

2023 ISN-GKHA (GLOBAL KIDNEY HEALTH ATLAS) REGIONAL SLIDES PRESENTATIONS

AFRICA

SLIDE 1-2:

<Opening slides>

SLIDE 3:

Overview of presentation

- Aim
- Methods
- Key results

SLIDE 4:

Aim of the ISN-GKHA:

- The incentive for the ISN-GKHA initiative arose from unavailability of consolidated reliable data on the status of kidney care either globally or major world regions, especially in low-resource countries that have a higher burden of kidney disease. Previous iterations of the ISN-GKHA have identified gaps in availability and access to care. Hence, in order to improve kidney care worldwide, there is need to document and update the status of kidney care globally to allow monitoring and implementation of necessary change.
- The vision of the ISN-GKHA is to achieve optimal and equitable kidney care worldwide by identifying gaps and processes to close gaps related to the capacity or equity of kidney care. Hence, the ISN-GKHA serves to collect data using standardized indicators that measure kidney care delivery to provide evidence-based recommendations to relevant stakeholders.
- Overall, the goal of the ISN-GKHA is to improve the understanding of inter- and intranational variability across the globe with respect to capacity for kidney care delivery. Through assessing and documenting capacity for kidney care across all world regions, we can work toward improving the quality and equity of kidney care worldwide.
- Key focus on availability, accessibility, affordability, and quality of kidney failure care.



- To achieve this mission, the strategy of the ISN-GKHA is to collect data using standardized indicators that measure kidney care delivery to provide evidence-based recommendations to relevant stakeholders.
- Previous iterations (2017 and 2019) documented capacity of kidney care and identified major gaps across countries. Both iterations allowed for the establishment of overall benchmarks, within ISN regions, and across World Bank income groups.
- The current iteration was conducted in 2022 and published in 2023 and will be repeated every 4 years to monitor progress and optimally measure and address new gaps.
- Today's discussion will focus on the 2022 results, which were published in the 2023 Atlas.

SLIDE 5:

Timelines of the ISN-GKHA

SLIDE 6:

Design and scope:

- **Desk research (across countries and regions)**
 - Published and grey literature review
 - Systematic review of kidney failure burden and outcomes
 - Data extraction from major kidney registries (USRDS, ERA-EDTA) and relevant national registries where available
 - Scoping review of KRT cost estimates
- **Online questionnaire-based survey July – September 2022**
 - 3 languages (English, French, Spanish)
 - 191 countries were contacted.
 - ≥3 stakeholders per country
 - ✓ National nephrology society leadership
 - ✓ Healthcare policymakers
 - ✓ Patients / patient advocacy groups
 - Discrepancies were resolved by follow-up conferences with regional board chairs and country nephrology leaders.



SLIDE 7:

- The survey followed a framework developed by the World Health Organization (WHO) on health systems evaluation.
- This framework was released in 2010, which was a handbook of indicators and measurement strategies to monitor the building blocks of a health system. The WHO recognized that information is needed to track how health systems respond to increased inputs and improved processes, and the impact they have on improved health indicators. Therefore, a set of core indicators of health system performance was established, along with sustainable measurement strategies, to generate the required data.
- The framework considers health systems in terms of six core components or “building blocks”:
 - Service delivery.
 - Health workforce.
 - Health information systems.
 - Access to essential medicines.
 - Financing; and
 - Leadership/governance
- Through addressing each of these domains, the overall goals of the WHO strategy are to improve health (level and equity), health system responsiveness, protect social and financial risk, and improve efficiency.
- The ISN-GKHA models this framework to similarly aim to achieve these objectives, specific to kidney care.

SLIDE 8:

- Of the 191 countries we invited, 167 (92%) countries participated in the 2022 survey representing 97% of the world’s population.
- Individual response was obtained from 329 individuals representing a 63% response rate.
- There was a median response of 2 respondents/country (IQR 2-3).
- 108 countries participated in the 2017, 2019, and 2023 GKHA surveys.

SLIDE 9:

- The ISN-GKHA reports overall global results for each indicator and separates the data by ISN region and income group.



- The ISN-GKHA is therefore able to examine the level of variability across income levels and geographical regions.
- Knowing if there is variation between countries, either within a common ISN region or income group, is helpful when trying to promote equity of care.

SLIDE 10:

- This talk focuses on the ISN Africa region.
- There are 54 countries in Africa, 26 (48.1%) are low income (LICs), 17 (31.5%) are lower-middle (LMICs), 10 (18.5%) are upper-middle (UMICs), and 1 (1.9%) is high income (HICs).

SLIDE 11 – 14:

- Responses were received from 41 of 54 countries in Africa (75.9%) representing 93% of the region's population.
- At the time of the survey, there were 1,388,319,298 people living in the 54 countries in Africa. Nigeria had the highest population (225.1 million) and Cabo Verde had the lowest population (596,707).
- GDP (PPP) in the region ranges from US\$ 3.9 billion (Cabo Verde) to US\$ 1.39 trillion (Egypt).
- Median total health spending per capita and government health spending per capita in the region was US\$ 54 and US\$16, respectively.

SLIDE 15 – 16:

- The median CKD prevalence in Africa is 4.2% ranging from 2.98% in Uganda to 11.8% in Tunisia.
- Median disability adjusted life years (DALYs) attributed to CKD in Africa was 1.04%; lowest in Somalia (0.61%) and highest in Morocco (2.58%).
- Median deaths attributable to CKD was 1.8% and was lowest in Mozambique (1%) and highest in Morocco (4.1%).
- The prevalence of other risk factors (hypertension, obesity, and smoking are presented).

SLIDE 17 – 18:

- Incidence and prevalence data on treated kidney failure (dialysis and kidney transplantation) were not readily available for countries in Africa. Overall, the median incidence and prevalence of treated kidney failure were 100 per million population (pmp) and 541 pmp, respectively. Only four countries had incidence data for treated kidney failure (South Africa, Egypt,



Morocco, and Tunisia) while five countries had prevalence data for treated kidney failure (Rwanda, South Africa, Egypt, Morocco, and Tunisia).

- Incidence of treated kidney failure ranged from 22 pmp in South Africa to 242 pmp in Tunisia while prevalence of treated kidney failure ranged from 4.4 pmp in Rwanda to 1,018 pmp in Tunisia.
- Incidence of chronic HD and chronic PD were not available from any countries. Median prevalence of chronic dialysis (HD + PD), chronic HD, and chronic PD were 15.4 pmp, 12.2 pmp, and 0.2 pmp, respectively.

SLIDE 19 – 20:

- There was scant incidence and prevalence data on kidney transplantation (KT) in Africa.
- Overall, median KT incidence and prevalence were 2.1 pmp and 25.4 pmp, respectively. KT incidence was lowest in Ethiopia (0.07 pmp) and highest in Egypt (15.5 pmp) while KT prevalence was only available for South Africa (25.4 pmp).
- Pre-emptive KT is unavailable in Africa, however, median incidence of deceased and living KT donors were 0 pmp and 0.9 pmp, respectively.

SLIDE 21 – 22:

- The annual cost of KRT showed significant variability across the region. The annual median cost of in-centre HD, PD, and first year of KT were US\$ 13,792.5, US\$ 14,191.6, and US\$ 20,713.9, respectively.

SLIDE 23 – 27:

- Scorecards were created for each country to allow comparison of results with other countries in the same region as well as between the previous (2019) survey and current (2023) survey.
- Green represents availability, red represents not available and grey represents unknown or not applicable if they didn't complete a survey that year.
- In-centre HD was available in all countries (100%) in Africa in 2023, however, PD was available in 19 (48%) countries in 2023. PD was unavailable in Congo Republic in 2019 but was available in 2023 but was available in Cot d'Ivoire in 2019 and became unavailable in 2023. KT was available in 13 (33%) countries in 2023.
- Overall, 12 (31%) of countries had a dialysis registry (global median was 63%) while 5 (13%) of countries had a KT registry (global median was 58%).



- CKD is recognized as a health priority in 19 (49%) of countries in Africa in 2023.

SLIDE 28 – 31:

- Reimbursement for non-dialysis CKD treatment mostly utilized public funding (with some fees) and a mixture of public and private funding systems.
- Public government funding that is free for acute dialysis, chronic HD, chronic PD, and KT medications were available in 10 (24%), 14 (34%), 6 (15%), and 5 (12%) of countries respectively. However, solely private, and out-of-pocket payment systems for these services were used in 4 (10%), 4 (10%), 1 (2%), and 9 (22%) of countries, respectively. Four countries (Botswana, Central African Republic, Mauritius, and Tunisia) reimburse these services through public funding mechanisms that is free at point of delivery. Only in Democratic Republic of Congo is out-of-pocket system used to reimburse services for acute dialysis, HD, PD, and KT medications.

SLIDE 32:

- Nephrologists are mainly responsible for kidney failure care in 83% of countries in Africa (global median was 87%).
- Primary care physicians, nurse practitioners, and multi-disciplinary teams are responsible for providing care in 7% (Namibia, Tanzania, and Zambia), 2% (Mozambique), and 5% (Malawi and Swaziland) of countries, respectively.

SLIDE 33 – 34:

- Shortages of healthcare providers were critical in many African countries.
- More than three-quarters of countries reported shortages of: nephrologists (85%), paediatric nephrologists (98%), transplant surgeons (88%), interventional surgeons for AVF/AVG (88%) and for PD catheter access (85%), vascular access coordinators (83%), dietitians (80%), and transplant coordinators (76%).

SLIDE 35:

- Nephrology density was low across African countries in comparison with other countries. The median prevalence of nephrologists in Africa was 1.12 pmp ranging from 0.14 pmp in Madagascar to 93.4 pmp in Lesotho.



- Overall nephrology trainees density was 0.18 pmp and was highest in Lesotho (6.8 pmp) with eleven countries (Benin, Cabo Verde, Central African Republic, Chad, Gambia, Malawi, Namibia, Niger, Swaziland, Uganda, and Zambia) reporting no nephrology trainees.

SLIDE 36 – 38:

- Estimates of the number of centres providing KRT was assessed across all countries. Of all ISN regions, HD centres were lowest in Africa (0.81 pmp compared to 5.1 pmp globally). Mozambique had the lowest density of HD centres (0.09 pmp) while Lesotho had the highest (36.5 pmp).
- PD centres were also lowest in Africa (0.13 pmp compared to 1.57 pmp globally) and only available in 19 countries. Lesotho also had the highest density of PD centres (6.84 pmp) while Nigeria had the lowest (0.02 pmp).
- Thirteen countries in Africa had KT centres with a median density of 0.14 pmp.

SLIDE 39:

- Nine countries (69%) utilize live donor kidney transplantation as source of donor kidneys while 4 countries (31%) (Lesotho, Morocco, South Africa, and Tunisia) have a combined live and deceased donor KT program.
- Five countries (Ethiopia, Lesotho, Morocco, Tunisia, and Zambia) have a national KT waitlist, three countries (Egypt, Kenya, and South Africa) have regional waitlists, while six countries (Cote d'Ivoire, Ghana, Namibia, Nigeria, Sudan, and Tanzania) have no KT waitlists.

SLIDE 40:

- Capacity to provide adequate frequency of HD i.e., three times weekly for 3 – 4 hours per session, was available in 21 (53%) countries in Africa.
- Capacity to provide adequate PD exchanges i.e., three to four exchanges per day was available in 8 (20%) countries.

SLIDE 41:

- Only one country (Lesotho) had availability of home HD services.



SLIDE 42 – 43:

- Conservative kidney management (CKM) established through shared-decision making, choice restricted CKM (where resource constraints prevent or limit access), and choice restricted CKM (where no resource constraints prevent or limit access) were available in 15 (38%), 13 (33%), and 10 (25%) of countries, respectively.

SLIDE 44 – 46:

- Various payment systems were utilized for the reimbursement of medications for non-dialysis CKD (ND-CKD), dialysis patients, and KT recipients in Africa.
- ND-CKD patients are able to receive medications through public funding that is free in three countries (CAR, Gabon, and Gambia) while in most countries, such medications can only be obtained through private and out-of-pocket payment systems or through a mixture of public and private funding system.
- A similar process is utilized for obtaining relevant medications for patients treated with dialysis (HD or PD).
- KT medications are largely obtained (in 40% of countries) through an out-of-pocket and private payment system.

SLIDE 47:

- Overall, 12 (31%) of countries had a dialysis registry (global median was 63%) while 5 (13%) of countries had a KT registry (global median was 58%).

SLIDE 48 – 49: SUMMARY OF FINDINGS

There remains limited availability and quality of delivered KRT.

- In-centre HD was available in all countries (100%), PD in 19 (48%) of countries, and KT in 13 (33%) of countries.
- While all countries have HD, the capacity to provide adequate HD frequency (3 – 4 hours/ session), was available in 21 (53%) countries in Africa while the capacity to provide adequate PD exchanges i.e., 3 – 4 exchanges/ day was available in 8 (20%) countries.
- Only one country (Lesotho) has home HD available in the continent.



Conservative kidney management

- Established CKM through shared-decision making is more readily available in 38% of countries than choice restricted CKM (where resource constraints prevent or limit access) in 33% of countries, and choice restricted CKM (where no resource constraints prevent or limit access) in 25% of countries.

Public government funding for kidney care remains low in Africa.

- Few countries in Africa cover the cost of kidney care using public government funds.
- Only 10 countries (24%) use public government funds (and free at point of delivery) to cover the cost of acute dialysis (whether HD or PD) and 34% of countries cover the cost of chronic HD using this method while 15% cover PD cost using this method.
- More countries (22%) cover the cost of KT medications through private and out-of-pocket methods than countries that provide public funding (12%) for coverage.

Few registries across all levels of kidney disease

- Few countries have a registry for any level of kidney disease. Overall, 12 (31%) of countries had a dialysis registry (Angola, Botswana, Cote d'Ivoire, Egypt, Ghana, Kenya, Malawi, Mauritius, Morocco, Niger, South Africa, and Zambia) while 5 (13%) of countries had a KT registry (Botswana, Egypt, Kenya, Mauritius, and South Africa).

Critical workforce shortages across African countries.

- Overall, prevalence of nephrologists was low at 1.12 pmp with the lowest recorded in Madagascar (0.14 pmp). Similarly, prevalence of nephrology trainees was also low (0.18 pmp) and was highest in Lesotho (6.8 pmp).
- More than three-quarters of countries reported shortages of workforce including nephrologists, paediatric nephrologists, transplant surgeons, interventional surgeons for AVF/AVG and for PD catheter access, vascular access coordinators, dietitians, and transplant coordinators.

Lack of advocacy and recognition of kidney disease as a priority in Africa.

- Despite a high burden of kidney disease in Africa, kidney diseases are not formally recognized by governments as a health priority in the continent.



- Less than half of countries (49%) recognize CKD as a health priority while few advocacy groups exist for all forms of kidney disease including AKI, CKD, kidney failure, and KRT.

SLIDE 50-51: IMPLICATIONS

There are important implications to consider. Based on these survey findings, key recommendations to drive future activities for optimizing kidney care globally are proposed:

Increase health care financing for kidney failure prevention and management.

- While resource limitations are an obvious barrier, focusing on preventing kidney failure through appropriate hypertension and diabetes management may be more cost-effective overall. Government funding to cover medication costs may allow more patients to treat earlier stage CKD, thereby preventing the need for more costly kidney failure treatment and the obvious burden this has on patients' wellbeing.

Address workforce shortages through multidisciplinary teams and telemedicine

- Shortages of nephrologists, surgeons, dialysis nurses, and other key allied health professionals were noted across most countries. Similarly, simply producing more nephrologists may not be feasible or appropriate, and sharing the workload across multiple providers will not only promote the use of multidisciplinary teams but further, allow for more and better care delivery across more patients. Telemedicine may help particularly in addressing gaps in care among rural patients and enhancing capacity through training programs such as ISN Fellowship, visiting ambassador programs, etc.

Incorporate the collection and reporting of quality indicators in kidney failure care.

- Measuring and reporting on key quality indicators is an important driver in healthcare improvement. Ensuring facilities are supported with information systems that allow for the systematic measurement and reporting of indicators is a first key step to increasing the rate of monitoring among countries. Further, understanding if or how the collection and reporting of indicators are being used to improve care is needed.

Expand health information systems to prevent and manage kidney failure.

- Similarly, good quality HIS are vital for kidney disease management within a country. A lack of data on disease prevalence, incidence, resource use, and quality of care limits government and



provider ability to monitor and evaluate the care provided as well as predicts appropriate resource allocation so that sufficient facilities, medicines, and healthcare professionals are trained and available.

Promote kidney failure prevention and treatment by implementing policies, strategies, and advocacy, and mitigating barriers.

- Lastly, policies and strategies are important for consistent approaches within a country for optimal care delivery, as well as for accountability, leadership, and knowledge exchange. Advocacy may help promote the increase of government prioritization and further, public awareness of how to prevent and manage kidney disease. Without acknowledging and mitigating barriers, it would be a challenge to achieve of successes out of these recommendations. Competing priorities and needs (for example, clean water supply and basic sanitation, maternal and child health, malnutrition, etc.) represent formidable barriers that can limit implementation of the recommended strategies in the region.

