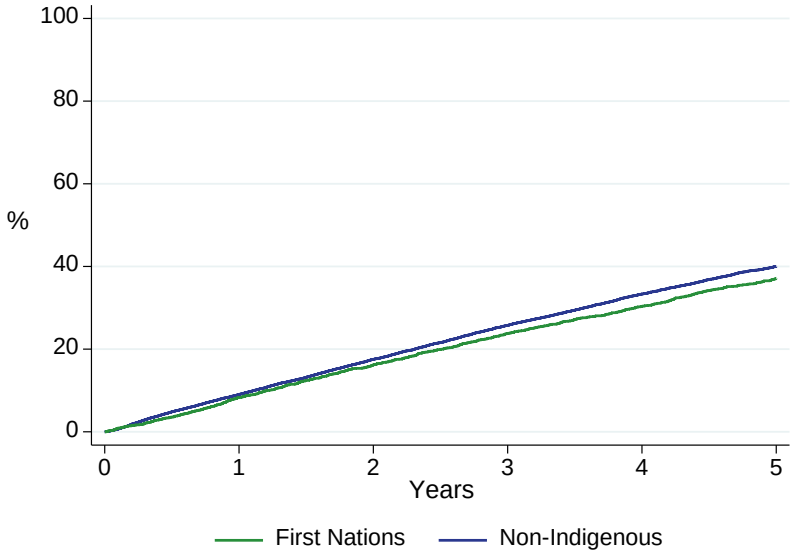
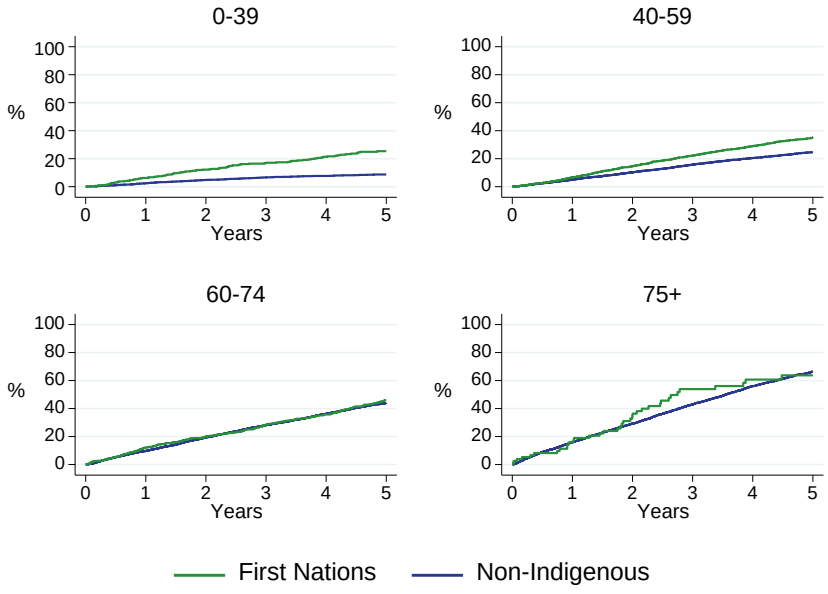


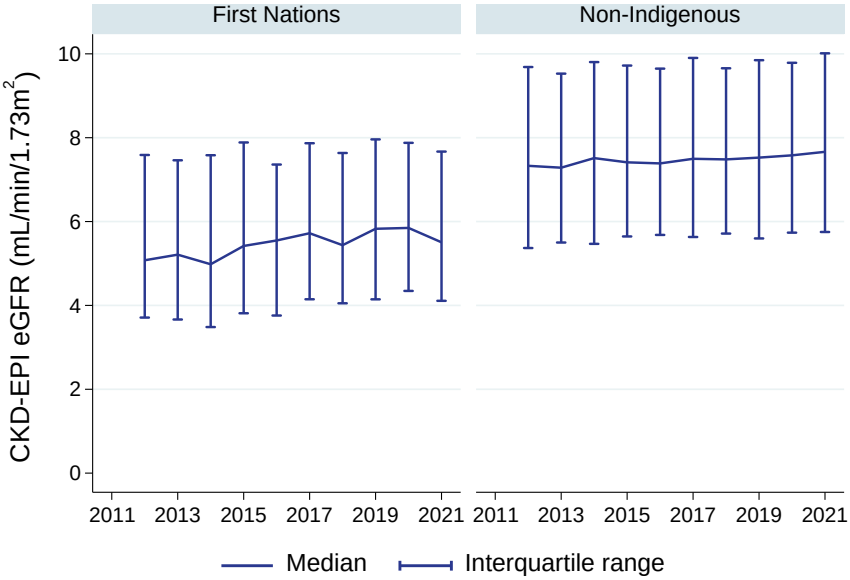
Figure 10.19 - Incident Dialysis Patient Mortality by Age Group - Australia 2012-2021



Timing of Dialysis Initiation

The level of kidney function at which dialysis is commenced based on estimated Glomerular Filtration Rate (eGFR) for First Nations and non-Indigenous patients is shown in figure 10.20.

Figure 10.20 - eGFR at Dialysis Initiation – Australia



Incidence and Prevalence by State/Territory

The next few pages show a variety of figures that summarise various key rates (incidence, prevalence, transplant rates) for First Nations Australians by state/territory. In large part they show information from previous pages, in a series of differing formats.

State/Territory Incidence

There is marked variation in the incidence of kidney replacement therapy between States and Territories in Australia. NT had the highest national incidence for First Nations Australians treated for kidney failure at 1229 per million of population in 2021; the next highest was in WA (761 pmp) (figure 10.21).

Kidney transplantation is offered in major metropolitan centres in NSW, QLD, WA, VIC and SA. There is a marked State/Territory variation in the incidence of kidney transplantation relative to the size of the dialysis population in Australia and between years (figure 10.22).

Figure 10.21 - Incidence of New First Nations Australian Patients

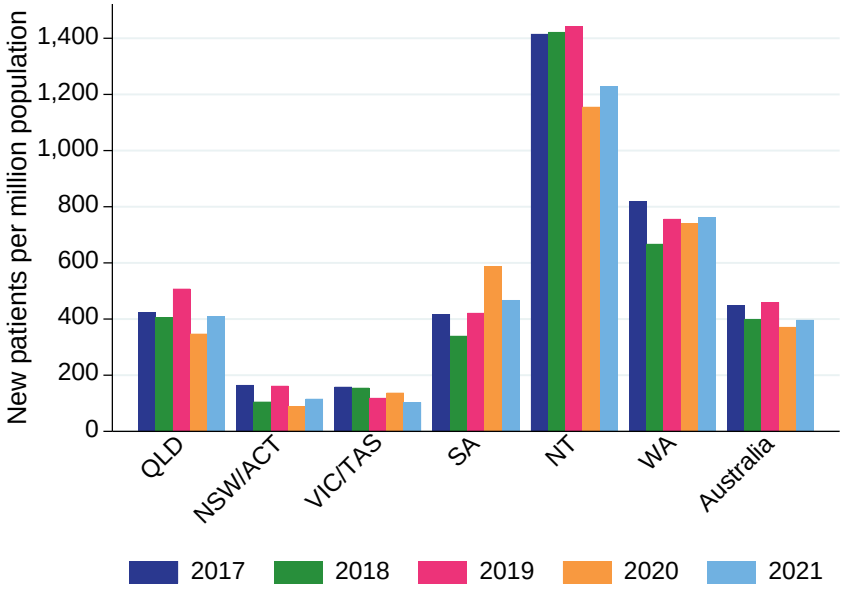


Figure 10.22 - Incidence of New Transplants First Nations Australian Patients - By referring state

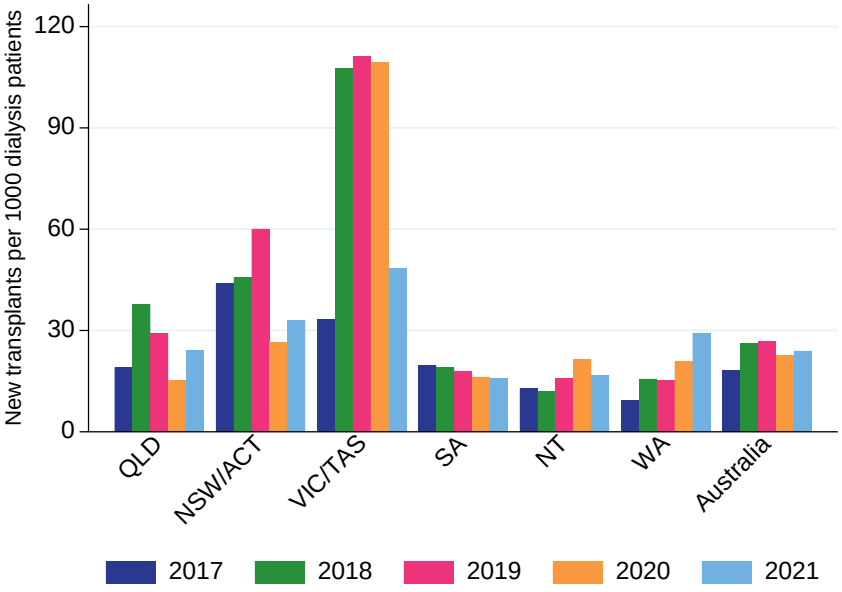
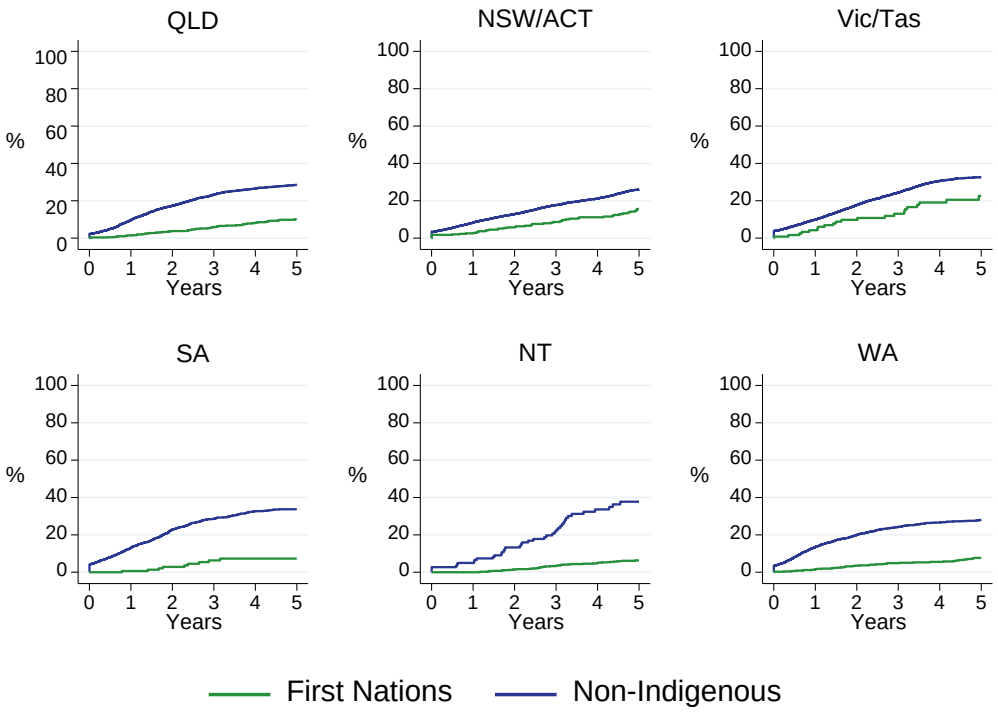


Figure 10.23 shows the cumulative incidence curve of primary transplant after starting KRT (utilising competing risk techniques to account for the effect of the competing risk of death), with varying patterns between different states and territories.

Figure 10.23 - Time to Primary Transplant from KRT Start by State - Australian Incident KRT Patients 2012-2021



Dialysis by Resident State

Treatment patterns for First Nations Australians vary by state. The highest rates for haemodialysis are in the Northern Territory, Western Australia and South Australia. The highest rates for peritoneal dialysis have historically been in Queensland and Western Australia. However, the Northern Territory showed sustained increase in prevalent patients utilising peritoneal dialysis over 2018-2019, and since 2019, have recorded the highest national prevalence rates for PD.

Figure 10.24 - Prevalent First Nations Australian Haemodialysis Patients

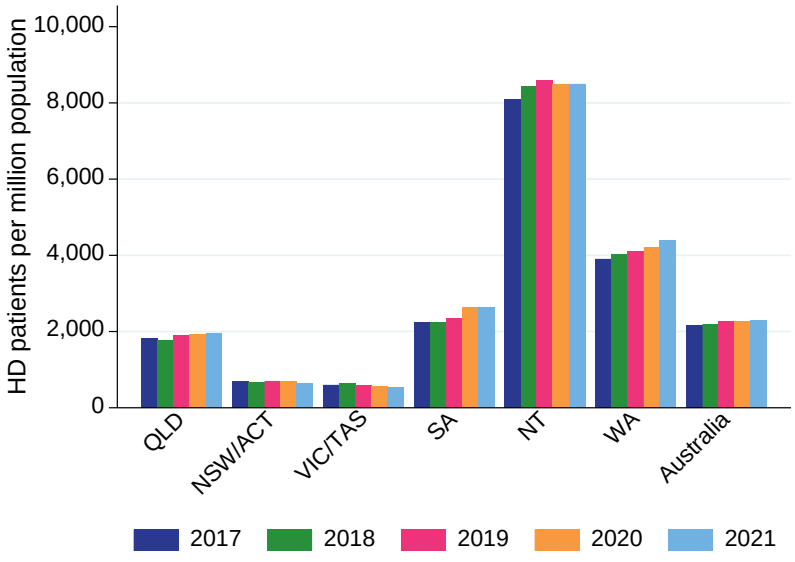
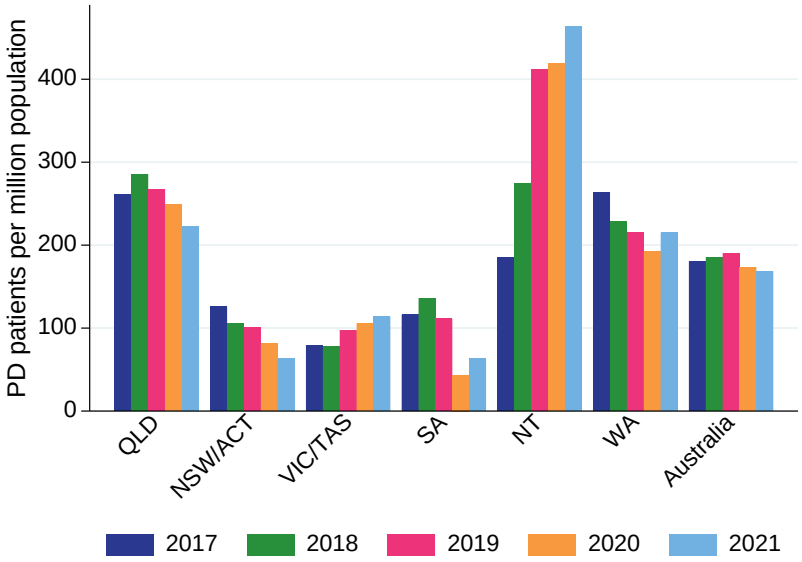


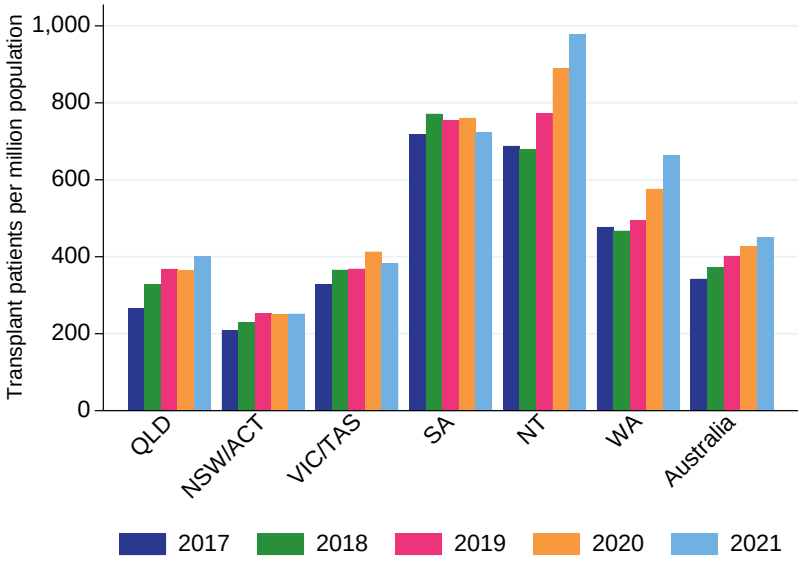
Figure 10.25 - Prevalent First Nations Australian Peritoneal Dialysis Patients



Transplantation by Referring State/Territory

Rates of prevalent transplants vary substantially between states/territories with the highest prevalence rates in the Northern Territory, South Australia and Western Australia. These rates are per First Nations population, not per dialysis patient, and they reflect both background rates of kidney disease and transplant practices. Transplant rates per dialysis patient are presented in Chapter 7 of this Report. Transplantation prevalence rates appear to be increasing overall, and in most jurisdictions, apart from SA (figure 10.26).

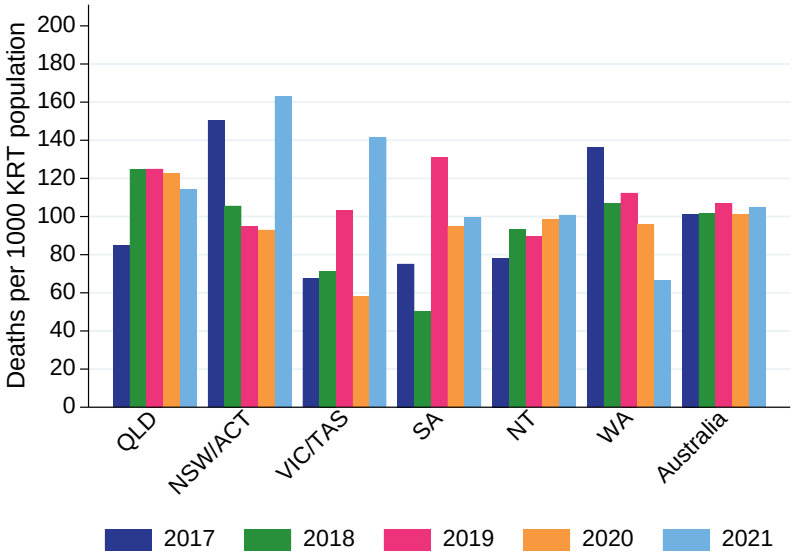
Figure 10.26 - Prevalent First Nations Australian Transplant Patients



Deaths by Resident State/Territory

State based mortality rates for First Nations Australians on kidney replacement therapy are shown relative to the size of the KRT population in figure 10.27. The differences in death rates between states are likely to reflect a combination of the differences in kidney failure prevalence, practice patterns and patient factors.

Figure 10.27 - Deaths of First Nations Australian KRT patients



Geographical Distribution

Figure 10.28 shows the number of incident First Nations Australian kidney replacement therapy patients by postcode. The percentage of prevalent kidney replacement therapy patients identifying as First Nations Australian is summarised in figure 10.29 (by state) and the number of prevalent First Nations Australian dialysis patients in figure 10.30 by statistical area level 3 (SA3, obtained by mapping postcodes to SA3). Note that some postcodes are distributed over more than one SA3. Mapping data are based on the 2016 Australian Statistical Geography Standard courtesy of the Australian Bureau of Statistics (2016)[3].

Figure 10.28 - Incident First Nations Australian Kidney Replacement Therapy Patients 2017-2021 - By Postcode

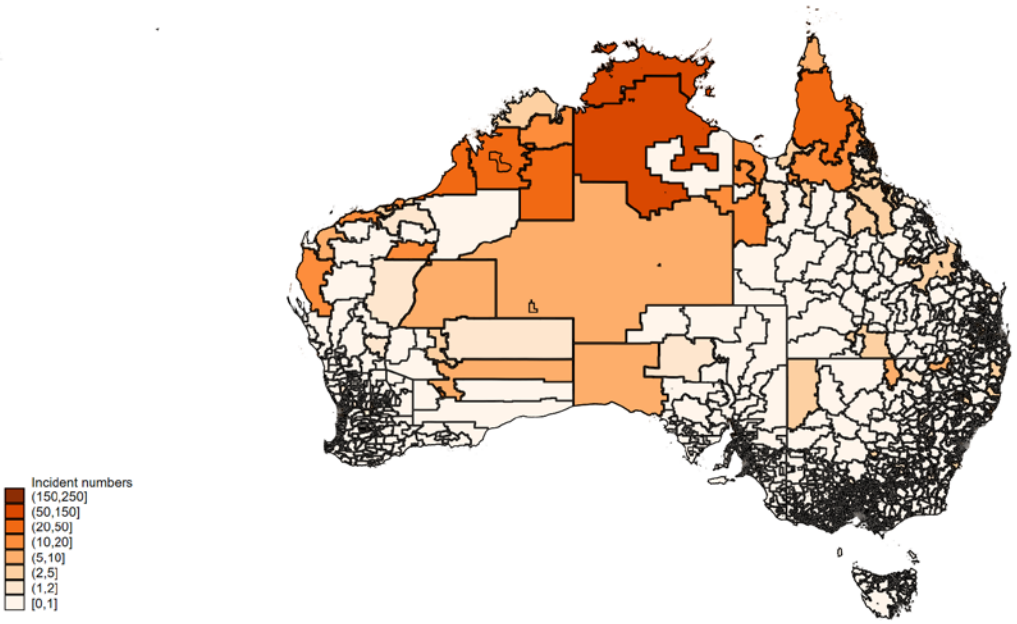


Figure 10.29 - Percentage of Prevalent Kidney Replacement Therapy Patients Identifying as First Nations Australian - 2021 By State

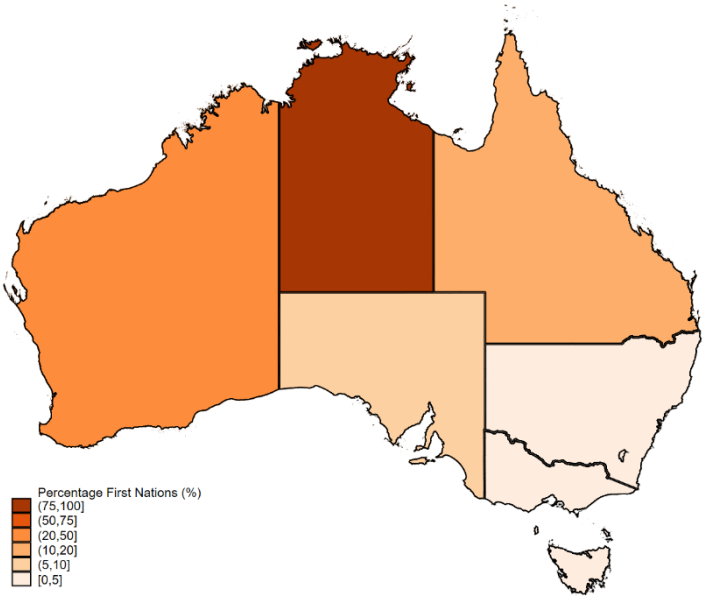
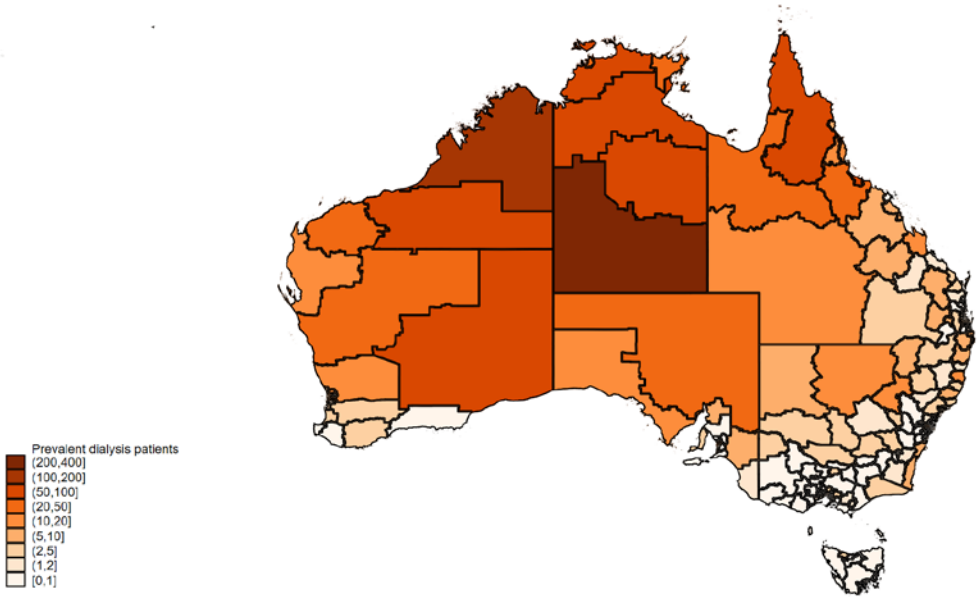


Figure 10.30 - Prevalent First Nations Australian Dialysis Patients 2021 - By Statistical Area Level 3



Late Referral

The percentage of First Nations Australians who experienced late referral to a nephrologist prior to commencing KRT (<3 months between referral and review by a nephrologist and KRT start) is shown in table 10.5.

Table 10.5 Percentage of Late Referral by Ethnicity Australia 2017-2021

Year	First Nations	Non-Indigenous
2017	16%	18%
2018	19%	17%
2019	15%	19%
2020	21%	16%
2021	19%	16%

Vascular Access

Incident Vascular Access

Incident vascular access data are presented in table 10.6, and prevalent data in table 10.7.

Table 10.6 Incident Vascular Access Australia 2017-2021

Year	Vascular access	First Nations	Non-Indigenous
2017	AVF	116 (37%)	750 (42%)
	AVG	9 (3%)	22 (1%)
	CVC	190 (60%)	987 (55%)
	Not reported	1 (<1%)	24 (1%)
2018	AVF	111 (38%)	768 (41%)
	AVG	3 (1%)	21 (1%)
	CVC	176 (61%)	1085 (57%)
	Not reported	0 (0%)	22 (1%)
2019	AVF	140 (42%)	809 (40%)
	AVG	2 (1%)	23 (1%)
	CVC	191 (57%)	1171 (58%)
	Not reported	1 (<1%)	8 (<1%)
2020	AVF	104 (37%)	833 (42%)
	AVG	1 (<1%)	24 (1%)
	CVC	176 (63%)	1128 (57%)
	Not reported	0 (0%)	6 (<1%)
2021	AVF	128 (41%)	784 (40%)
	AVG	1 (<1%)	22 (1%)
	CVC	181 (58%)	1139 (58%)
	Not reported	0 (0%)	5 (<1%)

Prevalent Vascular Access

Table 10.7 Prevalent Vascular Access Australia 2017-2021

Year	Vascular access	First Nations	Non-Indigenous
2017	AVF	1387 (78%)	6599 (76%)
	AVG	51 (3%)	430 (5%)
	CVC	211 (12%)	1325 (15%)
	Not reported	118 (7%)	300 (3%)
2018	AVF	1433 (78%)	6830 (76%)
	AVG	51 (3%)	417 (5%)
	CVC	240 (13%)	1481 (17%)
	Not reported	102 (6%)	247 (3%)
2019	AVF	1548 (81%)	6982 (74%)
	AVG	53 (3%)	412 (4%)
	CVC	239 (12%)	1636 (17%)
	Not reported	82 (4%)	387 (4%)
2020	AVF	1577 (80%)	7358 (75%)
	AVG	57 (3%)	441 (4%)
	CVC	224 (11%)	1741 (18%)
	Not reported	111 (6%)	271 (3%)
2021	AVF	1592 (79%)	7628 (74%)
	AVG	49 (2%)	408 (4%)
	CVC	229 (11%)	1847 (18%)
	Not reported	151 (7%)	358 (3%)

Patient Flow

Table 10.8 shows the overall flow of First Nations Australian patients, by state. For new and pre-emptive transplants, numbers are shown by referring state. The differences in death rates between states are likely to reflect a combination of the differences in kidney failure prevalence, practice patterns and patient factors.

Table 10.8 Patient Flow (pmp) First Nations Australian Patients 2017-2021

Year	Event	QLD	NSW/ACT	VIC/TAS	SA	NT	WA	Australia
2017	**New patients**	96 (425)	46 (165)	14 (159)	18 (417)	107 (1416)	84 (818)	**365 (448)**
	New transplants	9 (40)	10 (36)	2 (23)	2 (46)	8 (106)	4 (39)	**35 (43)**
	Pre-emptive transplants	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	**0 (0)**
	Prevalent dialysis	470 (2079)	228 (819)	60 (680)	102 (2364)	626 (8282)	428 (4170)	**1914 (2350)**
	Prevalent transplants	60 (265)	58 (208)	29 (329)	31 (718)	52 (688)	49 (477)	**279 (343)**
	Total prevalence	530 (2344)	286 (1027)	89 (1009)	133 (3082)	678 (8970)	477 (4648)	**2193 (2693)**
	Deaths	45 (199)	40 (144)	6 (68)	10 (232)	52 (688)	65 (633)	**218 (268)**
2018	**New patients**	94 (407)	30 (106)	14 (155)	15 (340)	109 (1422)	70 (668)	**332 (400)**
	New transplants	18 (78)	10 (35)	7 (78)	2 (45)	8 (104)	7 (67)	**52 (63)**
	Pre-emptive transplants	1 (4)	0 (0)	1 (11)	0 (0)	0 (0)	0 (0)	**2 (2)**
	Prevalent dialysis	477 (2065)	219 (771)	65 (721)	105 (2382)	667 (8705)	447 (4265)	**1980 (2383)**
	Prevalent transplants	76 (329)	65 (229)	33 (366)	34 (771)	52 (679)	49 (468)	**309 (372)**
	Total prevalence	553 (2394)	284 (1000)	98 (1087)	139 (3154)	719 (9383)	496 (4733)	**2289 (2755)**
	Deaths	67 (290)	30 (106)	7 (78)	7 (159)	67 (874)	53 (506)	**231 (278)**
2019	**New patients**	120 (508)	47 (162)	11 (119)	19 (422)	112 (1442)	81 (757)	**390 (460)**
	New transplants	15 (64)	14 (48)	7 (76)	2 (44)	11 (142)	7 (65)	**56 (66)**
	Pre-emptive transplants	0 (0)	2 (7)	0 (0)	0 (0)	0 (0)	0 (0)	**2 (2)**
	Prevalent dialysis	513 (2172)	233 (805)	63 (683)	111 (2465)	700 (9012)	463 (4326)	**2083 (2456)**
	Prevalent transplants	87 (368)	73 (252)	34 (369)	34 (755)	60 (772)	53 (495)	**341 (402)**
	Total prevalence	600 (2540)	306 (1057)	97 (1052)	145 (3221)	760 (9785)	516 (4821)	**2424 (2859)**
	Deaths	72 (305)	29 (100)	10 (108)	19 (422)	67 (863)	57 (533)	**254 (300)**
2020	**New patients**	84 (348)	26 (88)	13 (138)	27 (587)	91 (1156)	81 (741)	**322 (372)**
	New transplants	8 (33)	6 (20)	7 (74)	2 (43)	15 (191)	10 (91)	**48 (55)**
	Pre-emptive transplants	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	**0 (0)**
	Prevalent dialysis	524 (2170)	227 (768)	64 (678)	123 (2674)	701 (8905)	480 (4391)	**2119 (2448)**
	Prevalent transplants	88 (364)	74 (250)	39 (413)	35 (761)	70 (889)	63 (576)	**369 (426)**
	Total prevalence	612 (2534)	301 (1019)	103 (1091)	158 (3434)	771 (9794)	543 (4967)	**2488 (2874)**
	Deaths	75 (311)	28 (95)	6 (64)	15 (326)	76 (965)	52 (476)	**252 (291)**
2021	**New patients**	101 (409)	35 (116)	10 (103)	22 (468)	98 (1229)	85 (761)	**351 (397)**
	New transplants	13 (53)	7 (23)	3 (31)	2 (43)	12 (150)	15 (134)	**52 (59)**
	Pre-emptive transplants	1 (4)	0 (0)	0 (0)	0 (0)	0 (0)	1 (9)	**2 (2)**
	Prevalent dialysis	540 (2186)	212 (703)	62 (642)	127 (2701)	715 (8964)	514 (4603)	**2170 (2455)**
	Prevalent transplants	99 (401)	76 (252)	37 (383)	34 (723)	78 (978)	74 (663)	**398 (450)**
	Total prevalence	639 (2587)	288 (955)	99 (1024)	161 (3424)	793 (9942)	588 (5266)	**2568 (2905)**
	Deaths	72 (291)	47 (156)	13 (135)	16 (340)	79 (990)	39 (349)	**266 (301)**

Cause of Death

The causes of death in 2021 are shown in figure 10.31 and table 10.9, categorised by ethnicity and modality at time of death.

Figure 10.31 - Cause of Death by Modality and Ethnicity, Australia - Deaths Occurring During 2021

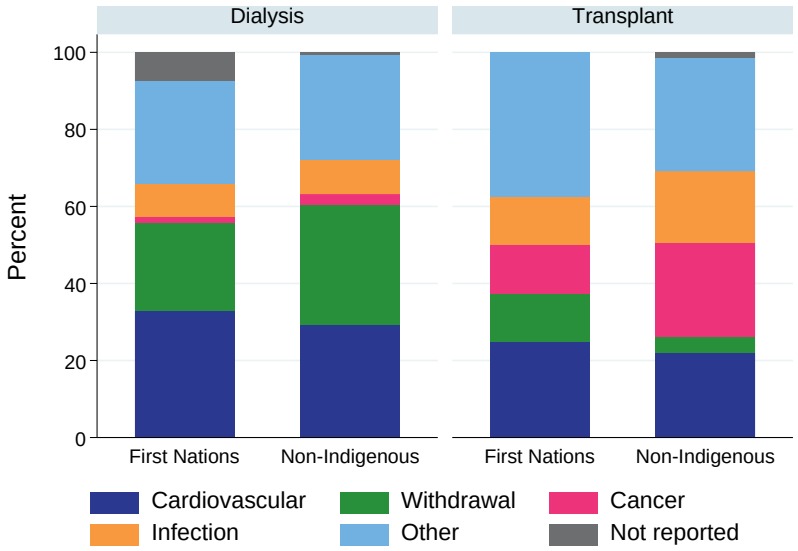


Table 10.9 Cause of Death by Modality and Ethnicity, Australia 2021

Modality	Cause of death	First Nations	Non-Indigenous
Dialysis	**Cardiovascular**	85 (33%)	501 (29%)
	Withdrawal	59 (23%)	529 (31%)
	Cancer	4 (2%)	48 (3%)
	Infection	22 (9%)	152 (9%)
	Other	69 (27%)	467 (27%)
	Not reported	19 (7%)	9 (1%)
	Total	**258**	**1706**
Transplant	**Cardiovascular**	2 (25%)	65 (22%)
	Withdrawal	1 (13%)	12 (4%)
	Cancer	1 (13%)	72 (24%)
	Infection	1 (13%)	55 (19%)
	Other	3 (38%)	87 (29%)
	Not reported	0 (0%)	4 (1%)
	Total	**8**	**295**

References

[1] Australian Bureau of Statistics, 2019, Australian Standard Classification of Cultural and Ethnic Groups (ASCCEG), December 2019, viewed 23 Oct 2020, https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1249.0Main+Features12019?OpenDocument

[2] Australian Bureau of Statistics, 2021, Quarterly Population Estimates (ERP), by State/Territory, Sex and Age, Jun 2021, viewed 22 Dec 2021, https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/jun-2021

[3] Australian Bureau of Statistics, 2016, Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2016, cat. no. 1270.0.55.001, viewed 22 May 2018, http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1270.0.55.001July%202016?OpenDocument