6 Chronic kidney disease in Aboriginal and Torres Strait Islander people

The poor health status and poor health outcomes among the Aboriginal and Torres Strait Islander population is a well known public health problem in Australia. Compared with other Australians, Indigenous Australians, in particular those in remote communities, have excessive chronic disease morbidity and mortality (ABS & AIHW 2003), and chronic kidney disease (CKD) is no exception to this. The impact of kidney disease, particularly ESKD, on Indigenous health was highlighted in an earlier report (ABS & AIHW 1999). Kidney damage, indicated by protein in the urine, is common among Indigenous Australians, and rates of treated end-stage kidney disease have been found in some communities to be up to 30 times the rates among other Australians (Spencer et al. 1998).

Although information on the incidence and prevalence of CKD among Indigenous Australians is not available at the national level, the heavy burden caused by CKD in this population is indicated by the high prevalence of CKD in certain communities, the high incidence and prevalence of treated ESKD, and the high hospitalisation and mortality rates associated with this disease among Indigenous Australians. This chapter outlines the available data relating to CKD in Indigenous Australians, and draws comparisons with other Australians where relevant. The particular challenges faced by Indigenous Australians in accessing health care for CKD are also discussed.

Prevalence of chronic kidney disease and its risk factors

Risk factors for CKD are highly prevalent among Aboriginal and Torres Strait Islander people (ABS & AIHW 2003). Tobacco smoking, poor nutrition, high blood pressure, alcohol abuse, obesity, diabetes, and preventable infections are common in many Aboriginal and Torres Strait Islander communities and have been associated with kidney impairment in this population (McDonald & Russ 2003). Results of the 2001 National Health Survey showed higher rates of diabetes, high blood pressure, smoking and obesity among Indigenous Australians compared with other Australians (ABS 2001). This, along with their poorer socioeconomic status and often remote location leading to poor access to health services, contributes to the increased rates of CKD and other chronic diseases among Indigenous Australians. In particular it is believed that the high incidence of streptococcal skin and throat infections among Indigenous Australians contributes to increased risk of glomerulonephritis (Chadban & Atkins 2005). Low birth weight is also common among Indigenous Australians, and there is evidence that this may be associated with greater risk for kidney disease, independent of other risk factors (Hoy et al. 1998).

Although no national data on CKD in Indigenous Australians are available, several studies have discovered high rates of CKD and indicators of kidney damage among Indigenous communities. McDonald et al. (2003) found that 12% of adults in a remote Aboriginal community in the Northern Territory had stage 3, 4 or 5 CKD and a further 36% had

evidence of reduced kidney function. Rates of treated ESKD in this community were previously known to be 15 times the national rate in the non-Indigenous population. However, although disease and risk factor prevalence are high among Indigenous Australians in general, wide variation is seen between different communities. Hoy et al. (2005) discovered marked variation in rates of smoking, alcohol use, hypertension, diabetes and kidney damage between three remote Aboriginal communities. This suggests that health interventions and preventive strategies for Indigenous Australians need to be adapted to address the different disease profiles of the various communities.

Incidence and prevalence of treated end-stage kidney disease

Between 2001 and 2003, 9% of new patients registered with ANZDATA in Australia identified as Indigenous Australians (514 people). This is a much higher proportion than Indigenous representation in the total population (2.4%). Although Indigenous identification in the ANZDATA Registry is based on hospital records, it is believed that this identification is more complete than in general hospital data, due to the heightened awareness of kidney disease among Indigenous Australians and the prolonged and repeated contact patients have with the hospital renal units (Cass et al. 2001).

The majority of new Indigenous patients between 2001 and 2003 were receiving dialysis, with only 52 transplants performed in Indigenous people (10% of new Indigenous patients). In contrast, 30% of new non-Indigenous patients during this period received kidney transplants. This partly reflects the lower number of donors compatible with Indigenous patients and the generally poorer health status leading to fewer Indigenous patients being suitable candidates for transplant, but these factors do not fully explain the low incidence of transplants in Indigenous Australians, nor their generally poorer survival following transplantation (McDonald 2004; Cass et al. 2003; Spencer et al. 1998). Similar inequalities in access to and survival following kidney transplants are seen in other indigenous populations such as New Zealand Maori, Native Americans and Aboriginal Canadians, but the reasons for these differences are not clear (Cass et al. 2004).

Indigenous Australians beginning kidney replacement therapy in 2001–03 were substantially younger than their non-Indigenous counterparts. Three-fifths (61%) of Indigenous patients were aged less than 55 years, with a median age of 52 years. In contrast, the median age of non-Indigenous patients was 64 years, with only one-third aged less than 55 years. There were more Indigenous females (284 cases, 55%) than males (230 cases, 45%) among these new patients, contrary to the overall pattern among the non-Indigenous treated end-stage kidney disease population (which was 61% male). This may be due to the higher rates of diabetes among Indigenous females.

Incidence rates of treated end-stage kidney disease in Indigenous Australians were higher than in other Australians. The difference was particularly marked at ages 45–54 years and 55–64 years (Table 5.1). Overall there were more than eight times as many Indigenous treated end-stage kidney disease patients as would be expected based on the incidence rates in non-Indigenous Australians.

Table 6.1: Standardised incidence ratios of treated end-stage kidney disease incidence in Indigenous compared with non-Indigenous Australians, 2001–2003

Age group	Number of Indigenous treated ESKD patients	Expected number of Indigenous treated ESKD patients[(a)]	Standardised incidence ratio[(b)]
0–34	40	16	2.47
35–44	92	10	9.67
45–54	182	10	17.57
55–64	138	10	14.00
65+	62	13	4.74
All ages	*514*	*59*	*8.72*

(a) Number of treated ESKD patients which would be expected in the Indigenous population if they experienced the same incidence rates as the non-Indigenous population.

(b) Ratio of the actual number of Indigenous treated ESKD patients compared to the expected number.

Source: AIHW analysis of ANZDATA Registry data.

The reasons for the high incidence of treated end-stage kidney disease among Indigenous Australians are not very clear, but are probably related to those factors which contribute to the increased risk of kidney impairment in this population, and lack of access to services for detection and treatment of CKD.

Comorbidities in treated end-stage kidney disease patients

Indigenous patients carry a high level of co-morbidities when they start kidney replacement therapy compared with non-Indigenous patients. This may not only result in poorer health status, decreased quality of life and poorer outcomes of dialysis, but may decrease eligibility for kidney transplant (McDonald & Russ 2003). Among new patients registered with ANZDATA between 2001 and 2003, Indigenous patients were more likely than non-Indigenous patients to have chronic lung disease and coronary artery disease, and much more likely to have diabetes (Table 6.2). Indigenous patients were also more likely than non-Indigenous patients to be current smokers and less likely to be former smokers.

Table 6.2: Comorbidities among new end-stage kidney disease patients, by Indigenous status, 2001–2003

	Indigenous patients (N = 514)	Non-Indigenous patients (N = 5,248)
Chronic lung disease[(a)]	19%	14%
Coronary artery disease[(a)]	43%	39%
Peripheral vascular disease[(a)]	33%	25%
Cerebrovascular disease[(a)]	14%	15%
Diabetes	78%	32%
Smoking status		
Current smoker	28%	10%
Former smoker	35%	41%
Never smoked	38%	49%

(a) Known or suspected to have the condition.

Source: Excell & McDonald 2005.

Trends in incidence and prevalence

From 1991 to 2003, although the incidence of treated end-stage kidney disease in Australia increased steadily for both the Indigenous and non-Indigenous populations, the increase was much faster in the Indigenous population. In 1991, the incidence rate of treated end-stage kidney disease among Indigenous people was 274 per million population, 4.8 times that in non-Indigenous people. By 2003, the incidence rate of treated end-stage kidney disease in Indigenous people was 7.8 times that in non-Indigenous people, at 696 per million population. This represents an average annual increase of 13% per year among the Indigenous population compared with 5% per year among the non-Indigenous population. This rapid increase may reflect both real growth in the incidence of ESKD among Indigenous people and the increasing availability and acceptability of kidney replacement therapy to Indigenous communities.

As kidney replacement therapy became more widely available and ESKD patients from remote Indigenous communities were able to be treated, the prevalence of treated end-stage kidney disease among Indigenous Australians also increased rapidly. Between 1991 and 2003 there was an average annual increase in prevalence of 20% per year, from 228 Indigenous patients (1,060 per million population) in 1991 to 882 Indigenous patients (3,573 per million population) in 2003. In comparison, over this period there was an average 5% annual increase in treated end-stage kidney disease prevalence among other Australians, from 6,400 cases (401 per million population) in 1991 to 12,743 cases (639 per million population) in 2003.

Cass et al. (1999) found variations in the incidence of treated ESKD between Aboriginal Australians in New South Wales and the Northern Territory. While the incidence among Aboriginal Australians in the Northern Territory was high (800 per million population in 1996–97) and had increased rapidly over the period 1988–89 to 1996–97, incidence among Aboriginal Australians in New South Wales was relatively low (111 per million population in 1996–97) and showed no increase over the same period. It was suggested that the less profound socioeconomic disadvantage and better access to care of Aboriginal Australians in New South Wales contributed to the lower incidence rates in that state (Cass et al. 1999).

Health care for Aboriginal and Torres Strait Islander people with chronic kidney disease

Aboriginal and Torres Strait Islander people, particularly those in remote communities, face many barriers to access to health care. These barriers impact on all stages of CKD, affecting the prevalence and management of risk factors and diseases associated with CKD, detection of kidney problems, management of CKD and prevention of disease progression. Treatment for ESKD is a particular problem for Australians living in remote communities. The distance to the nearest health facility with the necessary equipment for dialysis may be hundreds or even thousands of kilometres, and the cost of travel and accommodation may be prohibitive. In addition, the cultural importance of family and place to Indigenous Australians means that the thought of leaving their home and moving to a hospital or satellite dialysis facility which is too far away for them to return home easily or for family and friends to visit is distressing and frightening to many patients (Willis 1995).

Several programs are in place to provide better health services to remote communities. A number of city-based units in Western Australia and the Northern Territory provide support for peritoneal dialysis in remote communities. The Remote Area Dialysis Programme,

operating out of the Royal Perth Hospital, allows ESKD patients in remote parts of Western Australia to receive haemodialysis in their own community, either at home or in a community facility. Individuals, communities, governments and the Aboriginal Community Controlled Health Service have established satellite dialysis facilities in remote locations, such as Broome and Tennant Creek.

In the Tiwi Islands, a systematic treatment program involving medication to reduce blood pressure, improvement of blood glucose and blood lipid control, and health education was found to significantly reduce risk factor levels, progression of CKD and death from kidney and cardiovascular diseases (Hoy et al. 2000). The program was found to be cost-effective, with over $3 million worth of dialysis saved (Baker et al. 2005).

Hospitalisation associated with chronic kidney disease

In 2003–04, Indigenous identification in hospital separation records was considered of acceptable quality for use only in the Northern Territory, South Australia and Western Australia. Indigenous Australians were almost 19 times as likely to be hospitalised with CKD recorded compared with other Australians in these areas (Table 6.3). In the three jurisdictions there were 48,913 hospital separations among Indigenous Australians where CKD was the principal diagnosis. This represented 47% of all hospital separations for Indigenous Australians in these areas. Almost all of these separations (98%) were attributed to routine dialysis. In comparison, separations where CKD was the principal diagnosis accounted for 11% of all hospital separations among other Australians in these jurisdictions.

There were 52,914 bed days associated with these Indigenous CKD hospital separations. After removal of day-stay dialysis (47,975 separations), the average length of stay in hospital for Indigenous people with CKD as the principal diagnosis in these three jurisdictions was 5.3 days. This was almost 20% higher than the average length of stay for non-Indigenous people with a principal diagnosis of CKD (Table 6.3).

Table 6.3: Hospital separations with a principal diagnosis of chronic kidney disease, by Indigenous status, 2003–04

	Indigenous Australians		Other Australians		
	Number of separations	Average length of stay (days)	Number of separations	Average length of stay (days)	Standardised separation ratio[(a)]
Separations with principal diagnosis of CKD					
Males	18,727	1.1	80,877	1.1	12.1
Females	30,186	1.1	51,107	1.1	29.7
Persons	48,913	1.1	131,984	1.1	18.9
Excluding same-day dialysis					
Males	320	5.2	1,894	4.8	6.9
Females	618	5.3	2,372	4.2	7.4
Persons	938	5.3	4,266	4.5	7.2

(a) Calculated as the number of separations in Indigenous Australians divided by the number of separations that would be expected if Indigenous Australians experienced the same hospital separation rates as other Australians.

Note: Includes data for South Australia, Western Australia and the Northern Territory only.

Source: AIHW National Hospital Morbidity Database.

In contrast to other Australians, there were more separations where CKD was the principal diagnosis among Indigenous females than males in South Australia, Western Australia and the Northern Territory combined in 2003–04 (Table 6.3). Indigenous Australian females were almost 30 times as likely as other Australian females to be hospitalised with a principal diagnosis of CKD in these jurisdictions, with Indigenous Australian males being 12 times as likely to be hospitalised with a principal diagnosis of CKD as other Australian males. When day admissions for dialysis are excluded, both sexes are around seven times as likely as other Australians to be hospitalised with a principal diagnosis of CKD.

Deaths associated with chronic kidney disease

Between 2001 and 2003, Indigenous identification in mortality records was considered of acceptable quality for use in the Northern Territory, South Australia, Western Australia and Queensland. In these four jurisdictions during this period, Indigenous Australians were almost eight times as likely as other Australians to have died from CKD. CKD was recorded as the underlying cause of death in 154 of the 4,474 deaths identified in Indigenous Australians (3% of all deaths among Indigenous Australians in these areas). In a further 474 cases, CKD was recorded as an associated cause of death only (11% of all Indigenous deaths). In comparison, there were 138,668 deaths among other Australians in these four jurisdictions between 2001 and 2003, with CKD recorded as the underlying cause in 2,381 cases and as an additional cause in a further 8,821 cases (2% and 6% of deaths among other Australians, respectively).

Deaths from CKD occurred at younger ages among Indigenous Australians than among other Australians. In deaths with an underlying cause of CKD, the average age at death among Indigenous Australians was 55 years for males and 61 years for females, compared with 79 years and 82 years among other Australian males and females, respectively. On average, approximately 26 years of life were lost per death for Indigenous Australians, compared with around 9 years per death for other Australians.

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