



AFRICAN ASSOCIATION OF NEPHROLOGY

AFRAN TRANSPLANT COMMITTEE

AFRAN KIDNEY TRANSPLANT GUIDELINES

***How to Create and Maintain Kidney
Transplant Program in Africa***

First Edition 2026

An African-led, context-specific kidney transplant guidelines for low- and middle-income settings, designed for clinicians, programme leaders, and policymakers.

INTRODUCTION



Prof Abdou Niang
AFRAN PRESIDENT

Kidney transplantation remains the gold standard treatment for end-stage kidney disease, offering superior survival, improved quality of life, and greater cost-effectiveness compared to long-term dialysis. Yet across Africa, access to this life-saving therapy remains profoundly limited, uneven, and often unsustainable, reflecting persistent structural, organizational, and financial constraints. In this context, the present guidelines developed under the leadership of AFRAN represent a pivotal and timely contribution to advancing transplantation across the context. The originality of this document lies in its distinctly African perspective. Developed by African experts for African health systems, it moves beyond the direct adoption of high-income country models to propose a pragmatic, context-sensitive, and operational framework aligned with the realities of resource-constrained settings. It embodies a strategic shift toward African ownership, leadership, and accountability in the development of ethical, equitable, and sustainable transplant programmes. Its importance is commensurate with the scale of the challenges it addresses. Despite a growing burden of end-stage kidney disease, transplant activity in Africa remains marginal on the global stage, largely dependent on living donation and characterized by limited development of deceased donor systems. The absence of integrated and coherent frameworks continues to hinder expansion. These guidelines respond to this gap by articulating clear principles, minimum standards, and realistic pathways for programme development. Their relevance is further strengthened by an integrated and systems-based approach, encompassing clinical, ethical, organizational, and policy dimensions. While aligned with internationally recognized standards, including those of the WHO, KDIGO, and the Declaration of Istanbul, the recommendations are contextually adapted to African contexts, ensuring both scientific rigor and operational feasibility. The document provides a comprehensive and phased roadmap, from the establishment of legal, ethical, and financing frameworks, to the development of workforce and infrastructure, and the initiation, consolidation, and long-term sustainability of transplant programmes. This stepwise approach allows countries at different levels of readiness to engage in a structured and achievable progression toward self-reliant systems. Importantly, the guidelines incorporate Africa-specific considerations, including infectious disease burdens, sociocultural dimensions of organ donation, and access constraints, while integrating monitoring, evaluation, and continuous quality improvement mechanisms. As such, they extend beyond technical guidance to serve as a strategic instrument for health system strengthening. Ultimately, this document represents a foundational milestone. It affirms a collective commitment to advancing kidney transplantation in Africa through locally led, contextually grounded, and ethically robust programmes, with the overarching goal of improving access, outcomes, and equity for patients across the continent.

PREFACE

Prof Mohamed Mongi Bacha
AFRAN TRANSPLANT COMMITTEE CHAIR

Conceived, developed, and led by African experts for African countries and other low- and middle-income settings, these Guidelines affirm the conviction that sustainable Kidney Transplantation (KT) in Africa must be shaped by those who understand its realities, constraints, and aspirations. KT remains the optimal renal replacement therapy for patients with end-stage kidney disease, offering superior survival, improved quality of life, and better cost-effectiveness compared with long-term dialysis. Yet, across the African continent, access to this life-saving therapy remains profoundly limited, fragmented, and inequitable.

As of the end of 2025, KT has been performed in only 23 African countries, almost exclusively from living donors. In several of these countries, transplant activities have been sporadic, dependent on visiting foreign teams, or implemented as short-term initiatives without long-term sustainability, leading to the interruption or complete cessation of programs. Deceased donor KT is currently established in only three African countries, Tunisia, South Africa, and Morocco, highlighting the substantial gap between Africa and other regions of the world in terms of comprehensive transplant system development. According to the 2024 data from the Global Observatory on Donation and Transplantation (GODT), kidney transplants performed in Africa represent approximately 0.5% of global transplant activity, with a rate not exceeding 1.1 per million population. This persistent disparity reflects structural, legal, financial, and workforce limitations and continues to promote unethical practices, including transplant tourism and commercial organ donation, particularly in low- and middle-income countries (LMICs), to the detriment of vulnerable populations and the integrity of transplantation systems. The African Association of Nephrology (AFRAN),

founded in 1987, is a pan-African scientific society dedicated to advancing kidney health across the continent. Among its core missions is “to promote research specifically addressing nephrological problems in Africa, particularly at a multinational level.” In line with this mandate, AFRAN has consistently advocated for African-led, context-sensitive solutions to African kidney health challenges, grounded in regional cooperation, shared expertise, and institutional strengthening. It is within this framework that the AFRAN Transplant Committee initiated and led the development of the present Guidelines, “How to Create and Maintain Kidney Transplant Programs in Africa”. These Guidelines were intentionally conceived as African-owned guidance: designed by African experts, informed by African clinical and health system experience, and primarily intended for African countries, while remaining relevant to other low- and middle-income settings facing similar constraints. They do not replicate high-income country models, but rather translate international principles into practical, ethically grounded, and feasible pathways adapted to African realities. The Guidelines were developed over an 18-month period (March 2024 – August 2025) through a rigorous, inclusive, and transparent process involving 26 African experts from 17 countries, representing all five regions of Africa. The work was conducted through 31 structured working meetings that enabled broad consensus-building and contextual adaptation. External review by 10 international experts was sought to ensure scientific rigor and methodological quality, while preserving the primacy of African leadership and perspective throughout the process. These Guidelines are pragmatic and adaptable by design. They acknowledge the diversity of African legal frameworks, health systems, cultural contexts, and resource availability. Their primary audience includes African policymakers, clinicians, and health system leaders, but their principles and phased approaches are applicable to other LMICs seeking to develop ethical, safe, and sustainable kidney transplant programs. The overarching aim is to support locally owned, nationally integrated, and progressively self-reliant transplantation services. The document provides a comprehensive and phased roadmap. It begins with an overview of chronic kidney disease and KT in Africa, followed by chapters addressing the legal, ethical, and organizational foundations required for program establishment.

Subsequent sections detail human resource requirements, infrastructure and operational standards, and a stepwise approach to implementation from initial planning and early transplant activity to long-term sustainability and continuous quality improvement. Dedicated chapters address Africa-specific medical, technical, cultural, and ethical considerations related to both living and deceased donation, as well as performance indicators and monitoring frameworks.

These guidelines constitute a foundational statement of intent and responsibility. They affirm the collective commitment of African nephrology and transplant professionals to advance KT as an ethical, equitable, and sustainable public health priority across the continent. By articulating shared principles, minimum standards, and realistic pathways for development, they seek to empower African institutions to build resilient transplant programs that serve their populations with dignity and transparency. Ultimately, they declare that the future of KT in Africa must be defined in Africa, led by African expertise, governed by African institutions, and delivered for the benefit of African patients.

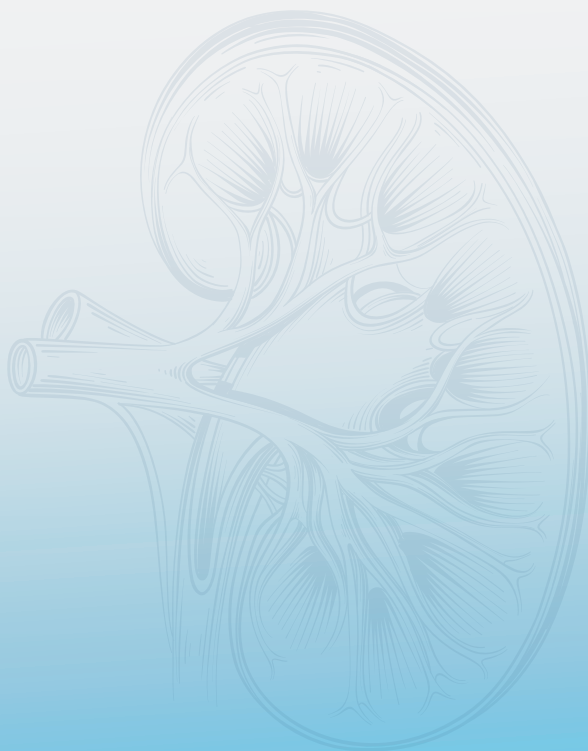


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Scope and Purpose



The African Association of Nephrology (AFRAN) Transplant Guidelines provide a comprehensive framework to guide the ethical, legal, clinical, and operational development of kidney transplantation across Africa. These guidelines are intended for policymakers, clinicians, healthcare workers, hospital administrators, and patient advocacy groups involved in the establishment, delivery, and evaluation of transplant services.

Scope

The guidelines provide an overview of the spectrum of kidney transplantation in Africa, from the burden of chronic kidney disease and the current state of transplantation, through legal and ethical governance, program development, phased implementation, medical and technical standards, to future directions in research, innovation, and service expansion. They integrate global standards (KDIGO, WHO, Declaration of Istanbul) with African realities, aiming to address cultural, economic, and systemic considerations.

Purpose

The primary purpose of these guidelines is to provide evidence-based, context-specific recommendations for the development of sustainable kidney transplant programmes in Africa; to ensure that transplantation practices are ethical, transparent, and equitable, with appropriate protection of both donors and recipients; to support countries in establishing legal, financial, and organisational frameworks that reduce reliance on external models and strengthen national and regional self-reliance; to promote standardisation in clinical practice, quality assurance, and continuous evaluation across diverse African health systems; and to facilitate regional collaboration, knowledge sharing, and capacity building in order to reduce disparities in access and improve transplant outcomes.

These guidelines are intended to be read and interpreted in the context of the reader's local legal, cultural, institutional, and health system environment. Accordingly, the use and application of these guidelines rest with the reader, who must exercise appropriate clinical, ethical, and professional judgement

when adapting recommendations to local circumstances, resource availability, and national regulatory frameworks. These guidelines are not prescriptive and are not intended to replace clinical judgement, professional standards, or locally applicable laws, regulations, or policies. Where national legislation, regulatory requirements, or institutional policies differ from the recommendations contained herein, such national and local provisions should take precedence. The recommendations reflect the best available evidence and expert consensus at the time of development. As scientific evidence, technologies, and health system capacities evolve, elements of these guidelines may require revision, and users are encouraged to remain attentive to updated national and international guidance. It is further recognised that substantial variability exists across African settings in financial resources, infrastructure, workforce capacity, and access to essential services. The guidelines are therefore intended to support phased, pragmatic, and context-sensitive adoption, rather than uniform or compulsory implementation across all settings. AFRAN and the guideline contributors accept no legal liability for outcomes arising from the interpretation, use, or implementation of these guidelines. Responsibility for clinical decision-making and programme implementation remains with the treating clinicians, healthcare institutions, and relevant authorities.

AFRAN Transplant Committee

The AFRAN Transplant Guidelines were developed under the leadership of the AFRAN Transplant Committee, representing a diverse group of experts from across the continent. The committee brings together clinicians, researchers, and academics with extensive experience in nephrology and transplantation.



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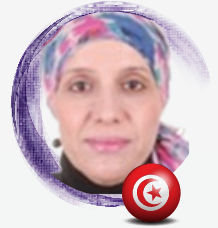
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The AFRAN Transplant Guidelines were further strengthened through independent external review by internationally recognised experts in kidney transplantation and nephrology. These reviewers critically appraised and validated the content, methodological rigour, and practical applicability of the guidelines, ensuring alignment with international best practice while remaining sensitive to African and global health system contexts. AFRAN is deeply indebted to these reviewers for their time, expertise, and invaluable contributions, which were instrumental in enhancing the scientific credibility, clarity, and robustness of the final document.



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Disclosures

The development of the African Association of Nephrology (AFRAN) Transplant Guidelines was conducted without external or commercial funding. All contributors, editors, and external reviewers participated voluntarily, motivated by the objective of advancing equitable, ethical, and sustainable kidney transplantation across Africa and other low- and middle-income countries. No pharmaceutical companies, device manufacturers, transplant service providers, or other commercial entities were involved in the funding, development, drafting, review, or validation of these guidelines. The content, recommendations, and grading were determined independently by the AFRAN Transplant Committee, informed by expert consensus and available evidence. All contributors and external reviewers were requested to declare potential conflicts of interest. No financial or non-financial conflicts of interest that could have influenced the guideline content were identified. Editorial decisions, recommendation formulation, and final approval of the document were made solely by the AFRAN Transplant Committee, independent of any external influence.

Methods

The development of the African Association of Nephrology (AFRAN) Transplant Guidelines was initiated in March 2024. The AFRAN Transplant Committee convened online meetings twice monthly, during which the process of guideline development was coordinated and monitored. The first step involved a comprehensive literature review of current publications on the establishment of kidney transplant services, focusing on papers published within the last five years, and extending up to ten years where particularly relevant. Insights from these publications were synthesised into a preliminary framework that outlined the major structures and key points necessary for the development of transplant programs in Africa. This framework was then divided into thematic sections, which were allocated to members of the AFRAN Transplant Committee. Each member was tasked with drafting content for their assigned section, drawing on the literature, existing global standards, and regional context. The completed sections were subsequently collated and subjected to editorial review by the primary editors, Prof Wesley van Hougenhouck-Tulleken and Prof. Intissar Haddiya, to ensure consistency, accuracy, and alignment with the overall objectives of the guidelines.

Following editorial review, the recommendations were graded for strength and quality of evidence using the GRADE framework based on the KDIGO guidelines. A line-by-line review was then conducted by the entire AFRAN Transplant Guidelines Committee to ensure consensus, transparency, and uniform application of the grading system. Once the internal review process was complete, the full guideline document was circulated to a panel of international experts in the field of kidney transplantation for external review. These experts included Prof. Michel Jadoul, Dr Patience Sigwadi, Prof. Jean-Paul Squifflet, Prof. Ahmed Halawa, Prof. Mohamed Salah Zaki, Prof. Ezzedine Abderrahim, Prof. Ifeoma Ulasi, Prof. Elmi Muller, Prof. Hatem Amer and Prof. Ramdani Benyounes. Their feedback and recommendations were incorporated to strengthen the quality, applicability, and credibility of the final document. This structured, multi-stage process; combining evidence review, expert consensus, iterative drafting, internal grading, and external validation; ensured that the guidelines are evidence-based, contextually relevant, and aligned with international best practice while being adapted to African realities.

The Grading System

The grading system used in these guidelines is adapted from the Kidney Disease: Improving Global Outcomes (KDIGO) framework. It provides a standardised and transparent method for evaluating the strength of recommendations and the quality of supporting evidence, ensuring consistency and clinical relevance when guiding decision-making in kidney transplantation practices. Strength of Recommendation is classified as:

Grade 1

("We recommend"): A strong recommendation indicating that most patients and clinicians would opt for the recommended approach. It is suitable for policy development and performance evaluation.

Grade 2

("We suggest"): A weaker recommendation, acknowledging that different choices may be appropriate depending on patient values and preferences

Quality of Evidence is categorized as:

Grade A

(High): High confidence that the true effect is close to the estimated effect.

Grade B

(Moderate): True effect is likely close to the estimate but could be substantially different.

Grade C

(Low): Limited confidence in the estimate; true effect may differ considerably.

Grade D

(Very Low): High uncertainty about the effect estimates.

Grade NG

(Not Graded): Recommendation based on expert consensus or clinical experience where formal grading is not possible.

Ungraded recommendations typically apply to areas such as routine practices, organisational processes, or patient education where evidence is lacking but expert agreement is strong.

This combined system provides a balanced framework for clinical practice and policy development, particularly adapted to the unique healthcare realities in Africa.

AGREE II Assessment

To further evaluate the methodological quality, transparency, and applicability of these guidelines, the African Association of Nephrology Transplant Guidelines were appraised using the Appraisal of Guidelines for Research and Evaluation II (AGREE II) instrument. This structured assessment provides an internationally recognised framework for evaluating guideline development across key domains, including scope and purpose, stakeholder involvement, rigour of development, clarity of presentation, applicability, and editorial independence. The AGREE II assessment presented below reflects the final revised version of the guidelines following internal consensus review and external expert validation.

DOMAIN	SCORE (1-7)	JUSTIFICATION
Scope and Purpose	7	The overall objectives, clinical and policy questions, and target populations are clearly and explicitly defined. The guidelines comprehensively address kidney transplantation in Africa, spanning epidemiology, legal and ethical governance, programme development, phased implementation, clinical standards, monitoring, and future directions.
Stakeholder Involvement	7	The guideline development process involved broad multidisciplinary kidney transplantation experts' representation from across the African continent. External review by internationally recognised transplant specialists further strengthened validity. Intended users are clearly identified, and community engagement is addressed by online publication on the AFRAN website.
Rigour of Development	6	Recommendations are informed by a structured literature review, integration of international standards (KDIGO, WHO Guiding Principles, Declaration of Istanbul), application of the GRADE framework, and iterative internal and external review. While the development process is transparent and robust, formal documentation of systematic search strategies and explicit updating procedures could be further strengthened.
Clarity of Presentation	6	Recommendations are clearly stated, consistently graded, and logically organised. The use of phased frameworks, key takeaways, and structured sections enhances readability and usability.
Applicability	6	The guidelines explicitly address implementation in resource-constrained settings, including barriers, facilitators, phased adoption, workforce models, infrastructure requirements, and monitoring indicators.
Editorial Independence	7	The guidelines were developed without external or commercial funding, and all contributors, editors, and external reviewers participated voluntarily. Explicit declarations confirm the absence of financial or non-financial conflicts of interest that could have influenced the content. Editorial decisions, recommendation formulation, grading, and final approval were undertaken independently by the AFRAN Transplant Committee, without influence from industry, funders, or other external stakeholders.

The AFRAN Transplant Guidelines demonstrate high methodological quality, strong stakeholder engagement, and clear relevance to African health systems. The AGREE II appraisal supports the AFRAN Transplant Guidelines use as a credible, context-appropriate framework for guiding the ethical, legal, clinical, and operational development of kidney transplantation programmes across Africa

Strengths and Limitations

A major strength of these guidelines is the systematic and collaborative approach used in their development. The process involved regular structured meetings, a comprehensive review of available literature, and contributions from a diverse group of experts across the African continent. The guidelines were drafted by members of the AFRAN Transplant Committee, reviewed by experienced editors, and subjected to rigorous line-by-line evaluation. External review by internationally recognised leaders in transplantation further enhanced the scientific validity, credibility, and global alignment of the final document. This multi-tiered approach ensured that the guidelines reflect both international standards and African realities. These guidelines were written by African experts for African patients in an African setting.

The principal limitation is the scarcity of high-quality, Africa-specific data on kidney transplantation. Most available studies on the establishment and operation of transplant programs are drawn from high- or middle-income countries, with limited representation from supra- and sub-Saharan Africa. As a result, much of the evidence underpinning these guidelines is extrapolated from global literature and then adapted to the African context. This reliance on non-African data introduces uncertainty regarding the applicability of certain recommendations in resource-constrained settings with unique sociocultural, financial, and infrastructural challenges. Furthermore, the lack of robust transplant registries and multicentre African studies constrains the ability to make evidence-based recommendations tailored specifically to the continent.

Despite these limitations, the guidelines represent the first and a critical step in standardising and strengthening kidney transplantation across Africa. They highlight existing gaps in knowledge and underscore the urgent need for locally generated data, ongoing evaluation, and research to refine and adapt recommendations in the future.



when adapting recommendations to local circumstances, resource availability, and national regulatory frameworks. These guidelines are not prescriptive and are not intended to replace clinical judgement, professional standards, or locally applicable laws, regulations, or policies. Where national legislation, regulatory requirements, or institutional policies differ from the recommendations contained herein, such national and local provisions should take precedence. The recommendations reflect the best available evidence and expert consensus at the time of development. As scientific evidence, technologies, and health system capacities evolve, elements of these guidelines may require revision, and users are encouraged to remain attentive to updated national and international guidance. It is further recognised that substantial variability exists across African settings in financial resources, infrastructure, workforce capacity, and access to essential services. The guidelines are therefore intended to support phased, pragmatic, and context-sensitive adoption, rather than uniform or compulsory implementation across all settings. AFRAN and the guideline contributors accept no legal liability for outcomes arising from the interpretation, use, or implementation of these guidelines. Responsibility for clinical decision-making and programme implementation remains with the treating clinicians, healthcare institutions, and relevant authorities.

Chapter 1: Chronic Kidney Disease in Africa



CHAPTER 1.1:

Prevalence and Progression of Kidney Disease in Africa and LMICs

Chronic Kidney Disease (CKD) has emerged as a critical global health issue, ranking among the leading causes of morbidity and mortality worldwide. In 2025 CKD was recognized as the 11th leading cause of death globally, having risen from 20th position in 1990. CKD reflects the hidden burden of non-communicable diseases, particularly in low- and middle-income countries (LMICs) such as many of those across Africa (1,2). Unlike many communicable diseases, CKD typically progresses silently through early stages, often remaining undetected until reaching advanced stages where outcomes are poor, and treatment costs are prohibitive (2,3). Globally, CKD is estimated to affect 13.4% of the population (3,4), but prevalence is notably higher in LMICs due to compounding factors such as poor access to healthcare, late diagnosis, an increasing burden of hypertension, diabetes, obesity, hereditary kidney diseases and infectious diseases such as HIV (5,6). In Africa, these trends are particularly alarming. Sub-regional analyses reveal pooled CKD prevalence estimates of 16.5% in West and Central-West Africa, 16% in Central Africa, 12.2% in Southern Africa, 11.0% in Eastern Africa, and 4% in North Africa (7). These figures translate to millions of individuals living with CKD across the continent, many of whom remain unaware of their condition until severe or irreversible damage has occurred. Among high-risk populations, CKD prevalence is unfortunately worse. Patients living with hypertension show a CKD prevalence of 35.6%, and those with HIV experience rates approaching 27.3% (6). This double burden of communicable and non-communicable diseases places enormous strain on fragile health systems. HIV-associated nephropathy, for example, is a well-established cause of CKD in sub-Saharan African populations, contributing significantly to the progression towards end-stage renal disease (ESRD), often in young economically active adults (6).

As CKD advances to ESRD, renal replacement therapies (RRT) become lifesaving, but this is unfortunately resource intensive (8). Initiation of RRT is usually indicated when the estimated glomerular filtration rate (eGFR) falls below 10 ml/min/1.73m², although earlier initiation is sometimes necessary based on the presence of symptoms or complications (9). While high-income countries routinely provide dialysis and/or transplantation for ESRD patients, this level of care is largely unavailable or unaffordable in LMICs. The cost of RRT can consume up to 3% of a national health budget to treat only 0.03% of the population in high-income countries (10). For LMICs with far fewer resources, prioritizing dialysis or transplantation often becomes economically impossible (2,10,11).

Among RRT options, peritoneal dialysis offers a relatively cost-effective and flexible alternative to haemodialysis, especially in remote or rural areas where dialysis centres are scarce (8). Nevertheless, kidney transplantation remains the most cost-effective and clinically superior long-term treatment for eligible ESRD patients, offering survival benefits and quality-of-life improvements unattainable with dialysis alone (8). However, access to transplantation in Africa remains limited, reinforcing a cycle of poor outcomes and widening disparities (12,13).

Thus, the burden of CKD in Africa must be seen not merely as a clinical problem but as a broader public health and developmental challenge. Addressing it requires comprehensive strategies that span prevention, early diagnosis, equitable access to treatment, and political commitment to healthcare investment. The establishment and strengthening of transplantation programs across Africa is a critical component of this response, as explored in the following section.

Chapter 1.2: State of Kidney Transplantation in Africa

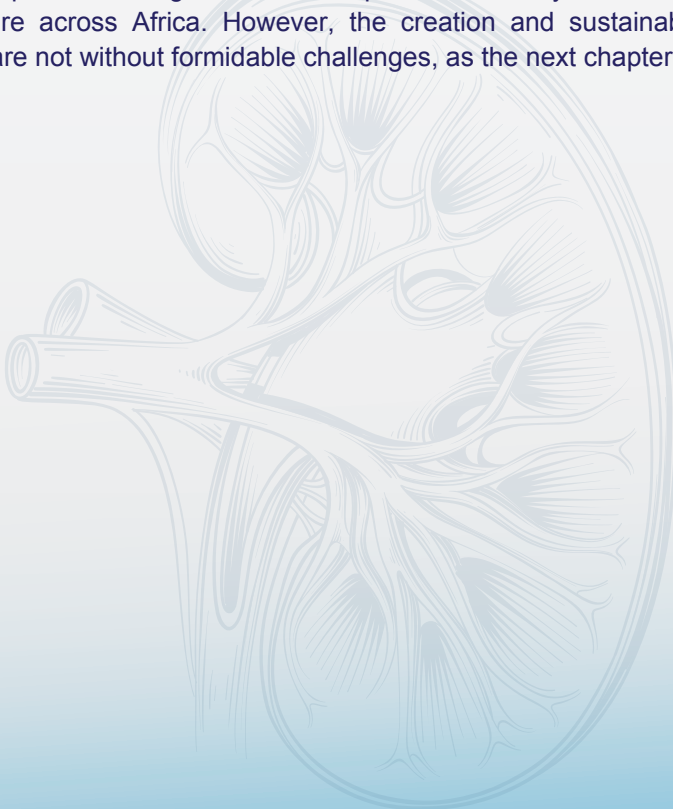
Despite the severe burden of ESRD across Africa, kidney transplantation remains strikingly underutilized. Although the first successful kidney transplant in Africa was performed in South Africa in 1966, progress since then has been slow and uneven. As of 2021, Africa accounted for less than 1% of all kidney transplants globally, with fewer than 20,000 transplants performed over six decades (12,14–16). As of 2024, 28 of the 54 African countries have access to kidney transplant, but only 22 reported in-country kidney transplantation activity, a marked increase from earlier estimates (17). These programs span both Northern and sub-Saharan Africa, including nations such as Algeria, Côte d'Ivoire, Egypt, Ethiopia, Ghana, Kenya, Libya, Mauritius, Morocco, Nigeria, South Africa, Sudan, Tanzania, Tunisia, and Zimbabwe; reflecting an uneven, but growing momentum toward transplant access across the continent. Across Africa, kidney transplantation remains mainly dependent on living donors, with deceased donation contributing to only a small fraction of total activity. Consistently active and structured deceased donor (DD) programs exist only in South Africa, while countries such as Tunisia, Egypt, Mauritius, Morocco, and Tanzania have reported intermittent or pilot DD activity. Consequently, living donation remains the predominant model in nearly all transplanting countries, despite its limitations in sustainability and equity, particularly given the high prevalence of CKD and hypertension among potential donors. In contrast, South Africa's DD program, responsible for roughly 60% of its national transplants, demonstrates the potential of deceased donation to expand access in Africa, when supported by legislation, infrastructure and public trust. (12,13) In North Africa, the transplantation landscape is now more favourable. Egypt performs over 1,500 kidney transplants annually and maintains a broad network of around 40 transplant centres (16). Tunisia, Morocco, and Libya also have operational programs, with cumulative transplant numbers of 2,113 between 1986 and 2022 for Tunisia, 860 for Morocco, and 590 for Libya (16). Tunisia, Algeria, and Morocco have operational programs with transplantation rates of approximately 7.7, 6.5, and 0.9 transplants per million population respectively. While these totals are modest in global terms, they are among the highest on the continent.

These variations reflect not only differences in healthcare infrastructure but also the critical roles played by political commitment, funding mechanisms, cultural acceptance of organ donation, and regulatory frameworks (13,18).

Funding models emerge as a pivotal determinant of access and sustainability. In South Africa, Mauritius, Ethiopia, Seychelles, Algeria, and Tanzania, public sector support enables broader access (13,18). Kenya has adopted a mixed model with partial state funding. However, in much of the continent, transplantation remains predominantly patient-funded, restricting access to a small minority of affluent patients (13,15).

Regulatory frameworks for transplantation vary widely. While countries such as Mauritania, Rwanda, Burkina Faso, and Zimbabwe have enacted transplant legislation even before performing their first procedures, many nations with active programs still operate without comprehensive legal regulation, raising concerns about transparency, organ trafficking, and patient safety (16,18,20).

These data point to an urgent need for expanded, ethically sound transplantation infrastructure across Africa. However, the creation and sustainability of such programs are not without formidable challenges, as the next chapter will explore.



Chapter 1.3: Challenges in Establishing Transplant Programs in Low- and Middle-Income Countries

The establishment of sustainable, accessible kidney transplantation programs in LMICs, including those in Africa, is hindered by a complex interplay of financial, infrastructural, human resource, regulatory, cultural, religious and sociopolitical factors (12). Firstly, economic constraints are paramount. Many African countries allocate less than 5% of their Gross National Income to healthcare, which limits their ability to construct and maintain the operating theatres, intensive care units, transplant laboratories, and outpatient services required for transplantation (21). Essential diagnostic services, such as histocompatibility testing and advanced immunological assays, remain unavailable in many countries. Even when facilities exist, costs are often prohibitive for patients, and consumable shortages can derail program continuity (18–20). donors and recipients. Human resource limitations present another major obstacle. Nephrologists, transplant surgeons, transplant coordinators, and specialist nurses are few and often concentrated in urban centres (12,19,20). Training local professionals and establishing structured career paths for transplant specialists is crucial to long-term program sustainability. An emerging challenge is the brain drain among young nephrologists in Africa, which threatens retention and continuity of expertise (13,20). Additionally, the regulatory environment remains weak in many countries, facilitating practices such as commercial transplantation and organ trafficking (19–21). Robust legislation, transparency in allocation practices, ethical governance, and regional registries are urgently needed to safeguard both donors and recipients. Cultural and religious attitudes towards organ donation further complicate program development. In many African societies, traditional beliefs about death, the sanctity of the body, and distrust of medical institutions reduce the acceptability of deceased donation (18). Public awareness campaigns, engagement with religious and community leaders, and integration of cultural sensitivity into transplant policy are crucial. In resource-limited settings, suboptimal clinical practices may emerge. These include the use of less effective immunosuppressive protocols (e.g., omission of induction therapy) and acceptance of higher-risk donors without adequate follow-up (13). Late referrals of CKD patients, who often present with irreversible complications, further diminish the chances of successful transplantation. Although no association has been established between transplantation outcomes and the timing of CKD diagnosis, even in patients with long dialysis vintage, the absence of a confirmed causal nephropathy remains a known risk factor for post-transplant recurrence in conditions such as C3 glomerulopathy or aHUS. Despite these challenges, examples of success do exist. Innovative partnerships with international organisations, such as Transplant Links Community, have demonstrated that capacity building, skill transfer, and phased development can yield sustainable transplant programs even in resource-constrained settings (22). Ultimately, the challenge for Africa is not simply to replicate transplantation models from high-income countries but to design Afrocentric, pragmatic, and ethical approaches to transplantation that reflect the continent's realities and aspirations.

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Chapter 2: Legal, Ethical, and Organisational Framework

The development of kidney donation and transplantation programs in Africa must be led by African countries, but grounded in local realities, values, and systems. These programs must be built upon African knowledge, experiences, and leadership, while acknowledging the importance of ethical safeguards and regulatory consistency (1). The recommendations in this chapter reflect a deliberate effort to synthesise Africa derived principles with key elements from globally recognised standards, including the UN Protocol on Trafficking in Persons (2004), the WHO Guiding Principles (2010), and the Declaration of Istanbul (2018) (2–4). These international instruments offer valid reference points but have been blended with regional context to support implementation in African legal, cultural, and health systems (5). Rather than importing frameworks wholesale, African countries should adapt and improve them to suit their unique sociopolitical and healthcare environments (5). This process ensures that national transplant systems are not only compliant with ethical norms but are also deeply embedded in the lived realities of the populations they serve. This chapter presents an adaptable roadmap for establishing national legal, regulatory, and ethical foundations that will enable the successful pragmatic development and phased operational roll-out described in Chapters 3 and 4.

Chapter 2.1: National Frameworks for Governance, Financing, and Coordination

2.1.1 Build Legal and Policy Infrastructure

- Establish national kidney transplant legislation aligned with the WHO Guiding Principles (2010), the Declaration of Istanbul (2018), and the UN Protocol to Prevent, Suppress and Punish Trafficking in Persons (2004). **(1A)** (2–4)
- Ensure laws explicitly prohibit organ trafficking, transplant tourism, and commercialisation. **(1A)** (2,4)
- Define clear legal standards for donation criteria and consent procedures, in both living and deceased donation; and death diagnosis in deceased donation. **(1A)** (1,6–8)
- Include enforcement mechanisms within legislation to ensure violations such as organ trafficking, coercion, or commercialisation are prosecutable offences. **(1A)** (1,2,5)
- Legal frameworks must be backed by practical enforcement capacity, including penalties and monitoring systems to deter abuse and protect public trust. **(1A)** (2,3)

2.1.2 Secure Sustainable Financing

- Embed transplantation services into national health budgets, especially under NCD strategies and health insurance frameworks. **(1A)** (9)
- Leverage the WHO's Investment Case for NCDs to advocate for increased domestic allocation. **(1A)** (9,10)
- Encourage diverse funding mechanisms including public-private partnerships and donor agency support. **(1A)** (5,9)

2.1.3 Develop Human Resource Capacity and Regulatory Oversight

- Establish formal training, accreditation, and continuous professional development in nephrology, transplant surgery, immunology, coordination, and ethics. **(1A)** (5,11,12)
- Create national regulatory authorities with oversight functions to monitor compliance and maintain standards. **(1A)** (1,3,5)
- Standardise quality assurance protocols, including licensing of facilities and certification of transplant centres. **(1A)** (1,3,12,13)

2.1.4 Expand Access via Systems and Service Readiness

- Develop dialysis programs and referral networks as foundational services. **(1A)** (13,14)
- Establish national referral guidelines and triage criteria for transplant candidates. **(1A)** (13,15)
- Integrate transplant readiness into primary and secondary healthcare services where feasible. **(1A)** (13,15)

2.1.5 Promote Donation through Public Education and Community Engagement

- Launch coordinated public education efforts to raise awareness and counter misinformation, with sustained and continuous activities rather than isolated campaigns. **(2A)** (1,16)
- Engage civil society organisations, media, religious and community leaders to build public trust. **(2C)** (1,4,5)
- Integrate donation education into school curricula and health promotion platforms. **(2C)** (16,17)

2.1.6 Establish National and Regional Coordination Structures

- Develop national transplant coordination units to ensure alignment across stakeholders. **(1A)** (1,3,13)
- Establish intersectoral working groups to link legal, health, education, and social sectors. **(1A)** (1,15)
- Use WHO's Global Strategy on Digital Health (2020–2025) to build interoperable data systems for donor and recipient registries. **(1A)** (18)

KEY TAKEAWAYS

01

Establish national transplant legislation aligned with WHO, Istanbul Declaration, & UN Protocols, explicitly banning trafficking & organ commercialisation

02

Integrate transplantation into national health and insurance budgets, supported by public-private partnerships for financial sustainability.

03

Develop training, accreditation, and oversight systems for key transplant disciplines with transparent regulation of centres.

04

Build dialysis and referral networks as essential foundations for transplant access.

05

Promote public education and community engagement to increase donation awareness and trust

06

Establish national coordination bodies and interoperable donor–recipient registries to link governance, health, and data systems.

Chapter 2.2: Ethical Governance of Living & Deceased Donation

Living and deceased organ donation represent distinct but complementary pathways within transplantation, each associated with specific ethical, clinical, and operational considerations. Living donors undergo rigorous medical and psychological evaluation to ensure suitability for donation and may donate to relatives, known recipients, or anonymously through non directed altruistic donation. Living donation must be grounded in the principles of voluntariness, altruism, and financial neutrality, with transplant centres bearing explicit responsibility for preventing coercion, organ trafficking, and any form of commercialisation. Although living donor transplantation is planned and elective, it entails complex surgical and anaesthetic processes, exposes healthy individuals to risk, and carries heightened medico legal and insurance implications for clinical teams. Deceased donation offers a broader spectrum of transplantable organs and tissues, including kidneys, corneas, musculoskeletal tissues, skin, cardiac valves, and vascular conduits. While deceased donation requires substantial infrastructure, coordination, and logistical capacity, it is highly time sensitive, necessitating rapid donor identification, immediate tissue typing and crossmatching, and access to functioning laboratories with on call personnel. Most potential deceased donors are identified in trauma units and intensive care settings, requiring sustained clinician education, robust referral pathways, and dedicated transplant coordination structures. These requirements carry significant system level costs but are essential for ethical, effective, and equitable deceased donor programmes.

2.2.1 Foundational Principles

- Uphold core ethical values including autonomy, voluntariness, equity, transparency, and non-maleficence in all transplant-related activities. **(1A)** (3,4)
- These principles should be applied within African cultural contexts, respecting norms around bodily integrity, family roles, and end of life beliefs to promote ethical coherence and community acceptance. **(1A)** (1,8)

Align national ethical standards with the WHO Guiding Principles (2010) and the Declaration of Istanbul (2018) while ensuring cultural and legal relevance to African contexts. **(1A)** (3,4)

2.2.2 Ethical Guidelines for Living Kidney Donation

- Ensure potential donors give fully informed and voluntary consent after understanding all risks, benefits, and long-term implications. **(1A)** (3,4,19)
- Provide education and counselling for both donors and recipients to support decision-making and post-donation expectations. **(1A)** (3,4,19)
- Conduct independent donor and recipient assessments to ensure there is no coercion, especially for economically vulnerable or socially dependent individuals. **(2B)** (1)
- Prohibit any form of organ trade or compensation, in accordance with the Declaration of Istanbul. **(1A)** (3,4)
- Guarantee equitable access to transplant evaluation and services, regardless of income, geography, or social status. **(1B)** (1,3)
- Provide pre and post donation medical and psychosocial care through standardised follow-up protocols. **(1B)** (3,19)
- Maintain transparency in the donor-recipient matching and allocation process, guided by national legislation. **(1A)** (1,3)

2.2.3 Ethical Guidelines for Deceased Donation

- Ensure clear and legally supported definitions of death (neurological and/or circulatory) are in place and accepted by both the health system and public. **(1B)** (1,3,20)
- Public education must address cultural and spiritual interpretations of death, particularly in communities where neurological criteria may not be intuitively accepted. Involving religious and traditional leaders in these discussions can support informed public engagement. **(1C)** (1,8)
- Consent for deceased donation should be obtained either from the donor (via opt-in registries or identity documents) or next of kin, with respect for next of kin refusal. **(1C)** (1,3)
- In cases of cardiac arrest, apply Modified Maastricht Category protocols aligned with national and international guidelines. **(1A)** (20,21)

- Assess deceased donors for contraindications including transmissible diseases and malignancies. **(1A)** (3,22)
- Provide donor families with support options, such as recognition, grief counselling, and access to social services. **(1D)** (17)
- Maintain recipient anonymity and conduct post-procurement procedures respectfully and professionally. **(1A)** (3)
- Apply equitable allocation criteria prioritising medical, compatibility and urgency criteria, without discrimination. **(1A)** (3,4)
- Conduct regular equity audits of waiting list management and allocation processes. **(2C)** (15)
- Transparently communicate risks, benefits, and expectations to the deceased donor families as well as the recipient(s). **(2C)** (3,4,17)

2.2.4 Integration into Governance Structures

- Establish or designate ethical review boards to provide oversight, resolve dilemmas, and ensure compliance with national and international ethical frameworks. **(1B)** (1,3,4)
- Ensure review boards are multidisciplinary, independent, and embedded within the national transplantation governance framework. **(1B)** (3,5)

KEY TAKEAWAYS

01

Uphold ethical principles of autonomy, transparency, equity, and non-maleficence across all transplant activities.

02

Interpret consent and definitions of death within local legal, cultural, and religious contexts to enhance acceptance.

03

Ensure living donation is voluntary, informed, and free from coercion or commercial influence

04

Establish ethical oversight boards that are multidisciplinary and independent to safeguard fairness and accountability.

05

Guarantee equitable access to donor evaluation, post-donation care, and transparent organ allocation.

06

Promote public and faith-based engagement to strengthen understanding and acceptance of deceased donation.

Chapter 2.3: Legal and Ethical Oversight Committees

Effective transplantation systems require formal legal and ethical oversight mechanisms to ensure accountability, protect donor and recipient rights, and maintain public trust. Legal and Ethical Oversight Committees provide an essential governance function by monitoring compliance with national laws, ethical standards, and procedural safeguards across all transplant activities. In resource constrained and legally pluralistic settings, these committees serve as independent bodies to address complex ethical dilemmas, prevent exploitation, and support consistent decision making. This chapter outlines the purpose, composition, operational integration, and contextual adaptability of oversight committees as a cornerstone of transparent, equitable, and ethically robust transplant governance

2.3.1 Purpose and Mandate

- Establish national or regional transplant oversight committees to monitor ethical, legal, and procedural compliance across all transplant-related activities. **(1A)** (1,3,4)
- Committees should have the authority to review complex cases, approve living donor evaluations, investigate complaints, and ensure adherence to national laws and ethical standards. **(1B)** (1,3,17)

2.3.2 Composition and Structure

- Committees should include diverse representation from legal, clinical, bioethics, religious/cultural, and civil society sectors. **(1B)** (3,4,17)
- Members should be functionally independent of individual transplant programmes and must recuse themselves from deliberations or decisions where a direct or perceived conflict of interest with their own transplant team exists. **(1A)** (3,17)
- Terms of reference, appointment procedures, and reporting lines should be clearly defined and periodically reviewed. **(2B)** (1,3)

2.3.3 Operational Integration

- Oversight committees must coordinate with the Ministry of Health or equivalent authority and link to national transplant registries and data systems. **(1B)** (1,3,13)
- Oversight committees should contribute to national transplantation policy reviews, equity audits, and quality improvement processes. **(2B)** (1,13)
- Protocols for urgent ethical consultations must be developed for time-sensitive decisions (e.g. brain death declaration or donor coercion concerns). **(2B)** (1,3,8)

2.3.4 Local Adaptability

- While minimum ethical and legal functions are standardised, committees should be adapted to reflect regional governance models (e.g. judicial, religious, or customary law influences). **(2C)** (1,3,8)
- Cross-country collaboration between committees may promote peer review and regional learning. **(2C)** (1,13)
- African countries can also draw lessons from successful transplantation models in other LMICs, while tailoring these to fit local legal and ethical contexts. Structured south-south collaboration can accelerate safe and scalable system development. **(2C)** (1,23)

KEY TAKEAWAYS

01

Establish independent national or regional transplant oversight committees to ensure compliance with legal and ethical standards.

02

Ensure multidisciplinary membership including legal, clinical, ethical, and community representatives, independent of transplant teams.

03

Define clear mandates, reporting lines, and terms of reference to promote accountability and transparency.

04

Integrate committees with the Ministry of Health, national registries, and policy structures for coordinated governance.

05

Encourage regional collaboration and knowledge exchange to strengthen ethical and operational capacity across countries.

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Chapter 3: Program Development & Operational Guidelines

A functional and sustainable kidney transplant programme in Africa requires more than political will or clinical expertise, it depends on deliberate and considered investment in operational systems that translate ethical principles and legal frameworks into day-to-day practice through robust infrastructure, trained personnel, coordinated service delivery and must include regular, robust monitoring and assessment. Transplantation must be built in a phased and resource-conscious manner, grounded in feasibility, adaptability, and African experience. Within this context, countries must recognise that kidney transplantation relies on two donor pathways with distinct readiness implications. Living donor transplantation is elective and donor-centred, requiring rigorous clinical and psychological evaluation, counselling, and strong protections to ensure altruism and financial neutrality, while placing greater perioperative demands and institutional risk on transplant teams. Deceased donor transplantation depends on broader system capabilities, including trauma and critical care services, timely donor identification, trained coordinators, and rapid laboratory support for tissue typing and crossmatch testing, and therefore requires substantial national and regional coordination. These considerations shape the workforce, infrastructure, and governance models outlined in Sections 3.1 and 3.2, with broader system-level requirements detailed in Chapters 2, 3, and 4.

Chapter 3.1: Minimum Human Resource Requirements

A successful transplant programme requires both core clinical personnel and a broader multidisciplinary team to address complex patient needs. Staffing models must reflect the size and scope of the programme, but a minimum set of roles is necessary for any centre undertaking kidney transplantation.

3.1.1 Core Transplant Team (Essential Personnel)

- Clinical Transplant Coordinator: Coordinates all aspects of care from referral to follow-up. Should operate under the supervision of a transplant nephrologist. In settings where this role is not independently staffed, it may be performed by a physician or nurse with administrative support. **(2B)** (1)
- Transplant Nephrologist: Leads evaluation of donors and recipients, manages immunosuppression, and provides short and long-term post-transplant care. **(1A)** (1,2)
- Transplant Surgeon or Urologist (or vascular surgeon) : Performs transplant surgery, manages perioperative care, and undertakes organ procurement. In settings lacking local expertise, visiting surgeons or regional partnerships should be used. **(1A)** (1,3)
- Anaesthesiologist: Provides perioperative and intraoperative anaesthesia care. **(1A)** (4,5)
- Radiologist: Performs imaging for transplant evaluation and post-transplant complication assessment. Must be familiar with vascular mapping and graft surveillance. **(1A)** (1,2,4)
- Pathologist: Reviews biopsy specimens to diagnose rejection and other complications. May be provided through regional collaboration. **(2A)** (1,2,6)
- Immunologist/Haematologist/Microbiologist: Performs all crossmatching and HLA typing. Where unavailable, centres should outsource to accredited regional laboratories. **(1B)** (1)

3.1.2 Comprehensive Multidisciplinary Team (Expanded Team)

- Transplant Pharmacist: Manages immunosuppressive therapy, patient education, and drug interaction surveillance. **(2B)** (1,2)
- Infectious Disease Specialist: Screens and manages infection risk and prophylaxis. **(2B)** (1,7)
- Nutritionist/Dietitian: Provides dietary counselling for pre- and post-transplant care. **(2B)** (1,2,8)
- Psychologist/Psychiatrist: Evaluates mental health, adherence capacity, and coping. **(2B)** (1,9)
- Social Worker: Assists with psychosocial support, financial counselling, and family education. **(2B)** (1,9)
- Rehabilitation Specialist/Physiotherapist: Aids recovery post-transplant. **(2B)** (10)
- Cardiologist: Assesses cardiovascular risk and advises on perioperative optimisation. **(2B)** (4,11)
- Financial Coordinator: Coordinates patient funding, insurance, and hospital billing. **(2B)** (12,13)
- Independent Oversight Member (e.g. legally trained professional): Provides independent review of consent processes, legal compliance, and conflict of interest mitigation, particularly for living donation and complex ethical cases. This role should be separate from the transplant team and need not have clinical transplant expertise. **(1B)** (14,15)

KEY TAKEAWAYS

01

Establish a core transplant team comprising a nephrologist, surgeon/urologist, anaesthetist, radiologist, pathologist, and coordinator.

02

In early phases or low-resource settings, allow task-sharing (e.g., nephrologist as coordinator) under supervision.

03

Build a multidisciplinary support team including a pharmacist, infectious disease specialist, dietitian, psychologist, social worker, rehabilitation specialist, and financial coordinator.

04

Use regional partnerships or visiting specialists to supplement local expertise

05

Ensure access to accredited pathology and immunology services, either locally or through regional collaboration.

06

Implement structured training, mentorship, and phased workforce development to expand sustainable transplant capacity.

07

Human resource planning must be phased, locally adaptable, and supported by mentorship, training, and regional collaboration.

Chapter 3.2: Infrastructure and Operational Requirements

The readiness for a transplant program must be assessed at two levels: the capacity of the national healthcare system and the preparedness of an individual hospital and/or regional network. While this chapter focuses on the minimum material and technical standards required at facility level, broader system-level determinants, including governance, financing, national burden of disease, legislative frameworks, equity considerations, and the WHO health-system building blocks are addressed in Chapters 2 and 4. Countries should recognise that transplantation is not a stand-alone hospital procedure but a component of a national health strategy aimed at improving general health, reducing morbidity, mortality, and long-term financial risk. System readiness requires adequate health financing, workforce capacity, information systems, regulatory oversight, and alignment with national priorities. Sharing of infrastructure and human resources across hospitals within a region may provide a workable model where full services cannot be consolidated at one site. Ultimately, patient safety and long-term follow-up must remain the absolute requirements, while relative requirements may be phased in according to resources. Considerations around financing models, equity between public and private sectors, and the differing readiness needs of living-donor versus deceased-donor programs, together with donor workup pathways and referral roles of nephrologists, are discussed in detail in Chapters 2, 3, and 4.

3.2.1 Facility and Clinical Infrastructure

- Transplant Centres should be based within tertiary hospitals with full access to nephrology, surgery, anaesthesia, radiology, critical care, and pathology services. **(1B)** (1,2)
- Dialysis Services must be available on-site as a prerequisite for transplant centre designation. **(1A)** (1,7)
- Laboratory Services should provide:
 - Routine biochemistry and haematology tests (<6 hr turnaround) **(1A)** (1,7)

- Therapeutic drug monitoring (e.g. tacrolimus levels) **(1A)** (1,7)
- Infectious disease screening (e.g HIV, Hepatitis, CMV and EBV) **(1A)** (1,7)
- Radiology Services must include emergency X-ray, ultrasound, and CT imaging. Access to intraoperative ultrasound is desirable. **(1A)** (1,7)
- Pharmacy must ensure continuous availability of all essential transplant medications, including induction agents, calcineurin inhibitors, antimetabolites, therapies for infectious complications and corticosteroids. **(1A)** (1,7)
- Plasma Exchange and Immunomodulatory Therapies should be available or rapidly accessible (<24 hrs) for antibody-mediated rejection. **(1A)** (1,16)
- Blood Bank Access must be available 24/7 to manage perioperative transfusion needs. **(1A)** (1,7)
- Critical Care Units must have capacity for immediate post-operative support, including ventilatory, haemodynamic, and renal replacement therapies. **(1A)** (1,17)
- Emergency Support must be available 24/7 for transplant-related and other complications. **(1A)** (1,18)

3.2.2 National and Regional Governance

- A national transplant authority should oversee regulation, centre accreditation, policy enforcement, and data monitoring. **(1A)** (4,5)
- A national registry of dialysis and transplant recipients must be implemented to ensure outcome tracking and policy evaluation. **(1A)** (4,19)
- Regional programmes may operate in a decentralised manner but must be integrated within national oversight frameworks, including a national centralised waiting list, harmonised clinical protocols, and mandatory participation in shared data and registry systems. **(2B)** (19,20)
- Scarce Skills Networks should be developed across countries to provide shared access to essential services such as histocompatibility testing and biopsy interpretation. **(2B)** (21)

3.2.3 Legal and Ethical Requirements

- Ensure all transplant programmes comply with:
- Opt-in consent systems that respect patient autonomy. **(1B)** (4,22)
- WHO Guiding Principles (2010) and Declaration of Istanbul (2018) on ethical transplantation. **(1A)** (14,15)
- Clear legal definitions of death (brain and circulatory) and documented consent processes. **(1A)** (4,23,24)

3.2.4 Monitoring, Data, and Telemedicine

- Monitoring and evaluation systems must be embedded into programme operations and audited regularly. **(1A)** (4,19)
- Digital transplant registry with real-time updates should be developed to support quality improvement and national reporting. **(1A)** (4,19)
- Data security protocols must comply with national and international standards for patient confidentiality. **(1A)** (4,25)
- Telemedicine should be used to extend specialist access to remote regions, support post-transplant follow-up, and facilitate multidisciplinary consultations. **(1B)** (26,27)

3.2.5 Specialised Services

- Paediatric transplantation units should be supported with appropriate surgical instruments, dialysis devices, and specialised staff. **(1B)** (28,29)
- Genetic counselling and testing (e.g., APOL1, sickle cell trait, congenital anomalies) should be made available, especially in high-prevalence areas. **(2A)** (30)
- High-risk transplant services must include protocols for re-transplantation, desensitisation, and management of complex comorbidities. **(1A)** (4)
- Rehabilitation services should be integrated into post-transplant planning to promote long-term functional recovery. **(2B)** (31)

KEY TAKEAWAYS

01

Locate transplant centres in tertiary hospitals with reliable access to dialysis, ICU, laboratory, imaging, pharmacy, and blood services.

02

Where possible, laparoscopic donor nephrectomy procedures should be implemented for live donation.

03

Maintain 24/7 operational readiness for emergencies, immunosuppressive drug supply, and rejection management (including plasma exchange).

04

Establish national transplant authorities and accreditation systems to oversee quality, ethics, and regulation.

05

Implement national registries and digital data systems for donor–recipient tracking, audits, and performance evaluation.

06

Operationalise ethical and legal standards, including informed consent procedures, death definitions and anti-trafficking safeguards within every centre.

07

Use telemedicine to extend specialist support, improve access, and strengthen follow-up care.

08

Develop specialised services, including paediatric transplant units and genetic counselling, to ensure equity across patient populations.

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Chapter 4: Systematic Phased-in Approach with Monitoring and Evaluation

The phased implementation of kidney transplant services is critical to ensuring that programmes are not only launched but sustained safely and ethically. In African settings, staged development allows countries to build capacity progressively while embedding continuous evaluation mechanisms. This chapter outlines six sequential phases; from establishing legal frameworks to achieving self-reliance and quality assurance. Each phase includes actionable recommendations tailored to local contexts and aligned with national health strategies.

Chapter 4.1: Phase 1: Legal, Ethical, and Funding Frameworks

Phase 1 establishes the foundational governance conditions required for a safe, ethical, and sustainable kidney transplant programme. Before any clinical activity is initiated, countries must put in place clear legal statutes, robust ethical oversight mechanisms, and secure, equitable financing arrangements. In African and other resource-constrained settings, failure to address these elements upfront may be associated with ethical vulnerabilities, inequitable access, and programme collapse. This phase therefore focuses on aligning national legislation with international norms, embedding ethical safeguards to protect donors and recipients, and ensuring that transplant services are financially viable within national health systems from inception.

4.1.1 Legal Framework

- Enact national transplant legislation covering deceased and living donation, organ allocation, cross-border transplantation, and anti-trafficking enforcement. **(1A)** (1,2)
- Clearly define brain and circulatory death criteria, with standardised consent protocols. **(1A)** (1)
- Criminalise organ trafficking and establish monitoring systems. **(1A)** (1,3,4)

4.1.2 Ethical Framework

- Establish national and local transplant ethics committees. **(1A)** (1,2,5)
- Apply core ethical rules: dead donor rule, fair allocation, informed consent, and donor/recipient dignity. **(1A)** (1,2,5)
- Protect vulnerable populations, including minors, prisoners, and socioeconomically disadvantaged groups, through explicit safeguards that ensure freely given informed consent without coercion. **(1C)** (1,2,5)

4.1.3 Funding Framework

- Integrate transplant costs into national health budgets and/or insurance schemes to ensure equitable and sustained access to care. **(1B)** (4,6,7)
- Diversify funding sources by incorporating national insurance, public subsidies, private and philanthropic contributions, and international grants, tailored to national capacity. **(2A)** (8,9)
- Promote cost-effective transplant care by investing in infrastructure, training healthcare personnel, and optimising resource allocation. **(1B)** (7,8,10)

KEY TAKEAWAYS

01

Begin with clear legislation aligned to WHO and national ethical standard to prevent abuse and ensure accountability.

02

Form national ethics and oversight bodies before programme launch to guide transparent implementation.

03

Secure sustainable financing through government budgets & insurance mechanisms to guarantee continuity.

04

Foster multi-stakeholder coordination among policymakers, clinicians and legal authorities to align goals.

05

Integrate ethical and legal governance into national health policy from inception to sustain public trust.

Chapter 4.2: Phase 2: Steering Committee Formation and Needs Assessment

Phase 2 translates the legal, ethical, and financial foundations established in Phase 1 into operational readiness. This phase focuses on creating formal governance and leadership structures to guide implementation, alongside a comprehensive assessment of national and local capacity. Establishing an empowered steering committee ensures accountability, coordination, and strategic oversight, while a structured needs assessment identifies gaps in infrastructure, workforce, financing, and service integration. Together, these steps provide an evidence-based blueprint for phased rollout, ensuring that subsequent programme development is realistic, context-appropriate, and aligned with national health priorities.

4.2.1 Governance Structures

- Establish a national or regional transplant steering committee with clearly defined authority, accountability, and reporting lines to coordinate programme implementation, oversee phased rollout, and align stakeholders across the health system. **(1B)** (1,2,4,11)
- Establish a national independent supervisory authority with legal, administrative, and financial autonomy to oversee ethical and safe transplant practices. **(1A)** (1,2,4)
- Ensure representation of civil society and patient advocates within governance and advisory structures to promote transparency, public trust, and accountability. **(1B)** (1,2,4,11)
- Regularly evaluate and accredit facilities based on service readiness, including staffing, nephrology (including dialysis services) and surgical support, as well as support services (immunology, microbiology, imaging, and pathology). **(1A)** (1,10)

4.2.2 Improving Access and Quality

- Develop national standardised protocols for evaluation, listing, and transplant care pathways to ensure consistency and equity. **(1A)** (12)
- Partner with support services (e.g. radiology, laboratory, counselling) to reduce delays in evaluation and improve operational efficiency. **(1B)** (12,13)

4.2.3 Strategic Planning

- Conduct outreach and develop structured referral systems by engaging stakeholders across health systems, insurers, and communities. **(2B)** (13–15)
- Leverage satellite clinics to extend access to transplant evaluation, follow-up care, and community engagement, particularly in underserved regions. **(2B)** (13,15,16)
- Implement interoperable digital systems to monitor patient progress across the transplant continuum, including evaluation, waiting list management, surgery, and post-transplant follow up. **(2C)** (17)
- Implement digital systems to support coordinated patient tracking, programme monitoring, and data driven decision making across the transplant pathway. **(2C)** (17)

4.2.4 Resource and Workforce Planning

- Conduct a comprehensive national needs assessment to map existing transplant related infrastructure, staffing, financing, regulatory readiness, and service capacity, and collaboratively define multidisciplinary team roles and responsibilities to ensure operational clarity and inform phased programme implementation. **(1B)** (16,18,19)
- Build multidisciplinary transplant teams including core specialists (e.g. nephrology, surgery, anaesthesia) and extended consultants such as cardiology, infectious disease, and mental health. **(2B)** (15,16,18,19)

KEY TAKEAWAYS

01

Establish a national steering committee with clear authority and accountability to lead programme implementation.

02

Conduct a comprehensive needs assessment covering infrastructure, workforce, financing, and regulatory readiness.

03

Integrate assessment results into strategic and financial planning for phased rollout.

04

Promote cross-sector coordination among health, education, and legal stakeholders for aligned governance.

05

Involve civil society and patient representatives to enhance transparency and inclusivity.

Chapter 4.3 Phase 3: Clinical Pre-Transplantation Planning

Phase 3 marks the transition from system readiness to patient-centred clinical implementation. This phase focuses on establishing standardised, equitable, and evidence-based processes for referral, evaluation, and listing of transplant candidates. Early identification and comprehensive multidisciplinary assessment are essential to optimise transplant eligibility, enable timely living or pre-emptive transplantation, and ensure fair access across populations. By formalising evaluation domains and waiting list management, this phase embeds transparency, consistency, and clinical rigor into the transplant pathway, laying the groundwork for safe and effective initial transplant activity.

4.3.1 Referral and Candidate Selection

- Recommend kidney transplantation as the preferred treatment for all eligible CKD Stage 5 patients, unless contraindicated. **(1A)** (12,20,21)
- Refer patients early for comprehensive evaluation and timely consideration of living donation and pre-emptive transplantation. **(1B)** (12,21)

4.3.2 Evaluation Domains

- Perform a comprehensive multi-system evaluation including cardiovascular, metabolic, immunological, infectious, urological, psychosocial, and nutritional assessments to determine transplant eligibility and optimise outcomes. **(1A)** (12,21)
- Do not exclude patients from kidney transplant evaluation based solely on age, socioeconomic status, or social vulnerability; decisions should be based on clinical assessment and expected benefit. **(1B)** (12,21–23)

4.3.3 Waiting List Management

- Establish and maintain a national kidney transplant waiting list that is centrally monitored and regularly updated. **(1A)** (12,21,24)
- Update the registry at least monthly; ensure transparent, equitable allocation. **(1A)** (12,21,24,25)
- Prioritise transplant candidates based on medical urgency and immunologic risk, with special consideration given to paediatric patients to ensure equitable access and long-term outcomes. **(1A)** (12,22,24,25)

KEY TAKEAWAYS

01

Offer kidney transplantation to all eligible CKD Stage 5 patients unless contraindicated.

02

Refer early to a nephrologist to enable transplantability evaluation, donor consideration, and pre-emptive transplantation.

03

Use structured, multidisciplinary evaluation to determine eligibility.

04

Avoid exclusion based on age or socioeconomic factors; decisions should rest on clinical benefit.

05

Maintain a national, audited waiting list with transparent and equitable allocation.

06

Prioritise candidates with medical urgency, immunologic risk, or paediatric status to promote fair outcomes.

Chapter 4.4 : Phase 4: Early Transplants and Initial Operations

Phase 4 represents the initiation of transplant activity within a newly established or reactivated programme. Building on prior clinical planning, this phase focuses on delivering early transplants in a controlled, closely monitored manner to ensure patient safety, ethical integrity, and operational learning. Emphasis is placed on structured patient education, timely referral, clear exclusion and deferral criteria, and prioritisation of pre-emptive and living donor transplantation where feasible. Early operational experience gained during this phase is critical for refining protocols, strengthening multidisciplinary teamwork, and informing progressive scale-up of transplant services.

4.4.1 Patient Education and Referral

- Educate all CKD G4–G5 patients on transplant as a treatment option. **(1A)** (12,21,24)
- Refer for evaluation 6–12 months before dialysis. Evaluation should be initiated in patients with sustained GFR < 20 ml/min/1.73m² **(1A)** (12,21,26)

4.4.2 Pre-emptive and Deceased Donor Transplantation

- Pre-emptive living donor transplantation is preferred. **(1A)** (21,27,28)
- Pre-emptive deceased donor transplantation is acceptable where equity is preserved. **(2B)** (12,24,29)

4.4.3 Exclusion and Deferral Criteria

- Exclude only for irreversible, progressive disease or where lifespan is severely limited. **(1A)** (12,21,22)
- Defer for manageable conditions (e.g. infection, active malignancy). **(1B)** (12,22,28)

4.4.4 Donor Surgery

- Prefer laparoscopic nephrectomy where feasible. **(1A)** (1,27,28)
- Provide annual follow-up for all living donors. **(1A)** (1,4,27)

KEY TAKEAWAYS

01

Educate all CKD G4–G5 patients early about transplantation as a treatment option.

02

Refer 6–12 months before dialysis to enable pre-emptive and living donor

03

Prioritise pre-emptive living donor transplantation; consider deceased donor options where equity is maintained.

04

Apply clear exclusion and deferral criteria, focusing on reversible conditions and clinical benefit.

05

Ensure donor safety through laparoscopic nephrectomy where feasible and structured long-term follow-up.

06

Maintain transparent allocation and waiting list systems to guarantee fairness across all candidates.

Chapter 4.5: Phase 5: Reducing External Support and Developing Self-Reliance

Phase 5 focuses on transitioning transplant programmes from externally supported implementation to nationally led, self-sustaining operations. While international partnerships and external funding are often essential during early phases, long-term success requires deliberate strategies to build local capacity, infrastructure, and workforce independence. This phase emphasises strengthening health system integration, adopting sustainable financing models, expanding community engagement and organ donation awareness, and developing local training pathways. Gradual reduction of external reliance, aligned with national priorities, ensures programme resilience, ownership, and continuity of care.

4.5.1 Transition from External Support

- Use collaborations for training, funding, and temporary workforce support. **(1A)** (15,16)
- Avoid dependence and align partnerships with national strategies. **(1B)** (17)

4.5.2 Self-Reliance Strategies

- Strengthen infrastructure and service models for sustainability. **(1A)** (16,24,28)
- Implement nationally applicable mixed funding models as well as public-private partnerships. **(1B)** (6,7)
- Launch organ donation awareness campaigns and community engagement. **(2B)** (4,27)
- Build local training programmes. **(1B)** (19,30,31)

KEY TAKEAWAYS

01

Transition from external reliance toward nationally led, self-sustaining transplant programmes.

02

Strengthen infrastructure and renal centres to ensure long-term service continuity.

03

Adopt mixed and innovative funding models, including public–private partnerships, to secure financial stability.

04

Promote public awareness and organ donation campaigns to foster trust and expand donor pools

05

Develop local training and career pathways to build a skilled, independent workforce.

Chapter 4.6: Phase 6: Sustainability and Continuous Quality Improvement

Phase 6 consolidates kidney transplant programmes into mature, resilient services embedded within national health systems. This phase focuses on long-term institutional and financial sustainability, supported by continuous quality improvement mechanisms and regional collaboration. Integrating transplantation into national budgets, workforce structures, and procurement systems ensures service continuity, while systematic monitoring using audits, performance indicators, and patient feedback drives ongoing improvement. By defining programme maturity benchmarks and fostering peer networks across the region, this phase promotes accountability, shared learning, and sustained excellence in transplant care.

4.6.1 Institutional and Financial Sustainability

Integrate transplant into national health budgets and career structures. **(1A)** (6,7,15)

Develop local procurement and/or for critical supplies. **(1A)** (32)

4.6.2 Continuous Quality Improvement

Embed Plan–Do–Study–Act (PDSA) cycles across programmes. **(1C)** (33)

Use key performance indicators, audit teams, and patient feedback to monitor progress. **(1B)** (34)

4.6.3 Regional Collaboration

Create transplant consortia and peer-review networks. **(2B)** (35,36)

Partner with African scientific societies to standardise and harmonise. **(2C)** (35)

4.6.4 Programme Maturity Benchmarks

Define benchmarks (volume, outcomes, data reporting) for programme maturity. **(1A)** (34)

KEY TAKEAWAYS

01

Integrate transplantation into national budgets, workforce structures, and local procurement systems for long-term sustainability.

02

Implement continuous quality improvement using PDSA cycles, KPIs, audit teams, and patient feedback mechanisms.

03

Promote regional collaboration through African transplant networks (e.g., AFRAN) for harmonisation and peer review.

04

Define and track programme maturity benchmarks based on volume, outcomes, data quality, and long-term follow-up.

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Chapter 5: Medical and Technical Preparation

Kidney transplantation in Africa requires context specific preparation and follow up approaches that account for the region's unique epidemiological profile, demographic characteristics, and health system constraints. Transplant candidates and donors are frequently younger, face a high burden of communicable diseases, and experience substantial variability in access to specialised care, diagnostics, and long term immunosuppression. In addition, population specific genetic risk factors, including APOL1 variants and haemoglobinopathies, have important implications for donor selection, recipient risk stratification, and perioperative management. Financial vulnerability and geographic barriers further influence transplant readiness and post-transplant continuity of care. This chapter provides Africa specific guidance on counselling and financial assessment, timing of referral and access preservation, immunological and genetic risk management, vaccination strategies, ethical donor evaluation, infectious disease screening and prophylaxis, and structured post-transplant surveillance, including the use of telemedicine, to optimise outcomes while promoting equity, safety, and programme sustainability.

Chapter 5.1: Africa-Specific Preparation and Follow-up for Kidney Donor/Recipients

Kidney transplantation in Africa requires context-specific preparation and follow-up due to younger recipient age, prevalent infectious diseases, resource limitations, and genetic risk factors such as APOL1, sickle cell and thalassaemia.

5.1.1 Counselling and Financial Assessment

- Counsel all patients with CKD Stage 5 on transplantation, including risks, benefits, and alternatives to dialysis. **(1A)** (1,2)
- Evaluate the patient and family's capacity to support both the transplant procedure and lifelong post-transplant care. **(1B)** (2,3)

5.1.2 Timing and Access Preparation

- Promote pre-emptive transplantation or minimise dialysis duration prior to transplantation to reduce sensitisation and improve graft survival. **(1A)** (2,4)
- Avoid femoral catheter placement in patients eligible for transplantation to preserve central vascular access. **(2A)** (5)

5.1.3 Immunological and Genetic Risk Management

- Avoid unnecessary blood transfusions to minimise HLA sensitisation and increase transplant compatibility. **(1A)** (6)
- Screen donors for APOL1 risk variants in high-prevalence regions to guide donor selection and counselling. **(2C)** (7)
- Determine Hb genotype (e.g., HbSS, thalassaemia) in high-prevalence regions in both donor and recipient to anticipate perioperative risk. **(1C)** (2,8,9)

5.1.4 Vaccination Strategy

- Ensure pre-transplant vaccination for:
- Hepatitis B **(1A)** (10–13)
- Varicella **(1B)** (10–13)
- Pneumococcus **(1B)** (10–13)
- Meningococcus **(1B)** (10–13)
- Influenza **(1C)**. (10–13)

5.1.5 Donor Evaluation and Ethics

- Use independent ethics panels to confirm that living donation is voluntary, non commercial, and medically appropriate. **(1A)** (2)
- Conduct donor and recipient assessments separately to reduce coercion and allow for candid evaluation. **(1A)** (2)

5.1.6 Infectious Disease Screening and Prophylaxis

- Screen transplant candidates for HHV-8 in endemic areas to mitigate risk of Kaposi sarcoma. **(2B)** (14)
- Administer malaria prophylaxis for 6 months post-transplant in endemic zones. **(1B)** (15)
- Provide tuberculosis prophylaxis where indicated for 6 months post-transplant in high-prevalence settings. **(1A)** (16)
- Use CMV prophylaxis (Valganciclovir or Valacyclovir) for 3 months in high-risk Donor exposed / Recipient unexposed transplants. **(1A)** (17)

5.1.7 Post-Transplant Surveillance and Support

- Schedule weekly clinic visits for the first 6 weeks post-discharge, then monthly until 6 months. **(1A)** (18)
- Recommend mask use in healthcare settings, crowded indoor environments, and during close contact with individuals with respiratory symptoms for the first 1 to 3 months after kidney transplantation, with continued or reintroduced use during periods of high community transmission of respiratory viruses. **(1C)** (19)
- Incorporate telemedicine to support follow-up care, especially in remote or underserved areas. **(1B)** (20)

KEY TAKEAWAYS

01

Educate and counsel CKD Stage 5 patients on transplantation early, assessing both medical and financial readiness.

02

Promote early referral and vascular access preservation to improve pre-transplant outcomes.

03

Tailor genetic and infectious screening (*APOL1*, haemoglobinopathies, endemic infections) to local African prevalence patterns.

04

Ensure vaccination and targeted prophylaxis (HBV, Varicella, Pneumococcus, Meningococcus, Influenza, TB, CMV) before and after transplantation.

05

Use telemedicine and structured follow-up to enhance post-transplant continuity of care, especially in resource-limited regions.

5.2 Cultural and Legal Issues: Live and Deceased Donors

Legal frameworks, religious beliefs, and cultural practices significantly influence donation and transplantation in Africa. Given the diversity across African countries, locally adapted, ethically robust legal frameworks are essential.

5.2.1 Deceased Donor Determination and Ethics

- Define death using nationally approved criteria, ensuring determination by a physician not involved in the transplant process. **(1A)** (21)
- Certify brain death using two experienced and independent physicians. **(1A)** (22)
- Ensure deceased donation is only pursued after confirming brain death, with transparency and legal adherence. **(1A)** (23)

5.2.2 Living Donor Safeguards and Consent

- Adhere to country-specific laws governing eligibility for both living related and unrelated donors. **(1B)** (2)
- Conduct donor assessments independently from recipients to safeguard voluntary decision-making. **(1A)** (2,24)
- Provide complete, understandable information about risks, benefits, and outcomes to ensure informed consent. **(1A)** (25)
- Verify legal competence and sustained willingness of all donors prior to approval. **(1A)** (2)

5.2.3 Cultural Sensitivity and Education

- Engage religious and community leaders to address misconceptions and promote ethical donation. **(2B)** (26,27)
- Foster culturally appropriate public education campaigns to raise awareness about brain death and deceased donation. **(2B)** (28)

KEY TAKEAWAYS

01

Develop and enforce national transplant legislation that defines death, regulates living and deceased donation, and prohibits organ trafficking.

02

Apply standardised brain death determination by independent physicians, ensuring full legal and ethical compliance.

03

Guarantee informed and voluntary consent through independent donor assessment and verification of competence.

04

Respect cultural and religious diversity by engaging community and faith leaders to promote understanding of donation ethics.

5.3 Key Performance Indicators

Establishing locally applicable Key Performance Indicators (KPI) enables benchmarking, quality improvement, and equity in transplant access. In resource-limited African settings, tracking a focused set of meaningful metrics can optimise resource allocation and guide policy reforms.

5.3.1 Equitable Access

- Track the proportion of CKD Stage 5 and dialysis patients who have received transplant education or options counselling. **(2A)** (29)
- Measure the percentage of these patients who are referred for transplant evaluation. **(2A)** (30)
- Assess what proportion of referred patients are ultimately accepted onto the waiting list. **(2A)** (31)

5.3.2 Timeliness and Efficiency

- Monitor the mean time from dialysis initiation to referral, and from referral to evaluation completion. **(1B)** (32,33)
- Assess wait list mortality **(1B)** (34)
- Track time to listing and transplantation once evaluation is complete. **(1B)** (33,35)

5.3.3 Effectiveness and Outcomes

- Record rates of delayed graft function (DGF) for both living **(1B)** and deceased donors. **(2C)** (36)
- Measure biopsy-proven acute rejection within 12 months of transplantation. **(1B)** (37,38)
- Track patient and graft survival at 1- and 5-years post-transplant. **(1A)** (37–39)

5.3.4 Patient-Centred Measures

- Collect and analyse patient-reported outcome measures (PROMs), such as physical well-being and return to work. **(2C)** (40,41)
- Include patient satisfaction with transplant education and post-operative care. **(2C)** (40–43)

5.3.5 Health System Performance

- Monitor hospital readmission rates within 30 days. **(1B)** (44,45)
- Evaluate pre- and post-transplant follow-up visit adherence. **(2B)** (46,47)

KEY TAKEAWAYS

01

Use Key Performance Indicators (KPIs) to measure access, timeliness, and outcomes of transplant programmes.

02

Track referral-to-listing and transplant times, wait-list mortality, and hospital readmissions to identify bottlenecks.

03

Monitor clinical outcomes including delayed graft function, acute rejection, and 1- and 5-year graft survival.

04

Include patient-reported measures (PROMs) and satisfaction data to assess quality of care and long-term well-being.

05

Adapt KPIs to local resource contexts to enhance accountability, efficiency, and equity in programme development.

5.4 Continuous Quality Improvement Processes

Ongoing continuous quality improvement (CQI) is essential for sustainable, effective kidney transplant programs in Africa. Embedding CQI mechanisms from the outset ensures responsiveness to clinical outcomes, patient experience, and ethical standards.

5.4.1 Planning and Oversight

- Implement a Plan–Do–Study–Act (PDSA) model for quality cycles across all transplant sites. **(1C)** (48)
- Establish multidisciplinary audit teams to review outcomes and process indicators annually. **(1B)** (48–50)
- Use dashboards to track centre-specific performance and identify improvement areas. **(1C)** (49,50)

5.4.2 Outcome Monitoring

- Monitor clinical metrics including acute rejection, graft loss, and perioperative mortality. **(1A)** (51)
- Track infection rates, re-hospitalisations, and immunosuppressant adherence. **(1B)** (52,53)
- Record medical and surgical complications up to 1-year post-transplant. **(2B)** (54,55)

5.4.3 Patient-Centred Indicators

- Collect PROMs and patient satisfaction surveys at regular intervals. **(2C)** (43,56)
- Use results to refine education, counselling, and discharge planning. **(2C)** (57,58)

5.4.4 Feedback and Policy Revision

- Share audit results with staff and policymakers and revise local protocols accordingly. **(1B)** (2,59)
- Report programmatic outcomes publicly to enhance transparency and accountability. **(2C)** (2,59)

KEY TAKEAWAYS

01

Embed continuous quality improvement (CQI) frameworks, such as Plan–Do–Study–Act cycles, across all transplant centres.

02

Conduct regular audits tracking outcomes, complications, and adherence indicators for up to 12 months post-transplant.

03

Incorporate patient-reported outcomes and satisfaction data to guide service refinement and education.

04

Use audit feedback to inform local policy updates, enhance transparency, and maintain accountability.

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Chapter 6: Future Direction of Transplantation in Africa

The future of kidney transplantation in Africa depends on building sustainable, equitable, and locally driven systems. This chapter outlines strategic directions for the continent, emphasising research, innovation, deceased donor expansion, and service delivery growth. Recommendations are aligned to strengthen health systems, embed transplantation within national priorities, and promote African leadership and ownership.

6.1 Research and Innovation in Transplantation in Africa

6.1.1 Africa-Focused Research and Data Infrastructure

- Develop national and regional transplant research agendas that prioritise African epidemiology, genetics, barriers to access, and cost-effective care models. **(1B)** (1,2)
- Expand national and regional transplant registries and link them to a continental database to improve policy planning and cross-country learning. **(1C)** (1,3)
- Invest in implementation science and translational research to improve immunosuppressive therapy, graft monitoring, and management of endemic infections and malignancies. **(1C)** (1,2)

6.1.2 Digital and Technological Innovation

- Promote telemedicine and mobile-based post-transplant monitoring platforms to enhance follow-up care, particularly in remote areas. **(1B)** (1,4)
- Support research into affordable organ preservation and perfusion systems that are adaptable to low-resource settings. **(2B)** (1,5)

6.1.3 Capacity Building Through Collaboration

- Establish inter-African collaboration between transplant centres to share diagnostic capacity, protocols, and training. **(1D)** (6,7)
- Partner with international organisations (e.g., ISN, TTS) for mentorship, skills transfer, and research support. **(1C)** (6–8)
- Ensure participation in regional organ-sharing networks once equity and the necessary logistical infrastructure are in place. **(2B)** (7–9)
- Create AFRAN-recognised African Reference Centres for transplant research, training, and diagnostics. **(1C)** (6,7)

6.1.4 Training and Human Capital Development

- Integrate transplant medicine, ethics, and public health modules into undergraduate and postgraduate medical curricula. **(1C)** (10–13)
- Provide subsidised fellowships and observerships in established African or global centres for transplant clinicians, nurses, and coordinators. **(2C)** (14,15)

6.1.5 Multisectoral and Policy-Level Partnerships

- Establish interdisciplinary transplant advisory committees at national or regional levels to coordinate policy, ethics, research, and logistics. **(1C)** (7,16)
- Engage pharmaceutical companies, donors, and NGOs in supporting African-led transplant innovations and infrastructure. **(1C)** (14,16)
- Develop long-term bilateral agreements between African ministries of health and development partners to co-finance transplant programs. **(1C)** (14,16)

KEY TAKEAWAYS

01

Prioritise Africa-specific transplant research focusing on genetics, epidemiology, and equitable access, supported by national and regional data registries.

02

Promote innovation through telemedicine, mobile follow-up tools, and cost-effective organ preservation suited to local contexts.

03

Strengthen collaboration among African centres and global partners for training, diagnostics, and research exchange

04

Integrate transplant medicine and ethics into medical curricula, offering funded fellowships to expand workforce expertise.

05

Establish interdisciplinary advisory committees and engage government, donors, and industry to co-finance and sustain transplant programs.

6.2 The Future of Deceased Donor Transplantation in Africa

6.2.1 Public Awareness and Community Engagement

- Implement national campaigns to raise awareness of the organ shortage and promote deceased donation. **(1A)** (9,17)
- Develop community-driven education to clarify the medical and ethical aspects of brain death and cardiac death. **(2B)** (18,19)
- Engage religious, traditional, and civil society leaders to address cultural concerns and foster public trust. **(2C)** (9,17)

6.2.2 Legal and Policy Development

- Adopt internationally recognised definitions and standards for declaring brain and circulatory death. **(1A)** (9,18,19)
- Establish opt-in consent models in law, with clear documentation mechanisms. **(1B)** (9,20)
- Create or strengthen national transplant regulatory authorities to enforce laws, manage waiting lists, and prevent abuse. **(1A)** (9,10)
- Develop and apply transparent scoring and organ allocation systems that ensure equity and prioritise medical need. **(1A)** (9,16)

6.2.3 Infrastructure and Workforce Readiness

- Train coordination teams in donor identification, consent management, and organ retrieval logistics. **(1A)** (9,16)
- Provide surgical teams with training in deceased donor procurement and organ preservation techniques. **(1A)** (1,14)
- Introduce or improve access to high-quality preservation fluids and equipment. **(1A)** (14)
- Encourage investment in cost-effective perfusion devices and infrastructure. **(2B)** (14)

6.2.4 Waiting List Management

- Create national or regional electronic waiting lists, ensuring real-time updates and audit capacity. **(1B)** (1,16)
- Define and apply clear eligibility, contraindication, and call-up criteria to improve fairness and reduce waste. **(1A)** (1,14)

6.2.5 Monitoring and Quality Assurance

- Track key performance indicators, including organ refusal rates, family refusal reasons, DGF, and graft survival. **(1C)** (16,21)
- Conduct regular audits and publish programme outcomes. **(1B)** (16,21)

KEY TAKEAWAYS

01

Develop clear legal and ethical frameworks defining brain and circulatory death and establishing opt-in consent laws

02

Build public trust and awareness through national campaigns, culturally sensitive education, and engagement of community and faith leaders.

03

Train multidisciplinary teams in donor identification, consent, retrieval, and organ preservation using affordable technologies.

04

Implement national electronic waiting lists with transparent allocation criteria and active audit systems.

05

Monitor performance indicators and publish outcomes to enhance accountability and programme quality.

06

Establish national transplant authorities to manage allocation, oversight and prevent unethical practices

6.3 Expanding the Scope of Transplant Services

6.3.1 Public Engagement and Education

- Conduct regular, culturally sensitive campaigns on the benefits of kidney transplantation, including both living and deceased donation. **(1B)** (9,17)
- Inform the public about organ trafficking, donor rights, and how to report exploitation. **(1A)** (7,17)

6.3.2 Equity and Eligibility Expansion

- Revise transplant eligibility criteria to include children, elderly patients, and individuals with comorbidities after individualised risk assessment. **(2B)** (1,14)

6.3.3 Service Expansion and Infrastructure

- Establish new transplant centres in regional and tertiary hospitals based on need and readiness assessments. **(1B)** (14,22)
- Equip facilities to provide multidisciplinary care before and after transplant. **(2B)** (1,14)
- Optimise organ preservation practices using surface cooling or low-cost perfusion options where high-tech machines are not feasible. **(2B)** (14)

6.3.4 Human Resource Development

- Build and retain multidisciplinary teams including nephrologists, surgeons, nurses, psychologists, and transplant coordinators. **(2B)** (1,15)
- Create training hubs for skill development in transplant-related care. **(2B)** (23)

6.3.5 Follow-up and Continuity of Care

- Expand use of telemedicine for post-transplant monitoring, adherence support, and managing complications in remote patients. **(2B)** (14)

6.3.6 Research and Data

- Encourage local operational research into immunosuppressive protocols and barriers to care. **(2C)** (1,14)
- Develop national transplant registries and reporting systems. **(1B)** (16,21)

6.3.7 International Collaboration

- Promote collaboration between African transplant centres and global institutions for training, policy support, and logistics. **(2B)** (10,22)

KEY TAKEAWAYS

01

Expand transplant access equitably by revising eligibility to include children, elderly patients, and those with comorbidities based on individualised assessment.

02

Establish and equip regional transplant centres with multidisciplinary teams and essential infrastructure to ensure safe service delivery.

03

Increase public awareness and transparency through culturally sensitive campaigns addressing donation, trafficking, and donor rights.

04

Integrate telemedicine and digital tools for ongoing follow-up and complication management in remote areas.

05

Promote local research, data systems, and international collaboration to strengthen evidence-based practices and policy alignment across Africa.

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Appendices

National Governance and Ethical Readiness Checklist for Kidney Transplantation

Legal & Policy Framework	National transplant legislation	Formal law or regulation governing organ donation and transplantation	☐
	Living and deceased donation covered	Legislation explicitly addresses both donation pathways	☐
	Legal definition of death	Brain and or circulatory death criteria defined in law	☐
	Consent framework defined	Opt-in or legally defined consent processes specified	☐
	Organ trafficking prohibited	Commercialisation & trafficking criminalised with penalties	☐
	Cross-border transplantation regulated	Clear rules for transplant tourism & international referrals	☐
Ethical Standards & Safeguards	Alignment with international ethics	Consistent with WHO Guiding Principles, Declaration of Istanbul & others	☐
	Core ethical principles adopted	Autonomy, voluntariness, equity, transparency, non-maleficence	☐
	Protection of vulnerable groups	Define and ensure explicit safeguards for minors & vulnerable populations	☐
	Financial neutrality enforced	No donor or recipient financial inducement permitted	☐
	Equity of access recognised	Eligibility based on clinical benefit, not ability to pay	☐
Oversight & Accountability	National oversight authority	Designated body regulating and accrediting transplant services	☐
	Ethical oversight committee	Multidisciplinary committee independent of transplant teams	☐
	Mandate and authority defined	Scope includes approvals, investigations, and oversight	☐
	Independence ensured	Oversight members not involved in transplant care	☐
	Ministry of Health linkage	Formal regular reporting lines to national health authority	☐

Operational Ethical Processes	Independent donor review	Separate assessment and approval of living donors and recipients	☐
	Informed consent procedures	Standardised, documented, and language-appropriate	☐
	Conflict of interest policy	Mechanisms to identify and manage conflicts	☐
	Complaints mechanism	Safe reporting pathways for ethical or legal concerns	☐
	Sanctions defined	Clear corrective actions for violations	☐
Transparency & Public Trust	National transplant registry	Centralised donor and recipient data system mandated	☐
	Transparent allocation rules	Publicly defensible allocation criteria	☐
	Audit and monitoring	Regular review of practices, outcomes, and equity	☐
	Public communication strategy	Clear messaging on donation and ethical safeguards	☐
	Civil society representation	Patient or community input in governance structures	☐
Readiness Declaration	Formal governance sign-off	Written confirmation by designated authority	☐
	Ethics before activity	No transplant activity without completed checklist	☐

Programme and Facility Readiness Checklist for Kidney Transplantation

Domain	Checklist Item	Description	Tick
Programme Scope & Governance	Transplant programme formally designated	Facility recognised by hospital, & within a national or regional transplant framework, to provide kidney transplantation	☐
	Defined programme leadership	Named clinical and administrative leads accountable for transplant services	☐
	Written standard operating procedures available	Standard operating procedures covering referral, evaluation, surgery, & follow up	☐
Core Clinical Workforce	Transplant coordinator designated	Leads coordination of evaluation, listing, surgery, and follow up	☐
	Transplant trained nurses available	Nursing staff trained in perioperative and post-transplant care	☐
	Transplant nephrologist available	Responsible for candidate evaluation & long-term transplant care	☐
	Transplant surgeon or urologist available	Performs transplant surgery & donor nephrectomy	☐
	Anaesthesia support available	Perioperative anaesthesia cover for transplant procedures	☐
Supporting Multidisciplinary Services	Radiology access	Ultrasound & CT imaging available for evaluation and complications	☐
	Pathology access	Renal biopsy interpretation available locally or regionally	☐
	Immunology or tissue typing access	HLA typing and crossmatch available on site or via referral	☐
	Infectious diseases support	Specialist input for screening, prophylaxis, and post-transplant infections	☐
	Urology support	Access to urological expertise for surgical & post-transplant complications	☐
	Cardiology support	Cardiovascular risk assessment and perioperative optimisation	☐
	Pharmacy support	Reliable access to essential immunosuppressive & adjunct medications	☐
	On site dialysis services	Haemodialysis & peritoneal dialysis available within facility	☐

Programme and Facility Readiness Checklist for Kidney Transplantation

Domain	Checklist Item	Description	Tick
Dialysis & Critical Care	ICU or high care access	Post operative critical care available when required	☐
Laboratory Services	Emergency cover 24 hours	Surgical, medical, & anaesthetic emergency support	☐
	Routine biochemistry & haematology	Turnaround time suitable for perioperative care	☐
	Therapeutic drug monitoring	Tacrolimus or equivalent drug levels available	☐
	Infectious disease screening	HIV, hepatitis, CMV, & TB testing available	☐
Blood & Transfusion Services	Blood bank access	24-hour availability for perioperative transfusion	☐
	Transfusion protocols defined	Guidance to minimise HLA sensitisation risk	☐
Surgical & Theatre Capacity	Dedicated theatre access	Theatre time available for planned or urgent transplants	☐
	Donor nephrectomy capability	Open or laparoscopic donor surgery available	☐
Data, Documentation, & Communication	Medical records system	Secure documentation of evaluation & transplant care	☐
	Registry participation	Data submission to national or regional transplant registry	☐
	MDT meeting structure	Regular multidisciplinary transplant meetings held	☐
Referral & Follow Up Systems	Referral pathways defined	Clear criteria for referral into transplant programme	☐
	Post transplant follow up plan	Structured outpatient & laboratory follow up schedule for recipient & donor	☐
	Telemedicine access where required	Remote follow up available for geographically distant patients	☐
Readiness Declaration	Facility readiness confirmed	Minimum safety & operational requirements met	☐
	External support identified if required	Gaps recognised with mitigation plan documented	☐

Phased Implementation and Programme Maturity Checklist for Kidney Transplantation

AFRAN Phase and Focus	Checklist Item	Description	Status
Phase 1: Legal, Ethical, and Funding Frameworks	Transplant legislation enacted	National law governing living and deceased donation in force	☐ Complete ☐ Partial ☐ Not started
	Ethical oversight structures active	National or regional ethics and oversight committees operational	☐ Complete ☐ Partial ☐ Not started
	Sustainable funding identified	Transplant costs embedded in public budgets or insurance schemes	☐ Complete ☐ Partial ☐ Not started
Ethical Standards and Safeguards	Steering committee established	National or regional transplant steering body constituted	☐ Complete ☐ Partial ☐ Not started
	National needs assessment completed	Workforce, infrastructure, financing, and service gaps mapped	☐ Complete ☐ Partial ☐ Not started
	Centres accredited or designated	Facilities assessed and recognised within national framework	☐ Complete ☐ Partial ☐ Not started

AFRAN Phase and Focus	Checklist Item	Description	Status
Phase 3: Clinical Pre-Transplant Planning	Referral pathways defined	Standardised referral criteria for transplant evaluation	☐ Complete ☐ Partial ☐ Not started
	Evaluation protocols standardised	Multidisciplinary assessment pathways implemented	☐ Complete ☐ Partial ☐ Not started
	Waiting list governance established	Centralised, transparent waiting list operational	☐ Complete ☐ Partial ☐ Not started
Phase 4: Early Transplants and Initial Operations	First transplants performed safely	Initial living or deceased donor transplants completed	☐ Complete ☐ Partial ☐ Not started
	Early outcomes monitored	Complications, graft function, and mortality tracked	☐ Complete ☐ Partial ☐ Not started
	Donor safety systems functioning	Independent donor review and follow-up in place	☐ Complete ☐ Partial ☐ Not started

<i>AFRAN Phase and Focus</i>	<i>Checklist Item</i>	<i>Description</i>	<i>Status</i>
Phase 5: Reducing External Support and Self- Reliance	Local workforce capacity established	Core clinical and nursing roles filled locally	☐ Complete ☐ Partial ☐ Not started
	External dependence reduced	Visiting teams or donors phased down with continuity	☐ Complete ☐ Partial ☐ Not started
	National funding dominance achieved	Majority of programme costs domestically funded	☐ Complete ☐ Partial ☐ Not started
Phase 6: Sustainability and Quality Improvement	Continuous quality improvement active	Regular audits and PDSA cycles implemented	☐ Complete ☐ Partial ☐ Not started
	KPIs routinely reported	Access, outcomes, equity, and PROMs monitored	☐ Complete ☐ Partial ☐ Not started
	Programme expansion planned	Capacity growth aligned with national strategy	☐ Complete ☐ Partial ☐ Not started

AFRAN Phase and Focus	Checklist Item	Description	Status
Programme Maturity Declaration	Current AFRAN phase identified	Highest phase where all core criteria met	☐ Phase
	Progression plan documented	Written plan to advance to next phase	☐ Yes ☐ No

Minimum Laboratory Test Set for Kidney Transplantation

<i>Test</i>	<i>Core / Conditional</i>	<i>Target TAT</i>	<i>Timing</i>
FBC with Differential	Core	≤ 6 h	Pre, Peri, Post Transplant
Urea and Electrolytes	Core	≤ 6 h	Pre, Peri, Post Transplant
Calcium, Magnesium, Phosphate	Core	≤ 6 h	Pre, Peri, Post Transplant
Liver Function Tests	Core	≤ 6 h	Pre, Post Transplant
Glucose	Core	≤ 6 h	Pre, Peri, Post Transplant
HbA1c	Core	≤ 48 h	Pre Transplant
Lipogram	Core	≤ 24 h	Pre Transplant
C Reactive Protein (CRP)	Core	≤ 6 h	Pre, Peri, Post Transplant
Procalcitonin (PCT)	Conditional	≤ 6 h	Pre, Peri, Post Transplant
Lactate Dehydrogenase (LDH)	Conditional	≤ 24 h	Pre Transplant
INR	Core	≤ 6 h	Pre, Peri Transplant
Bleeding Time	Conditional	≤ 24 h	Pre Transplant
Thromboelastography (TEG)	Conditional	≤ 4 h	Pre, Peri Transplant
Vitamin D	Core	≤ 72 h	Pre Transplant
Parathyroid Hormone (PTH)	Core	≤ 48 h	Pre Transplant
TSH	Core	≤ 48 h	Pre Transplant
Free T4	Core	≤ 48 h	Pre Transplant
Free T3	Conditional	≤ 48 h	Pre Transplant
Iron Studies	Core	≤ 48 h	Pre Transplant

<i>Test</i>	<i>Core / Conditional</i>	<i>Target TAT</i>	<i>Timing</i>
Folate	Core	≤ 72 h	Pre Transplant
Vitamin B12	Core	≤ 72 h	Pre Transplant
Urine MCS (if passing urine)	Core	24-72 h	Pre Transplant
Urine Albumin Creatinine Ratio	Core	≤ 24 h	Pre Transplant
Urine Protein Creatinine Ratio	Core	≤ 24 h	Pre Transplant
24 h Urine (Creatinine, Albumin, Protein)	Conditional	≤ 72 h	Pre Transplant
HIV	Core	≤ 24 h	Pre Transplant
CD4 Count	Core	≤ 48 h	Pre Transplant
HIV Viral Load	Core	≤ 72 h	Pre Transplant
Hepatitis A Serology	Core	≤ 72 h	Pre Transplant
Hepatitis B Full Serology	Core	≤ 72 h	Pre Transplant
Hepatitis C	Core	≤ 72 h	Pre Transplant
CMV Serology	Core	≤ 72 h	Pre Transplant
EBV Serology	Core	≤ 72 h	Pre Transplant
Blood Culture	Core	24 h preliminary	Peri, Post Transplant
TB QuantiFERON Gold	Conditional	≤ 72 h	Pre Transplant
Bilharzia Serology	Conditional	≤ 72 h	Pre Transplant
Malaria Test	Conditional	≤ 6 h	Pre, Peri Transplant
Cotinine	Conditional	≤ 72 h	Pre Transplant
Drugs of Abuse Screen	Conditional	≤ 24 h	Pre Transplant
RPR	Core	≤ 48 h	Pre Transplant

<i>Test</i>	<i>Core / Conditional</i>	<i>Target TAT</i>	<i>Timing</i>
TPHA	Core	≤ 72 h	Pre Transplant
Direct Coombs	Conditional	≤ 48 h	Pre Transplant
ANA	Conditional	≤ 72 h	Pre Transplant
ENA	Conditional	≤ 72 h	Pre Transplant
ANCA	Conditional	≤ 72 h	Pre Transplant
Anti GBM	Conditional	≤ 72 h	Pre Transplant
PLA2R Antibody	Conditional	≤ 5 days	Pre Transplant
Lupus Anticoagulant	Conditional	≤ 5 days	Pre Transplant
Anti Cardiolipin Antibody	Conditional	≤ 5 days	Pre Transplant
Anti β2 Glycoprotein I Antibody	Conditional	≤ 5 days	Pre Transplant
Complement C3	Conditional	≤ 72 h	Pre Transplant
Complement C4	Conditional	≤ 72 h	Pre Transplant
ASOT	Conditional	≤ 72 h	Pre Transplant
Anti DNase B	Conditional	≤ 72 h	Pre Transplant
PSA	Conditional	≤ 72 h	Pre Transplant
Pap Smear	Conditional	7–14 days	Pre Transplant
Blood Group	Core	≤ 6 h	Pre Transplant
Rh Factor	Core	≤ 6 h	Pre Transplant
HLA Typing	Core	≤ 5 days	Pre Transplant
CDC Crossmatch	Core	≤ 5 days	Pre Transplant
Panel Reactive Antibodies (PRA)	Core	≤ 5 days	Pre Transplant

<i>Test</i>	<i>Core / Conditional</i>	<i>Target TAT</i>	<i>Timing</i>
Tacrolimus Level	Core	≤ 24 h	Post Transplant
Cyclosporin Level	Core	≤ 24 h	Post Transplant
Sirolimus Level	Conditional	≤ 48 h	Post Transplant
Mycophenolate Mofetil Level	Conditional	≤ 72 h	Post Transplant

Essential Renal and Transplant Medicines

Drug	Essential for Transplant	Essential for Dialysis	Essential for Pre-Dialysis CKD	Essential for Glomerulonephritis
Aldactone	Yes	Yes	Yes	Yes
Alfacalcidol	Occasionally	Yes	Yes	Occasionally
Amlodipine	Yes	Yes	Yes	Yes
Anti-Thymocyte Globulin	Yes	No	No	No
Atenolol	Yes	Yes	Yes	Occasionally
Atorvastatin	Yes	Yes	Yes	Yes
Azathioprine	Occasionally	No	No	Yes
Trimethoprim sulfamethoxazole	Yes	No	No	Yes
Basiliximab	Yes	No	No	No
Calcium carbonate	Yes	yes	Yes	Yes
Carvedilol	Yes	Yes	Yes	Occasionally
Ciclosporin	Yes	No	No	Yes
Custodiol solution	Yes	No	No	No
Dapagliflozin	Occasionally	No	Yes	Yes
Darbepoetin alfa	Occasionally	Yes	Yes	Occasionally
Dianeal 1.5%	No	Yes	No	No
Dianeal 2.5%	No	Yes	No	No
Dianeal 4.25%	No	Yes	No	No
Doxazosin	Yes	Yes	Occasionally	Occasionally
Enalapril	Yes	Yes	Yes	Yes
Enoxaparin sodium	Yes	Yes	Yes	Yes
Epoetin beta	Occasionally	Yes	Yes	Occasionally
Extraneal	No	Yes	No	No
Ferrous gluconate tablets	Yes	Yes	Yes	Yes

<i>Drug</i>	<i>Essential for Transplant</i>	<i>Essential for Dialysis</i>	<i>Essential for Pre-Dialysis CKD</i>	<i>Essential for Glomerulonephritis</i>
Ferrous sulphate tablets	Yes	Yes	Yes	Yes
Furosemide	Yes	Yes	Yes	Yes
Hydralazine	Occasionally	Yes	Occasionally	No
Hydrochlorothiazide	Occasionally	No	Yes	Yes
Insulin	Yes	Yes	Yes	Yes
Iron sucrose	Occasionally	Yes	Yes	Occasionally
Isoniazid	Yes	No	No	Yes
Lansoprazole	Yes	No	No	Yes
Losartan	Yes	Yes	Yes	Yes
Methoxy polyethylene glycol-epoetin beta	Occasionally	Yes	Yes	Occasionally
Methyldopa	Occasionally	Yes	Occasionally	No
Methylprednisolone	Yes	No	Yes	Yes
Mycophenolate mofetil	Yes	No	No	Yes
Mycophenolic acid	Yes	No	No	Yes
Oral bicarbonate solution	Occasionally	Occasionally	Yes	Occasionally
Perindopril	Yes	Yes	Yes	Yes
Prednisone	Yes	Yes	Yes	Yes
Rituximab	Occasionally	No	No	Yes
Roxadustat	Occasionally	Yes	Yes	Occasionally
Sevelamer	Occasionally	Yes	Occasionally	No
Simvastatin	Yes	Yes	Yes	Yes
Sirolimus	Yes	No	No	No
Sodium polystyrene sulfonate	Occasionally	Occasionally	Yes	Occasionally
Tacrolimus	Yes	No	No	Yes

Drug	Essential for Transplant	Essential for Dialysis	Essential for Pre-Dialysis CKD	Essential for Glomerulonephritis
Tenckhoff catheters (with introducers)	No	Yes	No	No
Valganciclovir	Yes	No	No	Occasionally
Verapamil	Yes	Yes	Yes	Yes
Warfarin	Occasionally	Yes	Occasionally	Yes
Rivaroxaban	Occasionally	Occasionally	Occasionally	Yes

Kidney Transplant Recipient Work-up Documentation Checklist

Work-up Domain	Completed
Patient identification and demographics documented (ID or passport, nationality, physical address, date of birth, sex)	☐
Informed consent completed (Transplant consent, blood transfusion consent)	☐
Dialysis and renal history summary completed (RRT modality, start date, primary renal diagnosis)	☐
Comorbidity and risk factor assessment documented (Hypertension, diabetes, TB history, smoking, alcohol, drugs of abuse)	☐
Baseline functional and frailty assessment completed (CKD triage category, 6-minute walk test, Rockwood frailty score, EPTS)	☐
Baseline laboratory assessment documented (FBC, U&E, calcium/magnesium/phosphate, PTH, vitamin D, LFT, urine ACR or PCR, urine MC&S, 24-hour urine if indicated) (< 3 months)	☐
Metabolic assessment documented (Fasting lipogram, fasting glucose, HbA1c, uric acid, TSH/T4) (< 6 months)	☐

Work-up Domain

Completed

Infectious disease screening documented (HIV ± CD4 and viral load, CMV, EBV, hepatitis A/B/C, syphilis, TB screening, bilharzia, dental clearance, other endemic opportunistic infections)

☐

Cardiovascular assessment documented (ECG, echocardiogram, [stress test or angiography & cardiology review if indicated])

☐

Respiratory assessment documented (Chest X-ray, lung function tests, [chest CT if high risk & pulmonology review if indicated])

☐

Gastrointestinal and urogenital assessment documented (Abdominal ultrasound, voiding cystourethrogram, [CT abdomen if indicated, urology or surgical assessments if indicated])

☐

Age- and sex-appropriate malignancy screening documented (Pap smear, PSA, breast imaging, colonoscopy or FOBT, upper GI endoscopy if indicated)

☐

Psychosocial and support assessment completed (Psychological evaluation, social worker assessment, financial and adherence support)

☐

Immunological work-up documented (HLA typing, PRA antibodies, crossmatch or virtual crossmatch where applicable)

☐

Donor status documented (Identified donor or donor search status)

☐

Multidisciplinary team review completed (MDT discussion and recommendation recorded)

☐

Transplant panel decision documented

☐

External or regulatory approval documented (Ministerial or equivalent, if required)

☐

Final transplant eligibility decision recorded

☐

Kidney Transplant Donor Work-up Documentation Checklist

Work-up Domain	Completed
Donor identification and demographics documented (ID or passport, nationality, physical address, age, sex)	☐
Informed consent completed (Donation consent, blood transfusion consent)	☐
Donor type and relationship documented (Living or deceased donor, biological relationship, recipient identified)	☐
Baseline medical history and comorbidity assessment documented (Hypertension, diabetes, TB history, smoking, alcohol, drugs of abuse)	☐
Baseline functional and cardiovascular risk assessment documented (Blood pressure, BMI, Framingham risk score)	☐
Baseline laboratory assessment documented (FBC, U&E, calcium/magnesium/phosphate, PTH, vitamin D, LFT, urine ACR or PCR, urine MC&S, 24-hour urine creatinine and protein)	☐
Renal function assessment documented (Measured GFR, serum creatinine, urine protein quantification)	☐
Metabolic assessment documented (Fasting lipogram, fasting glucose, HbA1c, uric acid, TSH/T4)	☐
Infectious disease screening documented (HIV $\pm$ CD4 and viral load, CMV, EBV, hepatitis A/B/C, syphilis, TB screening, dental clearance)	☐
Cardiovascular assessment documented (ECG, echocardiogram, stress test or angiography if indicated, cardiology review)	☐
Respiratory assessment documented (Chest X-ray, lung function tests, chest CT if high risk, pulmonology review)	☐

Work-up Domain

Completed

Gastrointestinal and urogenital assessment documented (Abdominal ultrasound, voiding cystourethrogram, CT abdomen if indicated, urology and surgical assessments)

☐

Age- and sex-appropriate malignancy screening documented (Pap smear, PSA, breast imaging, colonoscopy or FOBT, upper GI endoscopy if indicated)

☐

Psychosocial and support assessment completed (Psychological evaluation, social worker assessment, voluntariness and coercion assessment)

☐

Immunological compatibility work-up documented (Blood group typing, HLA typing, PRA antibodies, T and B cell crossmatch, virtual crossmatch)

☐

Nephrologist donor suitability assessment documented

☐

Multidisciplinary team review completed (MDT discussion and recommendation recorded)

☐

Transplant panel decision documented

☐

External or regulatory approval documented (Ministerial or equivalent, if required)

☐

Final donor eligibility decision recorded

☐