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2019 GKHA regional slides presentations

AFRICA

Slide 1:

<opening slide>

Slide 2:

- Overview of presentation
 - Aim of GKHA
 - Methods (desk research and survey)
 - Key Results
 - Summary and implications

Slide 3:

- The impetus for the Atlas project came from the fact that we don't have any consolidated reliable data on the current status of kidney care either globally or regionally. In order to improve kidney care worldwide, we need to document where we are and where we need to go to monitor and motivate change.
- The vision of the Atlas is to achieve optimal and equitable kidney care worldwide. To accomplish this, we need to identify and close gaps related to the capacity or equity of kidney care. Hence, the 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 GKHA is to improve the understanding of inter- and intra-national 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.

Slide 4:

- To achieve this mission, the strategy of the GKHA is to collect data using standardized indicators that measure kidney care delivery to provide evidence-based recommendations to relevant stakeholders.
- First in 2016, the ISN conducted the first-ever survey to document the baseline capacity of kidney care. This allowed for the establishment of benchmarks overall, within ISN regions, and by World Bank income group. This was an important first step to understand where we are globally, with respect to the capacity and equity of kidney care delivery.



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- The survey was repeated again in 2018 and will be every 3 years moving forward to monitor progress so we can work toward improving the areas needing change.
- Today's discussion will focus on the 2018 results, which were published in the 2019 Atlas.

Slide 5:

- Two key methods were used to produce the atlas: a desk research component, which involved searching literature and other data sources to calculate estimates; and a key opinion leader survey, whereby three leaders from each country (a nephrology society leader, a leader of a consumer representative organization, and a policymaker) submitted details on national kidney care capacity and practices with a specific focus on kidney disease.
- The online questionnaire was completed in July-September 2018. Stakeholders from 182 countries were invited to participate.
- Approximately 3 stakeholders from each country completed the survey. Any discrepancies within a country were resolved through follow-up meetings with regional and country leaders.

Slide 6:

- The survey followed a framework developed by the World Health Organization 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.



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- The GKHA models this framework to similarly aim to achieve these objectives, specific to kidney care.

Slide 7:

- The 2019 survey received input from 160 of the 182 invited countries, equaling a response rate of 88%.
- This covered nearly 99% of the world's population.
- An additional 36 countries participated in the 2019 survey compared to the 2017 survey.

Slide 8:

- The GKHA reports overall global results for each indicator, and as well separates the data by ISN region and income group.
- Therefore, we are 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 9:

- This talk focuses on the region of Africa.
- There are 54 countries in Africa, 26 (48%) are low income, 17 are lower-middle, 10 are upper-middle, and 1 is high income.

Slides 10-11:

- At the time of the survey, there were 1,255,518,570 people living in the 54 countries in Africa. The average country population was 11,849,966
- The median GDP was 30 billion
- On average, 5.5% of the GDP was spent on healthcare (i.e., total health expenditure)

Slides 12-13:

- The average prevalence of CKD in Africa is 6.5%, ranging from 4.9% in Uganda to 17.6% in Mauritius.
- Mauritius has both the highest CKD prevalence ([slide 13](#)) and proportion of deaths attributable to CKD (10.4%).
- Obesity rates range in the region, from 3.6% in Ethiopia to 31.8% in Libya. The range of hypertension is not as variable across countries in Africa and occurs in nearly 30% (28.4%) of the region (note: range = 23.2% in Tunisia to 33.4% in Niger).
- The proportion of population that smokes ranges from 1% in Sudan to 19.9% in Tunisia.



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Slides 14-15:

- Data availability on the burden of end stage kidney disease is low in Africa. Only 5 countries have data on either the prevalence or incidence of transplantation or dialysis.
- Information on the prevalence of chronic dialysis is more available, and is provided for 32 countries.
- The country with the highest prevalence of chronic dialysis (either peritoneal or hemodialysis) was Tunisia with 759.6 people receiving dialysis per million population. The lowest was Tanzania with 0.5 pmp.
- The overall prevalence of chronic HD was substantially higher than for PD. In this region, the average prevalence of chronic HD was 11 (10.95) compared to only 0.3 for PD.

Slides 16-17:

- Data on kidney transplantation in Africa is scarce. Only 1 country (South Africa) in the region has data available on the overall prevalence of kidney transplantation and 8 have data on the overall incidence.
- Of countries with data available, the incidence of kidney transplantation was lowest in Nigeria (0.3 pmp) and highest in Tunisia (11.1 pmp)

Slides 18-19:

- Annual costs of kidney replacement therapy were estimated for each country. 14 countries had data to estimate the annual cost of HD, which was USD 12,060. The costs of PD were available in 10 countries and estimated at USD 13,302 per year. Transplantation costs were also available in 10 countries. It was estimated that the first year of transplantation would cost USD 17,870 and 8,339 per year following.
- The HD/PD cost ratio was estimated for 10 countries and estimated to be exactly 1.0

Slide 20

- Responses were received from 42 of 54 countries in Africa (77.8%) representing 96% of the region's population.

Slides 21-24

- Scorecards were created for each country so they could compare results with other countries in the same area as well as between the first survey in 2017 and the follow-up two years later in 2019.
- Green represents availability, red represents not available and grey represents unknown or not applicable if they didn't complete a survey that year.



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- Hemodialysis was available in all countries. Peritoneal dialysis and transplant were much less available. In the 2019 survey, only 51% (21 of 41 countries) of countries in the region reported that peritoneal dialysis was available and only 34% (14 countries) of countries reported that kidney transplantation was available.
- 9 countries (of the 40 that answered the question; 23%) in Africa reported that medications for dialysis patients are exclusively covered by the government, with no costs to patients. An additional 15% reported that the government does fund the medications; however, patients are required to cover some costs. This is less than the global average, which showed that 41% of countries fund medication exclusively by the government.
- Only 5 countries (of the 14 that answered the question; 36%) exclusively cover medications needed for patients that have had kidney transplantation (Algeria, Egypt, Ethiopia, Sudan, Tunisia). Three countries require patients to pay for all costs out-of-pocket (Cote d'Ivoire, Gambia, Nigeria). Government coverage for medications for transplant patients was less than the global average. Worldwide, 57% of countries exclusively cover medication costs with no fees, compared to only 36% of countries in Africa.
- 29% of countries in Africa have an advocacy group for CKD and 17% have an advocacy group for AKI. 29% of countries in the region have an advocacy group for end stage kidney disease.

Slide 25

- 15 countries in Africa reported that non-dialysis CKD care was funded by the government: 6 exclusively and 9 with some fees at the point of care. Six reported that care was exclusively private and out-of-pocket for patients (Burkina Faso, Cameroon, Guinea, Madagascar, Mauritania, and Nigeria). 13 reported a mix of public and private and 5 reported a combination of sources including non-government organizations, governments, communities, etc. Three countries (Benin, Niger, and Sierra Leone) reported other funding sources for non-dialysis CKD care.

Slide 26

- 22 countries in Africa reported that kidney replacement therapy was funded by the government: 11 exclusively and 11 with some fees at the point of care. Three reported that KRT was exclusively covered out-of-pocket by patients (Madagascar, Nigeria, and Somalia). 12 reported that KRT costs were covered through a mix of public and private sources. Three reported a combination of sources including non-government organizations, governments, communities, etc. One country (Sierra Leone) reported other funding sources for KRT and another country (Liberia) reported that KRT was not available.



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- 78% of countries in Africa reported that nephrologists are primarily responsible for people with ESKD. This is less than the global average, which showed that 92% of countries overall reported that nephrologists are primarily responsible for ESKD care.
- Other healthcare providers share the responsibility in other countries, for example 30% of countries reported that primary care physicians are also responsible for ESKD care and 10% reported that nurses share the responsibility. 17% of countries in Africa reported that multidisciplinary teams are utilized to care for people with ESKD.

Slides 28-29

- Workforce shortages, highlighted in red, were commonly reported in Africa. Only 5 countries in the region (Congo Rep, Egypt, Madagascar, Morocco, and Tunisia) reported no shortage of nephrologists. Dietitians and radiologists were the least commonly reported workforce shortage in the region.

Slide 30

- Worldwide, the median number of nephrologists is 9.95 nephrologists per million population.
- In Africa, the density of nephrologists was 0.6 nephrologists per million population. Countries in Africa with the highest density were Egypt (34.14 pmp in 2018), Libya (12.48 pmp in 2018), Morocco (12.53 pmp in 2018), and Tunisia (15.63 pmp). Countries with the lowest densities were Malawi (0 nephrologists), Mozambique (0.11 pmp), Ethiopia (0.14 pmp), and Sierra Leone (0.16 pmp).
- Nephrology trainee density was similarly low in the region. The global median density of trainees is 1.4 per million population. In Africa, the median density was 0.4 pmp. 7 countries reported 0 trainees: Congo, Dem. Rep., Congo Rep, Liberia, Malawi, Niger, Sierra Leone, and Zimbabwe.

Slide 31

- Respondents were asked to report the number of centres that provide chronic hemodialysis in their country. All countries in Africa reported that chronic HD services were available.
- Globally, the median density was 4.5 centers per million population. In Africa, the density was 1.6 pmp. Countries in Africa with the lowest density (that had data available) were: Mozambique (0.11 pmp), Chad (0.13 pmp), Congo Dem. Rep. (0.15 pmp), and Niger (0.15 pmp).
- Data on HD centre density were not available in 3 African countries.



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Slide 32

- Respondents were also asked to report the number of centres that provide chronic peritoneal dialysis in their country. In Africa, 51% of countries (21 of 41 countries) reported that chronic PD was available. This is lower than the global average, which indicated that 81% of countries worldwide offer PD.
- The global median density of PD centers per million population was 1.3 centers pmp. In Africa, the density was 0.05 pmp. Countries in the region with the lowest density (that offer PD and have data available) were: Congo Dem Rep (0.02 pmp), Angola (0.03 pmp), Cote d'Ivoire (0.04 pmp), Mozambique (0.04 pmp), and Malawi (0.05 pmp).
- Data on PD center density were not available in 25 (61%) African countries.

Slide 33

- Respondents were also asked to report the number of centres that provide kidney transplantation in their country. In Africa, 34% of countries (14 countries) reported that kidney transplantation was available. This is lower than the global average, which indicated that 74% of countries worldwide offer kidney transplantation.
- Globally, among the countries with kidney transplantation services, the average is 0.4 centers pmp. In Africa, the median density was 0.07 pmp. Countries with the lowest density (that offer kidney transplantation) in Africa were: Swaziland (0 pmp), Ethiopia (0.01 pmp), Cote d'Ivoire (0.04 pmp), Ghana (0.04 pmp), Tanzania (0.04 pmp), and Tunisia (0.04 pmp).

Slide 34

- Of the 14 countries in Africa that offer kidney transplantation services, most 11; 79%) rely on live donation only. Three countries (Morocco, South Africa, Tunisia) use a combination of live and deceased organ donation. This differs from the global score. Overall, only 28% of countries reported live donation only and 72% rely on a combination of sources for organ donation.
- Five countries use a national waitlist, 2 use a regional list only, and 7 have no wait list for transplantation. Globally, only 19% of countries reported an absence of a wait list, compared to half the countries in Africa.

Slide 35

- While all countries in Africa reported that chronic HD was available, only 18 (43%) countries in the region have a center-based service that involves treatment 3x week for 3-4 hours. This is much less than the global average, which reported that 77% of countries offer adequate frequency for HD services.
- Only 7 countries (17%) in Africa reported an ability to do adequate exchanges 3-4x day (or equivalent cycles on automated PD). Similarly, this is



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less than the global average of 58% of countries that offer adequate PD exchange.

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- Home hemodialysis was not generally available in any countries in Africa, as opposed to 13% of countries worldwide. Generally available means that home hemodialysis training is offered in at least 50% of dialysis centres.
- 41% of countries in Africa stated that home hemodialysis is never available.

Slide 37

- Conservative kidney management is a treatment option for ESKD, which does not include dialysis or transplantation.
- There are 2 types of conservative kidney management: choice-restricted or medically advised. Choice-restricted means that patients opt for CKM due to limitations in resources, whereas medically advised, or chosen, is a deliberate choice of CKM as it is likely the better treatment option for an individual rather than KRT.
- In Africa, approximately half of countries reported that CKM was offered in a choice-restricted basis and half reported it was chosen or medically advised. This is similar to what was reported globally.

Slide 38

- Few countries in Africa have a registry for any level of kidney disease. Only 3 countries (Congo Republic, Eritrea, and Guinea) have a CKD registry. 18 countries (Algeria, Angola, Congo Republic, Cote d'Ivoire, Egypt, Eritrea, Ethiopia, Ghana, Guinea, Libya, Morocco, Namibia, Niger, Nigeria, South Africa, Sudan, Tunisia, Zambia) reported a dialysis registry. Six (Algeria, Egypt, Ghana, South Africa, Tunisia, and Zambia) have a transplantation registry and 4 (Congo Republic, Eritrea, Guinea, Zambia) have an AKI registry.

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In summary, the 2019 GKHA highlights several important findings for Africa.

KRT availability, access, and quality is limited

- HD was available in all countries. Only 51% of countries in Africa have chronic PD services available and 34% offer transplantation services.
- While all countries offer chronic HD, access to care and quality of treatment was limited. Center-based service that involves treatment 3x week for 3-4 hours was only generally available in 18 (43%) of countries in the region.
- Home hemodialysis is generally not available in any country within Africa.



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- Only 7 countries in Africa (17%) reported an ability to do adequate exchanges 3-4x day.
- Only 34% (14 countries) in Africa offer transplantation services. Of these, only 7 (half) have an official wait list.

Conservative kidney management is available, but often choice-restricted

- While 80% (33/41) of countries in Africa reported that CKM is available, half of these countries stated that CKM is choice-restricted, meaning that patients are not choosing to receive CKM because it is better for them but because they cannot receive KRT due to limitations in resources.

Government funding for kidney care is low

- Few countries cover all treatment costs for KRT. Only 26% of countries in Africa cover all hemodialysis costs, including medication.
- Similarly in PD and transplant, about 30% of countries in Africa cover service costs. As these services can be expensive, requiring patients to cover costs creates lower access to care as well as inequity. Efforts to provide more government funding, where possible, are important.
- 23% of countries in Africa reported that medications for dialysis patients are exclusively covered by the government. This is almost half of the global average, which showed that 41% of countries fund medication for dialysis patients through the government.
- Only 5 (36%) countries cover medications needed for patients that have had kidney transplantation. Similarly, this is less than the global average, which showed that 57% of countries fund medication for transplantation patients through the government.

Few registries across all levels of kidney disease

- Few countries in Africa have a registry for any level of kidney disease. Only 3 countries (Congo Republic, Eritrea, and Guinea) have a CKD registry. 18 countries (Algeria, Angola, Congo Republic, Cote d'Ivoire, Egypt, Eritrea, Ethiopia, Ghana, Guinea, Libya, Morocco, Namibia, Niger, Nigeria, South Africa, Sudan, Tunisia, Zambia) reported a dialysis registry. Six (Algeria, Egypt, Ghana, South Africa, Tunisia, and Zambia) have a transplantation registry and 4 (Congo Republic, Eritrea, Guinea, Zambia) have an AKI registry.

Many workforce limitations, especially nephrologists

- The nephrologist density of Africa (0.6 pmp) was 16 times smaller than the overall (9.10 pmp).



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- Nephrology trainee density was similarly low in the region. Worldwide, there are 1.4 trainees per million population. In Africa, the median density was 0.4 pmp. 7 countries reported 0 trainees.
- Efforts to increase nephrologists in most countries in Africa is important.
- Additionally, increasing the workforce capacity through other providers such as nurses, pharmacists, dietitians, may help alleviate some of the limitations. Further, providing primary care physicians with accessible guidelines on how to prevent and treat kidney disease is important.

Little advocacy for kidney disease in Africa

- Advocacy groups were minimal in both regions for AKI, CKD, and ESKD.
- 29% of countries in Africa have an advocacy group for CKD and 17% have an advocacy group for AKI. 29% of countries in the region have an advocacy group for end stage kidney disease.
- Increasing the awareness of kidney disease in the public domain, as well as with other nonprofits devoted to global health, may help promote prioritization of kidney disease.
- Highlighting the gaps of care, with respect to quality and equity, coupled with the burden and consequences of untreated ESKD may help improve advocacy, particularly in areas such as Africa with limited resources.

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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 ESKD prevention and management

- While resource limitations are an obvious barrier, focusing on preventing ESKD 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 ESKD 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



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enhancing capacity through training programs such as ISN Fellowship, visiting ambassador programs, etc.

Incorporate the collection and reporting of quality indicators in ESKD 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 ESKD

- 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 ESKD 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.

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- Each Atlas report is available for free download at the ISN webpage.
- To download a copy, please visit the ISN webpage.