Global Perspective on Dialysis: Somaliland

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Kidney360 6: 313–316, 2025. doi: https://doi.org/10.34067/KID.0000000619

Country Profile

The Republic of Somaliland is an unrecognized state in the Horn of Africa, which is officially recognized as part of Somalia. Somaliland occupies approximately 176,120 km^2 and possesses 850 km of the coastline. It is primarily situated in the Gulf of Aden, bordering Ethiopia to the south and west, Somalia to the east, and Djibouti to the northwest.

According to the 2021 country profile data, Somaliland has a population of approximately 5.7 million residents, has a gross domestic product of 775 USD *per capita*, and is classified as a low-income country. In 2021, the average life expectancy at birth was 57.41 years for women and 53.25 years for men.

Despite the disintegration of health care systems during Somalia's civil war in 1988, Somaliland largely re-established both primary and secondary health care with inadequate funding and has remained more prosperous, having improved its overall public health care services.

Prevalence of Kidney Diseases

CKD is a progressive condition affecting more than 10% of the world's population, or approximately 800 million people.[1] Estimates suggest that CKD affects 12.2% to 16.5% of the population in sub-Saharan Africa.[2] The prevalence and incidence of CKD in Somaliland have not been formally studied. According to a recently published study, hypertensive kidney disease and diabetic nephropathy are the two most common causes of kidney failure among individuals undergoing hemodialysis.[3] On the basis of informal estimates, a significant percentage of patients in need of hemodialysis go untreated. The absence of a national renal registry likely accounts for the lower reported prevalence compared with the global average.

Availability and Accessibility of KRT

Hemodialysis was first introduced in Somaliland in 2012. The Ministry of Health (MoH) proposed to the Ministry of Finance that it supports and covers the cost of dialysis supplies. However, only two machines were available in the capital city for a population of 1.2 million. Initially, these machines were reserved for patients with AKI expected to recover.

As of today, hemodialysis is the only modality of KRT accessible in Somaliland.

Nearly 10 years after hemodialysis initially became accessible in the country, the United Arab Emirates government constructed a fully equipped center at the Hargeisa Group Hospital through its Al-Khalifa Foundation Agency in response to the substantial demand for KRT.

The Burao Regional Hospital dialysis unit was established in 2019 with assistance provided by the Togdheer region diaspora and a generous philanthropist, the late businessman Mohamed Aloore, who had experienced the challenges faced by patients on dialysis after being diagnosed with ESKD.

The Borama Regional Hospital unit is the newest public dialysis facility. The MoH provided for the construction of the building, whereas supplies, hemodialysis machines, and reverse osmosis plant were primarily funded by the Awdal region diaspora, which continues to support the facility.

The number of dialysis units providing renal replacement services in Somaliland has grown significantly over the past 10 years, from one dialysis unit with two hemodialysis machines in 2012 to five units with 34 machines currently. Figure 1 highlights the regional distribution of hemodialysis.

Dialysis remains entirely nonexistent in Sanaag, the largest region of Somaliland, accounting for 35% of the country's total land area.

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Published Online Ahead of Print: October 11, 2024

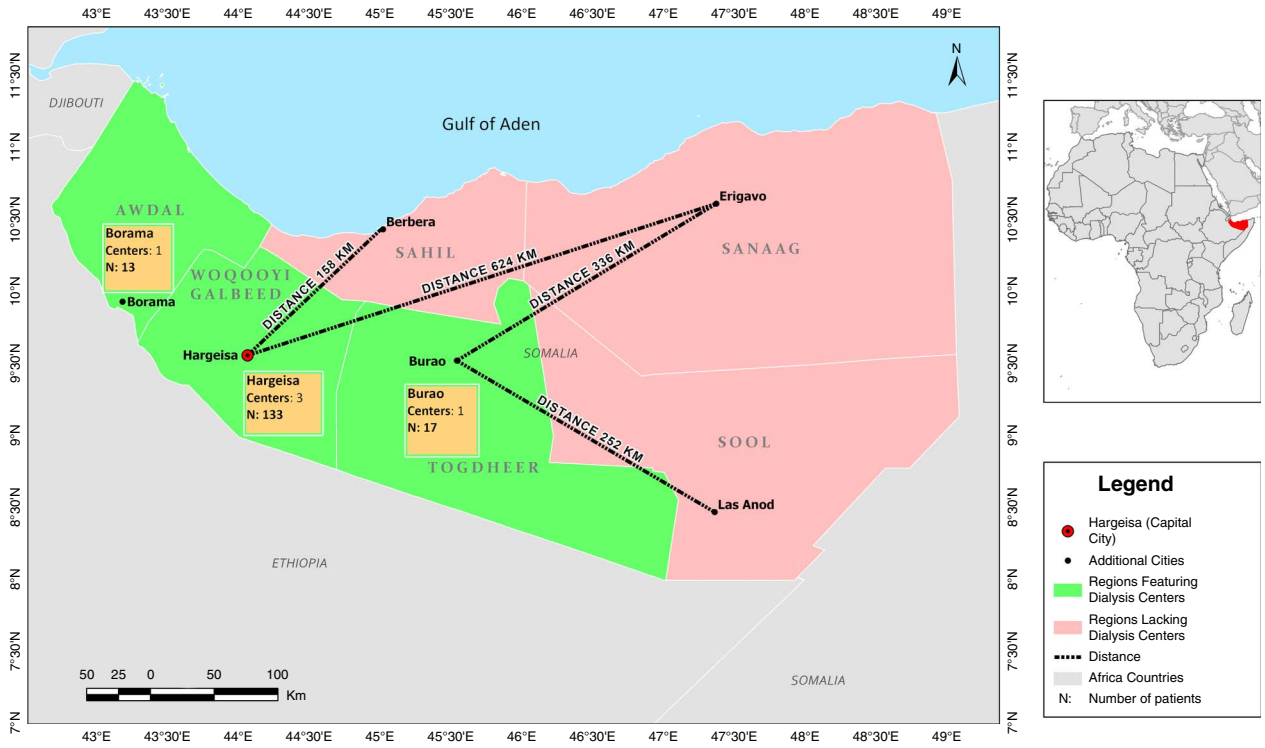

Figure 1. Distribution of the existing hemodialysis centers in Somaliland.

Maintenance Hemodialysis Current Practice

Table 1 summarizes hemodialysis services in Somaliland. A total of 163 patients were on hemodialysis, with a prevalence of approximately 29 per million in the population. Men tend to represent the vast majority of patients undergoing hemodialysis (64%) compared with 36% of those who are female.

Overall, only 58% of patients had arteriovenous fistulas (AVFs). Owing to the lack of vascular surgeons, general surgeons perform most AVFs, which presents a challenge in

Table 1. Summary of dialysis services in Somaliland

No.	Characteristic	*n* and/or %
1	Total number of patients on dialysis in the country	163 (around 29 pmp)
	Sex	
	Male	64%
	Female	36%
2	No. of patients on dialysis in the capital city	133 (82%)
3	**No. of dialysis units in the country**	5
	Public hospital with dialysis units	3
	Private hospital with dialysis units	2
4	No. of hemodialysis machines in country	34 (6 pmp)
5	Average private cost of hemodialysis per session	55$
6	Length of dialysis sessions	4 h (26%), 3.5 h (59%), 3 h (15%)
7	Frequency of dialysis	3×/wk (55%) 2×/wk (40%) 1×/wk (6%)
8	Vascular access	AVF: 58% Nontunneled CVC: 32% Tunneled CVC: 10%
9	No. of HBsAg-positive patients	11 (6.7%)
10	Total number of dialysis nursing staff	21
11	Total number of dialysis technicians	5
12	Total number of nephrologists	1
13	Somaliland Kidney Foundation	

AVF, arteriovenous fistula; CVC, central venous catheter; HBsAg, hepatitis B surface antigen; pmp, per million population.

managing complications and increases the likelihood of AVF failure or nonmaturation, leading to inadequate dialysis. The remainder (42%) used catheters (10% tunneled and 32% nontunneled).

Dialysis for AKI

Dialysis is accessible only to three major cities in Somaliland. The most common indications for acute dialysis include acute-on-CKD, GN, pregnancy-related AKI, sepsis-related AKI, electrolyte imbalance, and fluid overload. The incidence of pregnancy-related AKI is 0.33% (95% confidence interval, 25.11 to 28.57)[4] with a favorable recovery and prognosis. By contrast, because of the paucity of peritoneal dialysis, children requiring acute dialysis were dialyzed in adult units. Due to significant mortality rates and limited availability of pediatric-sized hemodialysis supplies, mainly blood tubing and dialyzers, this practice was discontinued, leaving children younger than 14 years without dialysis access.

Financing Dialysis in Somaliland

Somaliland funds public hemodialysis facility supplies through the MoH. According to the Ministry of Finance, the overall government budget for 2023 was $421.5 million. The MoH's annual allocation budget constituted 5.49%, equating to $ 21,371,858.10. However, the MoH designated only 1.59% of its budget for dialysis supply.

Regional government hospitals spend between US $45 and US $55 per dialysis session, which is equivalent to approximately 25% of the average monthly salary for a public servant in Somaliland. Insufficient financing leads to a reduced frequency of dialysis treatment per week to minimize the financial burden of consumables. Private units cost between US $50 and US $65 per dialysis session. Unfortunately, there are no data available on the cost of dialysis equipment supplied by the government.

Public hospitals often encounter shortages of consumables, such as dialyzers, acid or base concentrates, blood line tubing, and heparin, because of interruption of supply chain. However, patients bear the expenses associated with dialysis, including vascular access, investigations, and medications, such as antihypertensive medications, vitamin D, iron, and erythropoietin-stimulating agents.

Current and Future Challenges

Providing easily accessible care for kidney patients in Africa is challenging because of limited resources. Somaliland is akin to the acknowledged challenges of dialysis across numerous African countries.[5–7] The most prevalent problems with dialysis in Somaliland at present are inadequate funding from the government, insufficient infrastructure, an inadequate nephrology service workforce, and poorly regulated quality of service. However, lack of awareness and disease prevention plays a significant role.

Studies have shown that unplanned or crash dialysis initiation is associated with higher rates of mortality and significant financial consequences.[8–10] Despite hemodialysis being free of charge in public facilities, the overall dialysis adequacy and outcome remains a challenge. Late referrals and the urgent need to initiate dialysis hinder care delivery in communities with limited resources.

Despite recent improvements, important work remains to be performed to enhance the life expectancy of patients undergoing dialysis, improve existing hemodialysis, and ensure safety. Frequent inspections of water purity and quality during hemodialysis should be considered mandatory.

In conclusion, to address the current challenges, the government ought to emphasize additional funding along with coherent policies and strategies to enhance kidney care delivery across the country. Kidney care in Somaliland could potentially be strengthened through increased awareness and disease prevention. Training primary care practitioners in peripheral regions to be capable to identify the early warning signs of kidney disease is essential.

The establishment of peritoneal dialysis should be given priority; however, to completely advance toward a sustainable kidney transplant program, a national committee for organ donation and transplantation should be considered.

Disclosures

Disclosure forms, as provided by each author, are available with the online version of the article at http://links.lww.com/KN9/A736.

Funding

None.

Acknowledgments

We thank all dialysis staff, including doctors and nurses, who provided us with data for the survey we conducted.

The content of this article reflects the personal experience and views of the authors and should not be considered medical advice or recommendation. The content does not reflect the views or opinions of the American Society of Nephrology (ASN) or *Kidney360*. Responsibility for the information and views expressed herein lies entirely with the authors.

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