SOUTH AFRICAN RENAL REGISTRY

Annual Report 2022

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SCIENTIFIC REPORTS AND GUIDELINES

South African Renal Registry Annual Report 2022

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ABSTRACT

This is the eleventh consecutive annual report of the South African Renal Registry since it was re-established and launched with the publication of the December 2012 data on kidney replacement therapy (KRT) in South Africa. The December 2022 data reported here indicate a continued increase in the number of patients on treatment following the COVID-19-related decrease which was previously recorded.

There were 822 patients who started KRT in 2022, an incidence of 13.3 per million population (pmp). Most of these patients (77%) were treated in private centres. In December 2022, the total number of patients on treatment with chronic dialysis or transplantation stood at 9 342, up from 8 866 in 2021, an overall prevalence of 151 pmp. The prevalence was 771 pmp in the private healthcare sector. In the public sector, the overall prevalence was 45 pmp, with the Western Cape being the province with the highest public sector prevalence (165 pmp) and Mpumalanga the province with the lowest (3 pmp).

Keywords: renal registry; South Africa; haemodialysis; peritoneal dialysis; transplantation.

INTRODUCTION

The South African Renal Registry (SARR) collects, analyses and publishes information on kidney replacement therapy (KRT) for patients with kidney failure in South Africa. The registry, a project of the South African Nephrology Society, was re-established almost two decades after the last report of the previous registry, the South African Dialysis and Transplant Registry [1]. This is the eleventh consecutive annual report, which summarises the data on record for December 2022.

The COVID-19 pandemic resulted in a sharp reduction in the number of patients on KRT, from 9 937 in 2019 to 8 734 in 2020 [2-4]. The December 2022 data indicate that there has been a sustained recovery, although we are not yet back to the numbers recorded for the pre-COVID years.

METHODS

Registry platform

Our current platform was developed using the Webdev programming environment (www.windev.com) and resides on a secure, dedicated, Windows 10 server at a South African internet hosting company. It runs Windows Internet Information Services (IIS) and uses the client/server version of HFSQL (formerly Hyperfile SQL) as its relational database management system. Data capturers interface with the central database via user-friendly web pages from any device with internet access. The platform uses end-to-end encryption and full backups are made daily.

To confirm vital status, we cross-check the identity numbers of our patients with the Department of Home Affairs database of births and deaths, which is accessible via the South African Medical Research Council.

Over the past few years, the technology platform of the SARR has been expanded to serve as the backbone of

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the African Renal Registry. Botswana, Burundi, Ghana, Kenya, Nigeria and Zambia have joined the African Renal Registry and have commenced data collection with the aid of our platform [5,6].

Definitions

Kidney failure and start date of KRT. Kidney failure refers to advanced, irreversible kidney disease which requires the initiation of KRT. The start date is the date of first haemodialysis (HD), the date of the first peritoneal dialysis (PD) flushes or exchanges, or the date of pre-emptive transplantation (where there is no prior dialysis). For patients who are initially thought to have acute kidney injury (AKI) but who do not recover function and continue KRT, the start date is the date of the first dialysis, even though the diagnosis at that time was AKI and not kidney failure.

Initial KRT modality. This is the intended first modality and should normally be the modality being used on day 91 of KRT. This means that someone who presents late and who is started on urgent HD but is soon established on PD, will have PD recorded as the initial modality.

Changes in the responsible treating unit. This refers to a change in the dialysis unit, PD follow-up unit/clinic or transplant follow-up unit/centre/practice. A transfer entry in the registry is required to record this. This is not done for short-term transfers when the intention is that the patient will return to the "home" unit, for example, for holiday dialysis, temporary transfer to a unit with isolation facilities, etc.

Primary kidney disease. Responsible nephrologists/physicians should assist their data-capturers to ensure that this critical information is accurate. We are using the diagnostic codes of the European Renal Association registry [7]. If there is uncertainty about the diagnosis, as is often the case with patients who present late, then it should be recorded as **"chronic kidney disease (CKD) – aetiology uncertain/unknown"**. In patients who present with kidney failure, small kidneys and hypertension, there should not be an automatic default to labelling such patients as having "chronic glomerulonephritis" or "hypertensive kidney disease".

Chronic hypertensive nephropathy or **malignant hypertensive nephropathy.** This should be selected as the primary kidney disease only if there is no reason to suspect that the hypertension is secondary to pre-existing kidney disease. We suggest that the following criteria be met: hypertension known to precede kidney dysfunction, left ventricular hypertrophy, proteinuria <2 g/day and no evidence of other kidney diseases [8,9].

Lost to follow-up. The SARR assumes that a functioning transplant is maintained unless there is evidence of a "transplant failure" or death. A dialysis modality is assumed to continue for one year from the date of the last registry entry or laboratory result, in the absence of evidence of death; thereafter, the patient is considered lost to follow-up. Patients are also considered lost to follow-up one year after a "transplant failure" entry if no further entries are recorded.

Recovered kidney function. Patients on chronic HD/PD who recover kidney function and no longer require dialysis are removed from the registry. The period of dialysis-free recovery must persist for at least 90 days; if the period of recovery is less than 90 days and dialysis is restarted, there is no end of treatment entry and dialysis is considered to have been continuous. If the period of recovery exceeds 90 days and the patient restarts KRT, a new entry is recorded for the patient.

Ethical approval

The SARR runs as a longitudinal study with ethical approval from the Health Research Ethics Committee of Stellenbosch University (reference no. N11/01/028). This is renewed annually upon submission of a progress report. A waiver of individual informed consent has been granted, and the approval includes countrywide data collection on adults and children, in the public and private sectors, and the accessing of various data sources to improve the accuracy and completeness of data. These include records available through doctors' practices, dialysis and transplant centres, provider companies and medical aid funds. Ethical approval has also been granted for the use of the expanded SARR platform for the African Renal Registry.

RESULTS

South Africa in 2022

Figure 1 illustrates the provinces and major cities of South Africa. According to the Statistics South Africa (Stats SA) Census 2022 [10], the population of South Africa had increased to 62.03 million people. There was a slight female predominance (51.5%) and Black/African citizens constituted 81.4% of the population (Table 1). About 26.3% of the population was younger than 15 years of age and approximately 9.8% was 60 years of age or older. The province of Gauteng was home to 24.3% of the population, followed by KwaZulu-Natal with 20.0% (Table 2). Migration has a major impact on the age structure and distribution of provincial populations, with Gauteng and the Western Cape experiencing the largest net inflows of migrants.

South Africa is classified as an upper-middle-income country by the World Bank, with a gross national income per capita for 2022 by the Atlas method (current US$) of

$6 780 and by the purchasing power parity (PPP) method (current international US$) of $15 010 [11]. Most of the population (85.4%) rely on the public healthcare sector for services, with only a small proportion (14.6%) having medical insurance and accessing private sector health care [12].

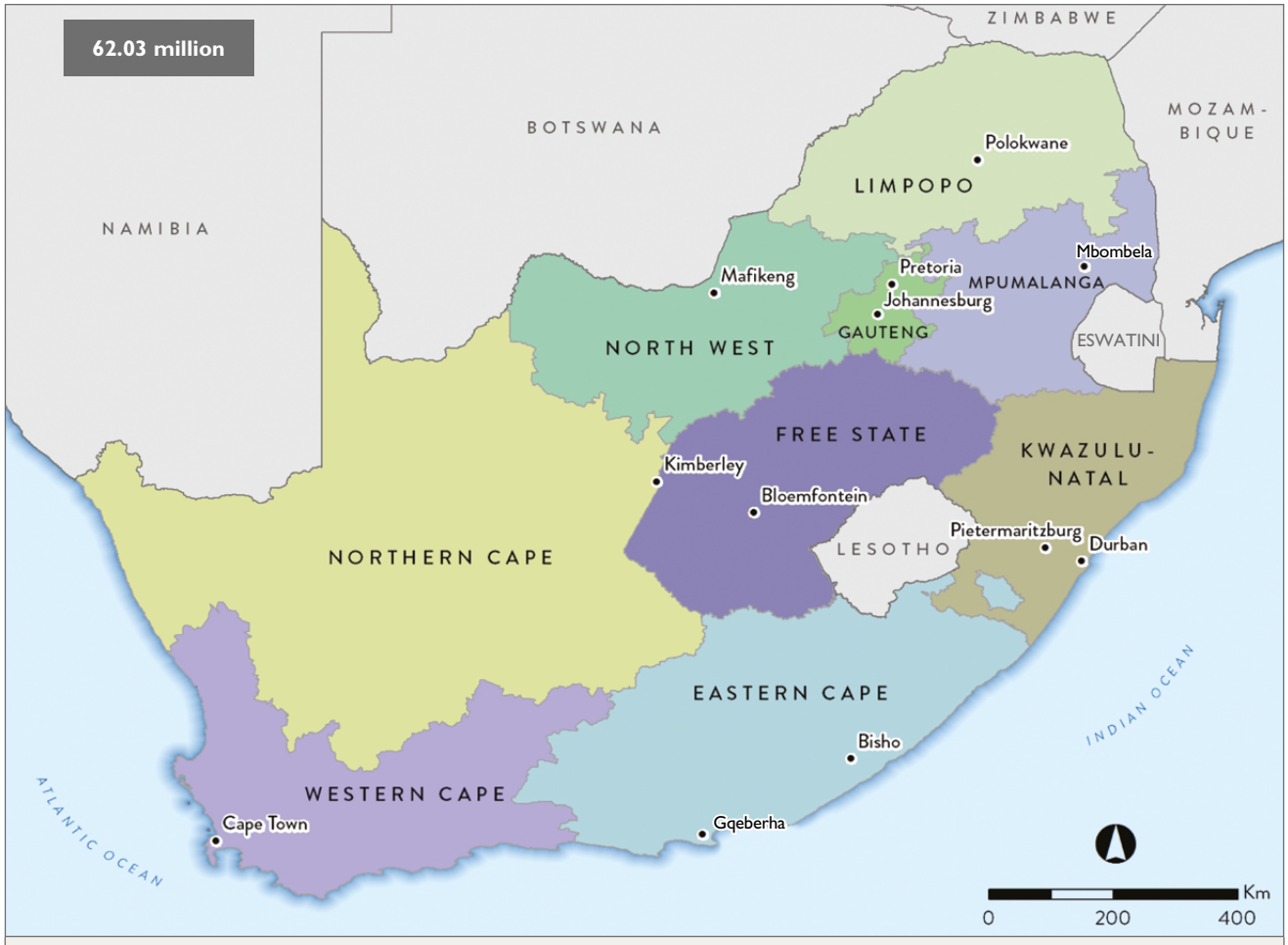


Figure 1. Provinces and major cities of South Africa.

Table 1. Population data by ethnic group.

Population group	Million	%
Black	50.49	81.4
Coloured (mixed ancestry)	5.05	8.2
White	4.50	7.3
Indian/Asian	1.70	2.7
Other	0.25	0.4
Total	**61.99**	**100**

Table 2. Population data by province.

Province	Million	%
Eastern Cape (EC)	7.23	11.7
Free State (FS)	2.96	4.8
Gauteng (GT)	15.10	24.3
KwaZulu-Natal (KZN)	12.42	20.0
Limpopo (LP)	6.57	10.6
Mpumalanga (MP)	5.14	8.3
North West (NW)	3.80	6.1
Northern Cape (NC)	1.36	2.2
Western Cape (WC)	7.43	12.0
Total	**62.03**	**100**

Treatment centres for dialysis and transplantation

The number of centres contributing data was 293; of these, 261 (89.1%) are privately owned (Table 3 and Appendix 1). Several provinces have increased access for their public sector patients by utilising spare capacity at private haemodialysis centres on a fee-per-treatment basis. There are also a few privately run centres on the premises of government hospitals which serve public sector patients.

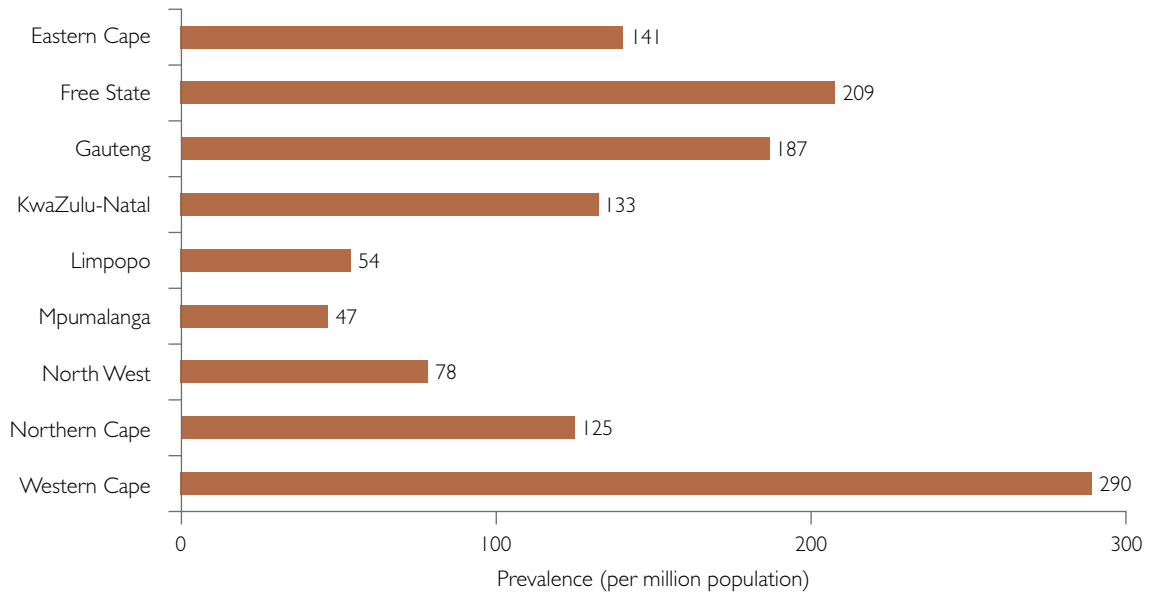
Table 3. Number of treatment centres by province and sector.

Sector	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Public	4	6	7	5	1	0	3	1	5	32
Private	24	12	77	64	17	12	15	4	36	261
Total	**28**	**18**	**84**	**69**	**18**	**12**	**18**	**5**	**41**	**293**

Prevalence and incidence of kidney replacement therapy

The total number of patients on KRT on 31 December 2022 was 9 342. This is a prevalence of 151 per million population (pmp). The province with the highest patient numbers remained Gauteng, followed by the Western Cape and KwaZulu-Natal, whereas the province with the highest prevalence was the Western Cape (290 pmp), followed by the Free State and Gauteng (Figure 2).

There were 822 patients who started KRT in 2022, an incidence of 13.3 pmp. Most of these patients (77%) were treated in private centres. Their median age was 53.3 years (39.7 years in the public sector and 57.2 years in the private sector). Diabetic nephropathy was recorded as the cause of the kidney failure in 99 of these incident patients. The initial KRT modality was haemodialysis in 632 patients, peritoneal dialysis in 183 patients, and a kidney transplant in 7 patients.



Province	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Patients	1 023	619	2 819	1 657	358	243	296	169	2 158	9 342

Figure 2. Prevalence and numbers of patients on KRT by province.

The number of patients treated in the public sector grew from 2 290 in 2021 to 2 375 in 2022, a prevalence of 45 pmp (Table 4). In the private sector, the number of patients increased from 6 576 to 6 967, yielding a prevalence of 771 pmp. The numbers of patients and prevalences by province and healthcare sector are shown in Table 5 and Figure 3. Denominators for prevalence calculations are based on the Census 2022 data from Stats SA [10] and the Council for Medical Schemes Annual Report [12]. Medical aid beneficiaries who were unclassified with respect to province were allocated to provinces in proportion to the numbers of beneficiaries in each province.

Table 4. KRT prevalence by healthcare sector.

	Public	Private
Population in millions	52.99	9.03*
Patients on treatment	2 375	6 967
Treatment rate (pmp)	45	771

*Data supplied by the Council for Medical Schemes

Table 5. Numbers of patients by province and sector.

Sector	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Public	272	294	481	138	66	14	43	70	997	2 375
Private	751	325	2 338	1 519	292	229	253	99	1 161	6 967
Total	**1 023**	**619**	**2 819**	**1 657**	**358**	**243**	**296**	**169**	**2 158**	**9 342**

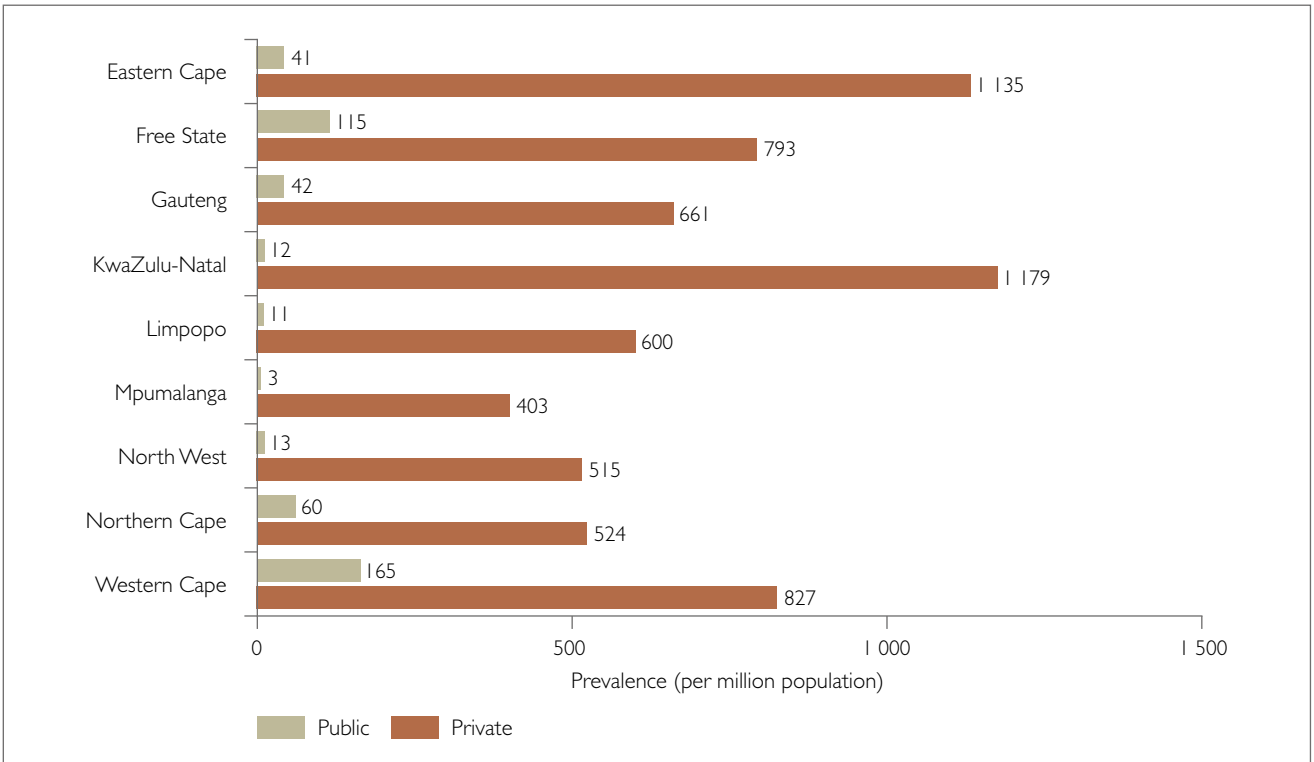
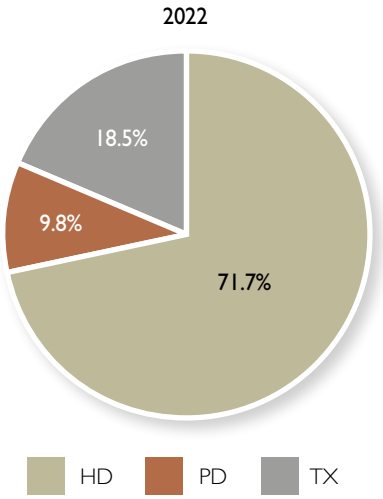


Figure 3. Prevalence of KRT by province and sector.

Treatment modality and KRT vintage

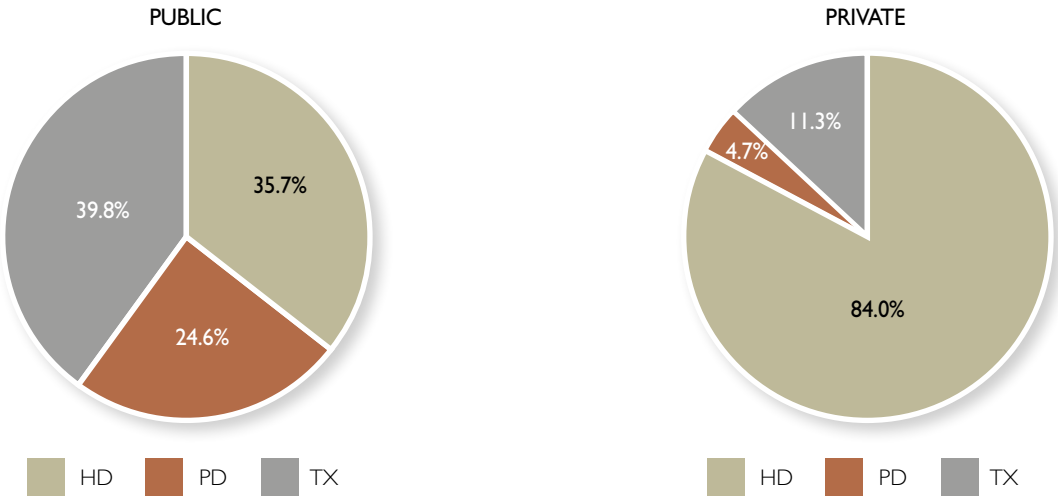
Of the patients on KRT in December 2022, 18.5% had a functioning kidney transplant. Of the patients on dialysis, 88.0% were on haemodialysis and 12.0% were on peritoneal dialysis. Most of the patients with kidney transplants or who were on peritoneal dialysis were being managed in the public sector; the private sector had much lower proportions of patients on these KRT modalities (Figures 4 and 5).

Overall, the median KRT vintage was 6.5 years [interquartile range (IQR) 3.2–10.6 years]. The median vintage was 5.8 years (IQR 2.8–9.1 years) for patients on haemodialysis, 3.8 years (IQR 1.4–7.4 years) for patients on peritoneal dialysis and 12.1 years (IQR 8.8–16.5 years) for transplant recipients.



Modality	Patients	%
Haemodialysis	6 702	71.7
Peritoneal dialysis	911	9.8
Transplant	1 729	18.5

Figure 4. Distribution of patients by treatment modality.



Treatment modality	Public sector		Private sector	
	Patients	%	Patients	%
Haemodialysis	847	35.7	5 855	84.0
Peritoneal dialysis	583	24.6	328	4.7
Transplant	945	39.8	784	11.3

Figure 5. KRT modality by sector.

Demographic and clinical data

The median age of the patients on KRT was 53.8 years (IQR 43.2–63.5 years) and 59.0% were male. Because of the rationing and selection criteria applied in public sector hospitals, patients treated there were much younger than those treated in the private sector (median age 44.7 years versus 56.8 years). Just more than half of the patients were Black. However, the prevalence was still lowest in Blacks (97 pmp) and highest in Indians/Asians (627 pmp) (Figure 6).

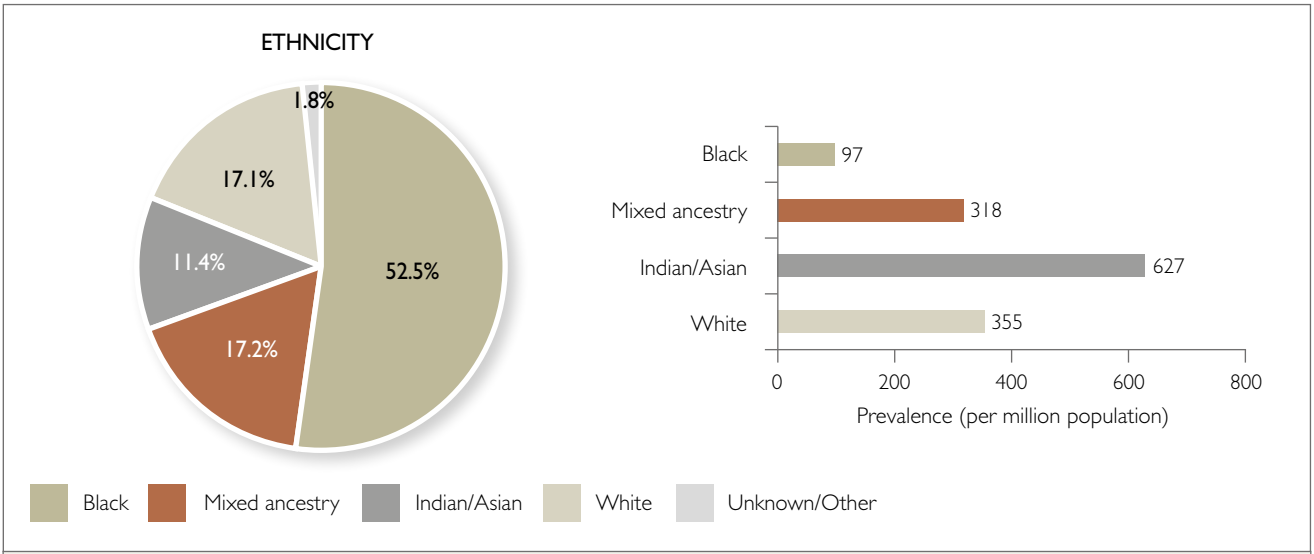


Figure 6. KRT patient numbers and prevalence by ethnicity.

The most common primary kidney disease recorded was hypertensive kidney disease, followed by CKD/kidney failure of unknown cause and diabetic nephropathy (Table 6).

Table 6. Most commonly reported causes of kidney failure.

	% of total
Hypertensive kidney disease	39.0
Cause unknown	30.5
Diabetic nephropathy	12.8
Glomerular disease	10.4
Cystic kidney disease	3.0
Obstruction and reflux	1.6

Of the 8 603 patients with data on diabetes status, 36.5% had diabetes, with a much higher percentage in the private than in the public sector (43.8% versus 15.9%). The seropositive rate for hepatitis B virus was 2.1% (175 of 8 246 patients), for hepatitis C virus 0.5% (34 of 7 609 patients) and for HIV 11.9% (940 of 7 880 patients).

DISCUSSION

The number of patients on KRT in South Africa increased to 9 342 in December 2022, a prevalence of 151 pmp. This is higher than the 8 866 reported for December 2021, and the 8 734 reported for December 2020.

The public sector remains seriously underserved with respect to KRT, with a prevalence of 45 pmp, one-seventeenth of that recorded for the private sector. The Western Cape again has the highest public sector prevalence (165 pmp) and Mpumalanga the lowest (3 pmp). The public sector prevalence for KwaZulu-Natal has declined further, to 12 pmp in 2021. The reasons for this are not clear but likely includes underreporting of patients on KRT.

Acknowledgements

The SARR is an initiative of the South African Nephrology Society (http://www.sa-renalsociety.org/) and is chaired by Razeen Davids and Julian Jacobs. The SARR has been incorporated as a non-profit company (company registration no. 2018/401217/08, NPO no. 212-901) with Razeen Davids, Julian Jacobs and Sajith Sebastian as

directors. The founding document is available from the South African Nephrology Society.

We thank the doctors, nurses, technologists, support staff and management of participating treatment centres for contributing to the 2022 data collection. These centres are listed in Appendix 1. We also thank the sponsors listed below, especially the National Department of Health, for their financial and logistical support:

- Astellas Pharma
- National Department of Health
- National Kidney Foundation of South Africa
- Stellenbosch University.

Supplementary materials

The figures in this report are available as PowerPoint slides via the supplementary materials on the *African Journal of Nephrology* website.

Usage of this report

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Conflict of interest

None to declare.

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APPENDIX 1: PARTICIPATING TREATMENT CENTRES

EASTERN CAPE		
Public	**Private**	**Private**
Dora Nginza Hospital	B. Braun Avitum Mthatha	NRC Mdantsane
Frere Hospital	Jeffreys Bay Kidney and Dialysis Centre (FMC)	NRC Mthatha
Livingstone Hospital	Life East London Private Hospital	NRC Port Elizabeth
Nelson Mandela Academic Hospital	Life Mercantile Hospital	NRC Port Elizabeth PD
	Life Queenstown Hospital	NRC Queenstown
	Life St George's Hospital	NRC Uitenhage
	NRC Alice	Port Elizabeth Kidney and Dialysis Centre (FMC)
	NRC Butterworth	Regional Renal Services Lusikisiki
	NRC East London	Regional Renal Services Matatiele
	NRC East London PD	Regional Renal Services Mount Frere
	NRC King Williamstown	Regional Renal Services Mthatha
	NRC Kwadwesi	Uitenhage Renal Care Centre

FREE STATE		
Public	**Private**	**Private**
Boitumelo Regional Hospital (Kroonstad)	B. Braun Avitum Bethlehem (Hoogland)	NRC Bloemfontein
Bongani Regional Hospital (Welkom)	B. Braun Avitum Bloemfontein	NRC Bloemfontein PD
Dihlabeng Regional Hospital (Bethlehem)	B. Braun Avitum Harrismith	NRC Kroonstad
Mofumahadi Manapo Mopeli Hospital (Qua Qua)	B. Braun Avitum Welkom	NRC Pelonomi
Pelonomi Regional Hospital	Bloemfontein Kidney and Dialysis Centre (FMC)	Sasolburg Kidney and Dialysis Centre (FMC)
Universitas Academic Hospital	Life Rosepark Hospital	Universitas Private Hospital

GAUTENG		
Public	**Private**	**Private**
Charlotte Maxeke Johannesburg Academic Hospital	Arcadia Kidney and Dialysis Centre (FMC)	Life Springs Parkland Hospital
Chris Hani Baragwanath Hospital	Atteridgeville Kidney and Dialysis Centre (FMC)	Life The Glynnwood Hospital
Dr George Mukhari Hospital	B. Braun Avitum Emfuleni (Vanderbijlpark)	Life Wilgeheuwel Hospital
Helen Joseph Hospital	B. Braun Avitum Pretoria (Kloof)	LRC Daxina
Leratong Hospital	B. Braun Avitum Vereeniging	Mabika Renal Solutions
Sebokeng Hospital	BRC Modderfontein	Midstream Kidney and Dialysis Centre (FMC)
Steve Biko Academic Hospital	Edison Hammanskraal Centre	Morningside Children's Kidney Treatment Centre
	Edison Mamelodi Centre	Morningside Kidney and Dialysis Centre (FMC)
	Groenkloof Kidney and Dialysis Centre (FMC)	Naledi Kidney and Dialysis Centre (FMC)
	Izinso Dialysis Busamed	Nephromed Kidney Centre Kwa-Thema
	Izinso Dialysis Centre Eersterust	Netcare Transplant Centre Garden City Hospital
	Izinso Dialysis Garankuwa	Netcare Transplant Centre Jakaranda Hospital
	Izinso Dialysis Glen Austin	Netcare Transplant Centre Milpark Hospital
	Izinso Dialysis Soshanguve (Pretoria)	NRC Akasia
	Izinso Dialysis Soweto	NRC Alberton
	Kempton Kidney and Dialysis Centre (FMC)	NRC Arcadia
	Lenasia Kidney and Dialysis Centre (FMC)	NRC Johannesburg PD
	Lesedi Kidney and Dialysis Centre (FMC)	NRC KidneyKidz
	Life Bedford Gardens Hospital	NRC Krugersdorp
	Life Brenthurst Hospital	NRC Linksfield
	Life Carstenhof Hospital	NRC Lyttleton
	Life Fourways Hospital	NRC Mayfair
	Life Groenkloof Hospital	NRC Montana
	Life Robinson Private Hospital	NRC Mulbarton

Abbreviations: BRC, Busamed Renal Care; FMC, Fresenius Medical Care; LRC, Lenmed Renal Centre; MRC, Melomed Renal Care; NRC, National Renal Care; RCH, Renal Care Holdings.

APPENDIX 1: PARTICIPATING TREATMENT CENTRES continued

GAUTENG cont.		
Public	**Private**	**Private**
	NRC Olivedale	Randfontein Private Hospital Dialysis Unit
	NRC Parktown West	RCH Randfontein
	NRC Pinehaven	RCH Zamokuhle (Thembisa)
	NRC Pretoria East	Renalworx Dialysis Centre Wilgers
	NRC Pretoria PD	Rustenburg Kidney and Dialysis Centre (FMC)
	NRC Rynfield	Tshepo-Themba Kidney and Dialysis Centre (FMC)
	NRC Sedibeng	Tshwane Kidney and Dialysis Centre (FMC)
	NRC Springs	Vaal Kidney and Dialysis Centre (FMC)
	NRC Sunninghill	Vosloorus Kidney and Dialysis Centre (Clinix)
	NRC Sunward Park	Waverley Kidney and Dialysis Centre (FMC)
	NRC Waterfall	Westrand Dialysis Randfontein Unit
	Pretoria Kidney and Dialysis Centre (FMC)	Westrand Kidney and Dialysis Centre (FMC)
	Q Kidney Care	Wits Donald Gordon Kidney and Dialysis Centre (FMC)
	Ramdial Renal Services	Wits Donald Gordon Medical Centre Transplant Division
	Randfontein Kidney and Dialysis Centre (FMC)	

KWAZULU-NATAL		
Public	**Private**	**Private**
Addington Hospital	B. Braun Avitum Dundee	Netcare Transplant Centre St Augustine's Hospital
Greys Hospital	B. Braun Avitum Durban North	Newcastle Kidney and Dialysis Centre (FMC)
Inkosi Albert Luthuli Hospital	B. Braun Avitum Howick	NRC Athlone
King Edward VIII Hospital	B. Braun Avitum Musgrave	NRC Ballito
Ngwelezana Hospital	B. Braun Avitum Newcastle	NRC Berea
	B. Braun Avitum Pietermaritzburg	NRC Chatsworth
	B. Braun Avitum Scottburgh	NRC Durban PD
	B. Braun Avitum Vryheid	NRC Ladysmith
	BRC Gateway	NRC Margate
	BRC Hillcrest	NRC Pietermaritzburg CBD
	Chatsworth Kidney and Dialysis Centre (FMC)	NRC Pietermaritzburg PD
	Coastal Neprology Centre Nongoma	NRC Pinetown
	Coastal Neprology Centre Ulundi	NRC Richards Bay
	Dr Parag and Raghubir Kidney Care Centre	NRC Umhlanga
	Durban Kidney and Dialysis Centre (FMC)	Pinetown Kidney and Dialysis Centre (FMC)
	Empangeni Kidney and Dialysis Centre (FMC)	Port Shepstone Kidney and Dialysis Centre (FMC)
	Ethekwini Kidney and Dialysis Centre (FMC)	RCH Ethekweni
	Hibiscus Kidney and Dialysis Centre (FMC)	RCH Ladysmith
	Kokstad Kidney and Dialysis Centre (FMC)	RCH Shifa
	Kwazulu Dialysis Shifa Private Hospital	Regional Renal Services Harding
	Kwazulu Dialysis Umlazi Megacity Renal Unit	Regional Renal Services Ixopo
	KZN Nephrology and Dialysis Clinic	Renal Care Team Durdoc
	Life Chatsmed Hospital	Renal Care Team Kwamashu
	Life Empangeni Hospital	Renal Care Team Ladysmith
	Life Entabeni Hospital	Renal Care Team Pinetown
	Life Hilton Hospital	Richards Bay Kidney and Dialysis Centre (FMC)
	Life Mount Edgecombe Hospital	Stanger Kidney and Dialysis Centre (FMC)
	Life Westville Hospital	Ultra Kidney Care City Hospital
	Merediac Durban	Umhlanga Kidney and Dialysis Centre (FMC)
	Midlands Dialysis and Kidney Centre	Verulam Dialysis Centre
	Mount Edgecombe Dialysis Care Group	Victoria Kidney and Dialysis Centre (FMC)
	Mount Edgecombe Kidney and Dialysis Centre (FMC)	Vryheid Kidney and Dialysis Centre (FMC)

Abbreviations: BRC, Busamed Renal Care; FMC, Fresenius Medical Care; LRC, Lenmed Renal Centre; MRC, Melomed Renal Care; NRC, National Renal Care; RCH, Renal Care Holdings.

APPENDIX 1: PARTICIPATING TREATMENT CENTRES continued

LIMPOPO		
Public	**Private**	**Private**
Pietersberg Hospital	B. Braun Avitum Louis Trichardt	Nephromed Polokwane
	B. Braun Avitum Mokopane	Nephromed Thohoyandou
	B. Braun Avitum Polokwane	NRC Polokwane
	B. Braun Avitum Tzaneen	NRC Thabazimbi
	Chantel van Rooyen Bela-Bela	NRC Venda
	Chantel van Rooyen Modimolle	Phalaborwa Kidney and Dialysis Centre (FMC)
	Edison Giyani Centre	Thohoyandou Kidney and Dialysis Centre (FMC)
	Edison Thohoyandou Centre	Van der Walt Renal Care (Groblersdal)

MPUMALANGA		
Public	**Private**	**Private**
	B. Braun Avitum Ermelo	Highveld Nephrology Centre Bethal
	B. Braun Avitum Nelspruit	Life Cosmos Hospital
	B. Braun Avitum Trichardt	Life Midmed Hospital
	B. Braun Avitum Witbank	Middelburg Kidney and Dialysis Centre (FMC)
	Emalahleni Kidney and Dialysis Centre (FMC)	NRC Nelspruit
	Hazyview Dialysis Centre	White River Dialysis

NORTH WEST		
Public	**Private**	**Private**
Job Shimankana Tabane Hospital	B. Braun Avitum Vryburg	Nephromed Kidney Centre Rustenburg
Klerksdorp Hospital	Brits Kidney and Dialysis Centre (FMC)	North West Dialysis Klerksdorp
Mafikeng Provincial Hospital	Izinso Dialysis Mafikeng	North West Dialysis Lichtenburg
	Life Klerksdorp Dialysis	NRC Lonmin
	Life Lichtenburg Dialysis	NRC Rustenberg
	Living Waters Dialysis Taung	Potchefstroom Kidney and Dialysis Centre (FMC)
	Living Waters Dialysis Klerksdorp	Zeerust Renal Unit
	Mafikeng Kidney and Dialysis Centre (FMC)	

NORTHERN CAPE		
Public	**Private**	**Private**
Kimberley State Hospital	B. Braun Avitum Kimberley	Life Hartswater Dialysis
	B. Braun Avitum Upington	RCH Kimberley

WESTERN CAPE		
Public	**Private**	**Private**
George Hospital	Athlone Kidney and Dialysis Centre (FMC)	NRC Blaauwberg
Groote Schuur Hospital	B. Braun Avitum Cape Gate	NRC Cape Town CBD
Red Cross War Memorial Children's Hospital	B. Braun Avitum Mossel Bay	NRC Cape Town PD
Tygerberg Hospital	B. Braun Avitum Oudtshoorn	NRC Eersteriver
Worcester Hospital	B. Braun Avitum Simonstown	NRC George
	B. Braun Avitum Worcester	NRC Goodwood
	Cape Town Kidney and Dialysis Centre (FMC)	NRC Kuilsriver
	George Kidney and Dialysis Centre (FMC)	NRC Paarl
	Hermanus Kidney and Dialysis Centre (FMC)	NRC Plumstead
	Khayelitsha Kidney and Dialysis Centre (FMC)	NRC Vredenburg
	Life Kingsbury Hospital	Paardevlei Kidney and Dialysis Centre (FMC)
	Life Knysna Hospital	Panorama Kidney and Dialysis Centre (FMC)
	Life Vincent Pallotti Hospital	Rondebosch Dialysis Centre
	MRC Gatesville	Stellenbosch Kidney and Dialysis Centre (FMC)
	MRC Gatesville PD	UCT Kidney and Dialysis Centre (FMC)
	MRC Mitchells Plain	UCT Private Academic Hospital
	MRC Tokai	Winelands Kidney and Dialysis Centre (FMC)
	Netcare Transplant Centre Christiaan Barnard Memorial Hospital	Worcester Kidney and Dialysis Centre (FMC)

Abbreviations: BRC, Busamed Renal Care; FMC, Fresenius Medical Care; LRC, Lenmed Renal Centre; MRC, Melomed Renal Care; NRC, National Renal Care; RCH, Renal Care Holdings.

APPENDIX 1: PARTICIPATING TRANSPLANT CENTRES

FREE STATE	
Public	**Private**
	Universitas Private Hospital

GAUTENG	
Public	**Private**
Charlotte Maxeke Johannesburg Academic Hospital	Netcare Garden City Hospital
Steve Biko Academic Hospital	Netcare Jakaranda Hospital
	Netcare Milpark Hospital
	Wits Donald Gordon Medical Centre

KWAZULU-NATAL	
Public	**Private**
Inkosi Albert Luthuli Hospital	Life Entabeni Hospital
	Netcare St Augustine's Hospital

WESTERN CAPE	
Public	**Private**
Groote Schuur Hospital	Netcare Christiaan Barnard Memorial Hospital
Red Cross War Memorial Children's Hospital	UCT Private Academic Hospital
Tygerberg Hospital	


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