

# Summary of Indigenous health: End-stage renal disease

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This summary of end-stage renal disease in the Australian Indigenous population is one of a series in this Journal. The objective of the series is to briefly review current literature and provide statistical information about specific areas of Indigenous health. The series draws largely on published information, some of which have been re-analysed to provide clearer comparisons between Indigenous and non-Indigenous people.

The main function of the kidneys is to regulate the mineral composition, water content and acidity of the body as well as excrete metabolic waste products and chemicals [1]. 'Kidney disease', 'renal disease' and 'renal disorder' are collective terms that refer to a variety of different disease processes affecting the kidneys through damage to its working units which in time may lead to the temporary or permanent loss of function known as 'renal failure'[2]. This may occur rapidly, over a period of days or weeks, or slowly over years or decades. End-stage renal disease (ESRD) is the condition of total or near total (95%) and permanent loss of kidney function which, without treatment, is terminal [1, 2].

A number of risk factors are associated with renal disease including diabetes, high blood pressure, infections, low birth weight and obesity [1]. These conditions are particularly common among Indigenous people and contribute to high rates of renal disease. A number of pathways linking disadvantage and kidney disease also underlie these high rates. Factors include: sub-standard social and economic circumstances (poor living conditions and poverty), behaviours that may damage health (such as poor diet, low activity levels, and alcohol and tobacco use), and factors relating to the health-care system and government policies including limited access to medical care [3].

## Burden of end-stage renal disease

Very high rates of renal disease and renal failure are a major public health problem for Indigenous people. The full extent of ESRD among Indigenous people, particularly those living in remote parts of the country, has only been fully recognised in recent years. Most attention has focused on the NT and, to a lesser extent, WA, but the notifications of ESRD are much higher for Indigenous people than they are for non-Indigenous people across most of the country particularly in remote areas – up to thirty times the national average [1, 4].

Data from the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA) reveal that a total of 704 Indigenous people were newly identified with ESRD between 2001 and 2004 – the age-standardised notification rate of 779 per 1,000,000 population for Indigenous people was more than nine times the rate of 86 per 1,000,000 for non-Indigenous people (Table 1)[Derived from 5]. The highest rates were for Indigenous people living in the NT (2,180 per 1,000,000) and WA (1,048), but Qld (861) and SA (739) also had very high rates.

**Table 1 End-stage renal disease: age-standardised notification rates, by Indigenous status, and rate ratios, selected jurisdictions, Australia, 2001-2004**

Jurisdiction	Indigenous		Non-Indigenous		Rate ratio
	Number	Rate	Number	Rate	
New South Wales/	70	266	2,274	84	3.2

Australian Capital Territory					
Victoria	19	321	1,852	93	3.4
Queensland	204	861	1,332	91	9.4
Western Australia	148	1,048	661	91	11.5
South Australia	42	739	540	84	8.8
Northern Territory	218	2,180	40	111	19.7
Australia	704	779	6,840	86	9.0

Source: Derived from [5] and ABS low series population projections<sup>1</sup>

Notes 1 Rates per 1,000,000 population have been standardised using the Australian population at 31 December 2002 as the reference

2 Rate ratio is the Indigenous rate divided by the non-Indigenous rate

3 Figures for Australia include Tasmania and the ACT

Almost three-fifths (58%) of Indigenous people newly registered with the ANZDATA between 2001-2004 were aged less than 55 years compared with one-third (33%) of non-Indigenous people registered (Table 2) [Derived from 5]. Apart from the age group 0-14 years, age-specific notification rates were higher for Indigenous people across all ages compared with non-Indigenous people. Rate ratios were particularly high for people aged 35-44 years (8.9), 45-54 years (17.8) and 55-64 years (15.2).

**Table 2 End-stage renal disease: age-specific notification rates, by Indigenous status, and rate ratios, Australia, 2001-2004**

Age (years)	Indigenous		Non-Indigenous		Rate ratio
	Number	Rate	Number	Rate	
0-14	3	4	96	6	0.7
15-24	11	31	185	18	1.8
25-34	41	141	383	34	4.1
35-44	114	488	644	55	8.9
45-54	242	1,603	960	90	17.8
55-64	198	2,546	1,314	168	15.2
65-74	79	2,155	1,836	343	6.3
75+	16	987	1,339	286	3.4
All ages	704		6,840		

Source: Derived from [5] and ABS low series population projections

Notes 1 Rates per 1,000,000 population

2 Rate ratio is the Indigenous rate divided by the non-Indigenous rate

3 Figures for Australia include Tasmania and the ACT

The most common reason for hospitalisation for Indigenous people in 2003-04 was the diagnosis of 'care involving dialysis', with the admission rate 12 times that of non-Indigenous people [1]. For the period 1999-2003, death rates from chronic kidney disease (CKD) were up to 10 times higher for Indigenous people than for non-Indigenous people [1]. Death rates were especially high after the age of 25 years for both Indigenous males and females compared with non-Indigenous people. The greatest differences occurred in the 25-34 and 45-54 age groups with Indigenous males recording 38 and 31 times the rates for non-Indigenous males and Indigenous females 57 and 48 times the rates for non-Indigenous females in the same age groups [1]. These figures potentially underestimate the contribution of CKD to death rates as deaths involving CKD can occur in the context of other chronic conditions [6]. For example, deaths from diabetes, where renal failure was reported as an associated cause of death among Indigenous people, occurred at almost twice the rate for Indigenous males and females than for their non-Indigenous counterparts [1].

## Management of end-stage renal disease

Medical intervention is necessary to avert deaths among individuals with ESRD. Current treatment options require either a kidney transplant or regular dialysis to mechanically filter the blood and help maintain the functions normally performed by the kidneys [1, 7]. Kidney transplants are usually the best option in terms of both medical outcomes and cost effectiveness [8]. Indigenous people represent less than 2% of the national population, but they account for approximately 10% of all people commencing Renal Replacement Therapy (RRT) each year [5]. Rates of RRT for ESRD have increased over the past 20 years for Indigenous people, but they are still only about one-third as likely as non-Indigenous people to receive a kidney transplant [9]. This is partly due to higher rates of co-morbidities, but opportunities for transplantation within the Indigenous population are also limited by a number of other factors.

Once dialysis treatment has commenced, Indigenous people are less likely to be placed on the active transplant waiting list and less likely to move from the waiting list to transplantation [1, 10, 11]. For those who do receive a transplant, the success rate for Indigenous people remains about two-thirds that for non-Indigenous people. Logistical problems associated with service delivery, problems posed by infections or poor compliance, miscommunication between Indigenous patients and health professionals, a lack of compatible donors and access issues all contribute to the low rates of transplantation among Indigenous people [4, 8, 12].

In 2003, of all Indigenous ESRD patients registered, 86% were reliant on dialysis and only 14% had received a kidney transplant compared with 54% of non-Indigenous Australians reliant on dialysis and 46% having received a kidney transplant [1]. Of the 1,431 patients aged less than 65 years, who were on the waiting list in Australia at 31 December 2004, 90 (6%) were Indigenous patients, residing in the NT (81%), WA (21%), Qld (9%), NSW, the ACT and SA (all 4%) and Vic (1%) [5].

Dialysis, specifically haemodialysis conducted in urban or regional clinics and hospitals, is the most common form of treatment for Indigenous people with ESRD [1], but evidence suggest that rates of withdrawal from treatment are frequently high for Indigenous people [12]. Challenges facing home haemodialysis in remote communities include being able to retain suitable dialysis partners/carers due to their requirements for attendance at cultural duties, suitable housing, changing social circumstances and communication problems (such as language barriers) [13].

More recent data for Indigenous people receiving haemodialysis treatment was not available, but about 70% of all Indigenous dialysis patients on the ANZDATA registry in 1999 were receiving haemodialysis treatment in either a hospital or a hospital satellite unit [14]. More than three-quarters of all Indigenous people commencing RRT in remote areas during 1999-2001 had to relocate to access treatment. At the beginning of 2001, only five of the 16 ATSIC regions with the highest Indigenous ESRD incidence rates had satellite dialysis units. Several new satellite dialysis facilities have been opened since the collection of these data, but, given the low population density in many areas, access to treatment for people with ESRD is still an issue that requires dramatic changes in living circumstances [6].

Self-care dialysis in remote communities can provide an effective alternative to metropolitan-based treatment, but, when this option is not available or not practicable, remote-area patients are relocated to dialysis units in major cities, with significant bio-psychosocial and economic consequences for both the individuals and the health care system [8]. Research has documented the enormous social, cultural, geographical and physical difficulties experienced by many Indigenous renal patients who have to relocate from remote communities [15]. Primary prevention of the social and economic conditions that underlie much of the Indigenous renal health burden is a fundamental priority, but secondary and tertiary measures, such as screening and pharmacological interventions, also promise to reduce the risk of serious renal disease. Screening for renal disease can now be accomplished with simple, cheap and reliable techniques [8, 16].

## Recent policies and strategies to improve renal health

In 2006, Kidney Health Australia released the *National Chronic Kidney Disease Strategy*. The mission of this strategy is to reduce the incidence of CKD and improve the kidney health of all Australians via the facilitation of equitable, evidence-based and holistic programs and services that address prevention, early detection and best-practice management for patients, carers and families affected by CKD [6]. The strategy proposes 54 recommendations in priority areas including: risk reduction and prevention; early detection and management of CKD; management of advanced CKD; dialysis; organ donation and transplantation. In recognition of the distinct issues faced by Aboriginal and Torres Strait Islander peoples with CKD, this was the focus of an additional priority area. The national CDK strategy states what needs to change to achieve optimal kidney health services and care in Australia, but is not an implementation plan as to how to achieve this change.

## Conclusion

Renal disease has major medical and social implications for Indigenous people. Continuing high rates of ESRD, the negative social consequences that accompany treatment, and the high cost of tertiary level medical care all illustrate the immediate need for a comprehensive health care approach that addresses both the medical and socioeconomic dimensions of this major problem. Without adequate forward planning that considers service needs, service availability, and workforce projections, however, there will not be adequate resources to provide minimum standards of care for the growing number of Indigenous people dependant on dialysis [6]. The prevention, management and control of renal disease in Indigenous communities will depend not only on effective, acceptable medical and surgical treatment, but, importantly, on preventive action to address the poor socioeconomic conditions that underlie these conditions [8].

## References

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The Australian Indigenous HealthInfoNet website is a dynamic resource which is regularly updated and makes published, unpublished and specially-developed material about Indigenous health freely accessible. The HealthInfoNet aims to provide access to high quality information to:

- assist in improving the health of Indigenous people;
- assist in the empowerment of Indigenous people; and
- enhance the knowledge, skills and performance of those involved in Indigenous health.

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<sup>i</sup> Details of new cases of ESRD are provided to the Australian and New Zealand Dialysis and Transplant Registry (ANZDATA). The figures presented in Table 1 have been derived from data provided by ANZDATA. The HealthInfoNet is most grateful for the provision of these data, and for technical advice provided by ANZDATA.