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## 2019 GKHA regional slides presentations

### NORTH AND EAST ASIA

#### 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 North & East Asia.
- There are 8 countries in the region, 1 is low-income, 1 is lower-middle, 1 is upper-middle, and 5 are high income.

**Slide 10:**

- At the time of the survey, there were 1,622,125,393 people living in the 8 countries in North & East Asia. The average country population was 24,463,524
- The median GDP was 822 billion
- On average, 6% of the GDP was spent on healthcare (i.e., total health expenditure)

**Slide 11:**

- Six of the 8 countries in North & East Asia have data on the CKD prevalence. Of these countries, the median prevalence is 10.3%. Mongolia has the lowest (8.68%) and Japan (17.62%) has the highest.
- In the region, 2% (1.855%) of deaths are attributed to CKD. This ranges from 1.55% in Mongolia and North Korea to 3.75% in Taiwan.
- 7% (6.6) of the population in this region has obesity. Mongolia has the highest with nearly 20% (19.6%).
- Approximately 20% (18.2%) of the region has increased blood pressure and smoke (20.45%).



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**Slide 12:**

- Four countries (44%) of countries have data on the incidence and prevalence of treated ESKD.
- The median prevalence of treated ESKD is 2207.5 patients pmp.
- The prevalence of hemodialysis is much higher than peritoneal dialysis (1216 pmp vs. 143 pmp).

**Slide 13:**

- Data on kidney transplantation in North & East Asia is similarly low.
- Only 4 countries in the region have data available on the overall prevalence of kidney transplantation and 3 have data on the overall incidence.
- Of countries with data available, the prevalence of kidney transplantation was lowest in Japan (67 pmp) and highest in Hong Kong (497 pmp)

**Slide 14:**

- Annual costs of kidney replacement therapy were estimated for each country. 4 countries had data to estimate the annual cost of HD, which was USD 28,846. The costs of PD were estimated at USD 15,265 per year.
- Transplantation costs were also available in 3 countries.
- It was estimated that the first year of transplantation would cost USD 43,374 and 22,886 per year following.
- The HD/PD cost ratio was estimated for 10 countries and estimated to be exactly 2.0

**Slide 15:**

- Responses were received from 7 of 8 (88%) countries in North & East Asia, representing 98.4% of the region's population.

**Slide 16:**

- 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.
- Hemodialysis, peritoneal dialysis, and kidney transplant were available in all 7 countries in the region.
- Medication coverage in North & East Asia was very low. Only 2 countries (Japan and Taiwan) fund medications for hemodialysis patients and 2 (Japan and Mongolia) fund medications for transplant patients.



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- Five countries have an advocacy group for CKD (Hong Kong and Mongolia do not); only 1 country (Taiwan) has an advocacy group for AKI, and all have one for ESKD.

**Slide 17:**

- 4 of the 7 countries in North & East Asia reported that non-dialysis CKD care was funded by the government: 2 exclusively and 2 with some fees at the point of care. Two reported that care was provided through a mix of public and private funding and one through multiple systems. None reported that non-dialysis CKD care was exclusively private and out-of-pocket for patients.

**Slide 18:**

- Almost all (6/7) countries in North & East Asia reported that kidney replacement therapy was funded by the government: 1 exclusively and 5 with some fees at the point of care. One reported that KRT costs were covered through a mix of public and private sources.
- Similar to CKD care, no countries reported that non-dialysis CKD care was exclusively private and out-of-pocket for patients.

**Slide 19:**

- All countries in North & East Asia reported that nephrologists are primarily responsible for people with ESKD.
- Nurse practitioners or specialized nurses also share the responsibility in 3 countries (China, Hong Kong, Japan).
- Primary care physicians were not reported in any country in North and East Asia.
- Multidisciplinary teams were utilized for ESKD care in 2 countries (Japan and Taiwan).

**Slide 20:**

- Workforce shortages, highlighted in red, were commonly reported in North & East Asia.
- Only 1 country (China) reported no shortages.
- Nephrologist shortages were reported in all countries except for China, Hong Kong, and Mongolia.
- Japan and Taiwan reported a shortage of nearly all provider types.

**Slide 21:**

- Worldwide, the median number of nephrologists is 9.95 nephrologists per million population.
- In North & East Asia, the density of nephrologists was 19.45 nephrologists per million population, nearly double the global average.



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- Countries in North & East Asia with the highest density were: Japan (79.26 pmp) and Taiwan (54.6 pmp).
- Countries with the lowest densities were: China (5.78 pmp) and Mongolia (9.67 pmp).
- Nephrology trainee density was similarly high in the region. The global median density of trainees is 1.4 per million population. In North & East Asia, the median density was 3.22 pmp.
- Countries with the highest trainee density were: Macao SAR, China (9.07 pmp) and Japan (5.94 pmp). Those with the lowest were China (1.09) and Korea (1.94 pmp).
- No countries in the region reported 0 trainees.

#### Slide 22:

- Respondents were asked to report the number of centres that provide chronic hemodialysis in their country. All countries in North & East Asia reported that chronic HD services were available.
- Globally, the median density was 4.5 centers per million population. In North & East Asia, the density was 14.16 pmp.
- Countries with the highest densities were: Japan (34.84 centres pmp) and Taiwan (35.36 pmp).
- Countries with the lowest densities were: China (0.54 pmp) and Hong Kong (1.8 pmp).

#### Slide 23:

- Respondents were also asked to report the number of centres that provide chronic peritoneal dialysis in their country. In North & East Asia, all 7 countries reported that chronic PD was available. This is higher 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 North & East Asia, the density was 1.94 pmp.
- Countries in the region with the highest density were: Taiwan (5.44 pmp) and Japan (3.96 pmp).
- Countries in the region with the lowest density were: China (0.36 pmp) and Mongolia (1.61 pmp).

#### Slide 24:

- Respondents were also asked to report the number of centres that provide kidney transplantation in their country. In North & East Asia, all 7 countries reported that kidney transplantation was available. This is higher than the global average, which indicated that 74% of countries worldwide offer kidney transplantation.



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- Globally, among the countries with kidney transplantation services, the average is 0.4 centers pmp. In North & East Asia, the median density was 0.55 pmp.
- Countries with the highest density were: Macao SAR, China (1.65 pmp) and Korea (1.23 pmp).
- Countries with the lowest density were: Mongolia (0.32 pmp) and China (0.36 pmp).

**Slide 25:**

- Six of the 7 countries in North & East Asia use a combination of live and deceased organ donation for kidney transplantation.
- The only country that uses live donation only is Macao SAR, China
- All 7 countries use a national waitlist.

**Slide 26:**

- The quality of chronic HD delivery in North and East Asia is high. All 7 countries reported that HD is generally available as a center-based service that involves treatment 3x week/3-4x hours.
- All 7 countries in the region offer chronic PD. Six of the 7 similarly reported that most centres are able to do adequate exchanges 3-4x day (or equivalent cycles on automated PD). The only country that doesn't offer this on a general basis is Macao SAR, China.
- Overall, the quality of both HD and PD services in the region are superior to the global average.

**Slide 27:**

- Respondents were asked to describe the availability of home hemodialysis, where 'generally available' means that home hemodialysis training is offered in at least 50% of dialysis centres.
- In North and East Asia, home hemodialysis was not generally available in any countries in North and East Asia.
- Six of the 7 countries in North and East Asia stated that home hemodialysis is never available, one country (Macao SAR, China) reported it is never available.
- While overall the availability of home hemodialysis is low (13% of countries worldwide reported home HD was generally available), the availability in North and East Asia was overall much lower than the global score.



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**Slide 28:**

- 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.
- All countries in North and East Asia offer CKM, compared to 81% of countries, worldwide.
- Overall, countries in the North & East Asia were more likely to report that CKM was provided as chosen or medically advised (as opposed to choice restricted). All but one (Macao SAR, China) reported medically advised/chosen CKM was generally available. This was higher than the 50% reported globally.

**Slide 29:**

- All countries in North and East Asia reported a registry for dialysis and kidney transplantation.
- Two countries (Japan and Taiwan) have a registry for non-dialysis CKD and one country (Mongolia) reported a registry for AKI. Overall, the presence of registries in North and East Asia, across all areas of kidney disease, was higher than compared to the global aggregate.

**Slide 30:**

In summary, the 2019 GKHA highlights several important findings for North & East Asia:

*KRT availability, access, and quality is high*

- All countries in North & East Asia offer chronic HD, chronic PD, and kidney transplantation services.
- The quality of dialysis treatment was high in the region. Center-based hemodialysis service that involves treatment 3x week for 3-4 hours was generally available in all 7 countries in the region.
- Home hemodialysis is generally not available in any country within North & East Asia.
- Six of the 7 countries reported an ability to do adequate PD exchanges 3-4x day.
- All countries offer transplantation, most (6/7) using a combination of deceased and live donors. All offer a national waitlist.



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*Conservative kidney management is available, typically chosen or medically-advised*

- 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 medication is low but high for kidney care services*

- Few countries cover all treatment costs for KRT.
- Only 2 countries (Japan and Taiwan) cover medication costs for dialysis patients and 2 (Japan and Mongolia) cover medication costs for transplant patients.
- However, 85% of countries cover costs for KRT services, compared to only 64% worldwide.

*High registry use in end-stage kidney disease*

- All 7 countries in the region have a registry for dialysis and transplantation.
- However, registries for non-dialysis CKD and AKI were very low, with only 2 countries (Japan and Taiwan) reporting a CKD registry and one (Mongolia) reporting one for AKI.

*Moderate workforce limitations, highest in Japan, Korea, Taiwan*

- The nephrologist density of North & East Asia (19.5 pmp) was nearly twice the overall (9.10 pmp).
- This is mainly due to the large densities reported in Japan (79.26 pmp), Taiwan (54.6 pmp), and Macao SAR, China (25.56 pmp).
- No countries reported 0 nephrology trainees.
- Despite a high density of nephrologists, shortages were still reported in the region. 4 of the 7 countries (Japan, Korea, Macao SAR, and Taiwan) reported a shortage of nephrologist.
- Japan, Korea, and Taiwan reported a shortage across nearly all providers.
- China did not report any limitations and Mongolia reported shortages among only 5 of the 15 providers.

*Strong advocacy for chronic kidney disease in North & East Asia, limited for acute*

- Advocacy groups were minimal in both regions for AKI, CKD, and ESKD.
- All 7 countries have an advocacy group for ESKD. Five of the 7 countries (China, Japan, Korea, Macao, and Taiwan) have an advocacy group for CKD. Only one country (Taiwan) reported an advocacy group for AKI.
- 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.



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- Encouraging stronger advocacy for acute kidney injury is important to prevent the development of chronic kidney disease, as well as to mitigate the burden and consequences of AKI.

### Slide 31:

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 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.



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*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.

**Slide 32:**

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