

Future Prospects for Renal Transplantation in Chad

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Chronic kidney disease (CKD) is a condition characterized by the progressive and irreversible loss of renal function, potentially leading to the need for renal replacement therapy, either dialysis or transplantation [1]. It affects millions of people and constitutes a major global public health burden [2]. In Chad, CKD is emerging as a growing public health concern, progressing silently and often diagnosed at an advanced stage, namely end-stage renal disease (ESRD) [3]. Renal transplantation is recognized as the most effective and cost-efficient long-term treatment for CKD. Compared to dialysis, it significantly improves patient survival and quality of life [4]. However, its implementation remains limited in many low-resource countries, particularly in sub-Saharan Africa, where only a few countries have succeeded in developing structured transplantation programs [5].

In Chad, where dialysis resources remain scarce and unevenly distributed across the territory, renal transplantation emerges as an essential therapeutic alternative. Yet, to date, there is no dedicated legal framework or institutional structure to support renal transplantation. This article focuses on the future prospects of renal transplantation in Chad by addressing several key points: the epidemiology and current state of ESRD management, structural constraints, and potential pathways for developing a sustainable transplantation program in a resource-limited context.

1. Epidemiology and Current Management of ESRD in Chad

Available data on ESRD in Chad come primarily from hospital-based, often descriptive and monocentric, cross-sectional studies. A 2016 study investigating the epidemiological profile of CKD in Chad reported a hospital-based prevalence of 9.6%. The mean patient age was 51 years, ranging from 11 to 85 years, with a male predominance (59%). Hypertension was the leading risk factor (66.2%), followed by diabetes mellitus (48.2%) and alcohol consumption (28.7%). Notably, 30% of patients were already at the ESRD stage at the time of diagnosis, and none had access to renal transplantation. The mortality rate in this cohort was 12.5% [3].

The country's first public hemodialysis unit was established in 2011, staffed by a nephrologist, a general practitioner, and six nurses. Initially, six dialysis machines served 14 chronic patients [6]. In 2014, only one patient was followed at the unit, increasing to nine by 2018. All transplant procedures involving Chadian patients were performed



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abroad [7]. Currently, dialysis remains the only available form of renal replacement therapy in Chad. However, access is extremely limited and mostly confined to the capital, N'Djamena. Beyond geographic inaccessibility, dialysis faces significant logistical and technical challenges. The supply of equipment and consumables—such as filters, blood lines, dialysate concentrates, and needles—is irregular and heavily dependent on imports. This reliance frequently leads to stock shortages, disrupting treatment continuity. Furthermore, the number of functional dialysis machines is limited, with many being outdated or non-operational due to a lack of specialized maintenance. To address this situation, a national commitment to establishing a renal transplantation program is essential. Yet, the absence of a legal framework currently prevents such an option from being implemented, leaving patients with only the alternatives of lifelong dialysis or unaffordable medical evacuation.

2. Structural Constraints and Perspectives in a Resource-Limited Setting in Chad

In Africa, Bamgboye et al. [8] have clearly demonstrated a direct correlation between a country's gross domestic product (GDP) and its ability to establish and sustain active renal transplantation programs. Beyond economic considerations, geopolitical factors such as political instability, interregional and intraregional conflicts, and security crises have further hindered the development of nephrology services across the continent [8]. In Chad, additional barriers persist. These include the absence of a legal and institutional framework governing organ donation and transplantation, inadequate health infrastructure, a severe shortage of qualified human resources, and a lack of research into the sociocultural and religious dimensions surrounding organ donation. Public financing also remains a critical issue for ensuring the sustainability and equity of any future transplantation program.

Faced with these specific constraints, what are the feasible short-term prospects for developing a sustainable renal transplantation program in Chad?

3. Opportunities and Strategic Levers for the Future in Chad

Several opportunities exist to initiate momentum toward establishing a national transplantation program in Chad. First, the country benefits from a growing pool of human resources trained in nephrology, urological surgery, and renal replacement therapies at reputable foreign institutions. The return of these specialized professionals can serve as a catalyst for developing a minimal technical platform for transplantation. Strengthening local training institutions, alongside political will to expand specialized healthcare—illustrated by recent international cooperation and the creation of new referral hospitals—further supports this momentum. A strategy to integrate renal transplantation into national health priorities is both timely and necessary.

The establishment of a specialized medical biology platform—particularly in immunology, which is currently nonexistent—is a crucial prerequisite for the success and follow-up of transplant procedures. Likewise, the availability and affordability of immunosuppressive therapies are critical to graft survival and long-term transplant success. Developing a secure and stable supply chain for these medications, supported by a subsidy policy or inclusion on the national list of essential medicines, is a strategic priority. Lastly, drafting a legal and ethical framework to regulate organ donation (initially from living related donors) is an essential and feasible first step. Achieving this requires collaborative engagement between healthcare professionals, legal experts, public health authorities, and international partners.

In 2015, an initial bill was presented to the National Assembly, but no action was taken. Ten years later, in October 2025, this bill was reintroduced and will be debated, which could lead to its adoption. This legal advance would represent a major step forward. In addition,

I initiated the creation of specialized degrees in urology and nephrology, which will make an essential contribution to strengthening human resources and national capacities.

4. Conclusions

In summary, ESRD constitutes a significant public health challenge in Chad. Renal transplantation stands as a vital therapeutic alternative given the current limitations of dialysis. Despite numerous identified obstacles, there are clear opportunities and resources that can be mobilized. A multisectoral and coordinated strategy is essential to initiate an equitable and sustainable kidney transplantation program in the country.

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