



60 years
1960-2020

Advancing kidney health worldwide. Together.

2019 GKHA regional slides presentations

OSEA

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.



60 years
1960-2020

Advancing kidney health worldwide. Together.

- 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.



60 years
1960-2020

Advancing kidney health worldwide. Together.

- 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 Oceania and South East Asia.
- There are 30 countries in the region: 12 are lower-middle income, 9 are upper-middle income, and 9 are high income. One (Cook Islands) was not classified.

Slide 10:

- At the time of the survey, there were 691,621,337 people living in the 30 countries in OSEA. The average country population was 555,343.
- The median GDP was 8 billion
- On average, 5% of the GDP was spent on healthcare (i.e., total health expenditure)

Slide 11:

- In OSEA, 25 of the 30 countries had data on CKD prevalence. Of these 25 countries, the average prevalence was 11% (10.7%), slightly higher than the global average of 10%.
- Northern Mariana Islands has the highest prevalence (14.69%) and Timor-Leste had the lowest with 7.47%.
- Similarly, 25 countries have data on the burden of CKD. On average, 3% of total deaths in the region are attributed to CKD.
- 25 countries have data on obesity and 24 on increased blood pressure. On average, 21% (20.5%) of countries in the region have obesity and 23% (23.15%) have increased blood pressure.



60 years
1960-2020

Advancing kidney health worldwide. Together.

- 24 countries in the region have data on smoking rate, of which the median was 18% (18.15%) smoke.

Slide 12:

- Data availability on the burden of end stage kidney disease is low in OSEA.
- Only 8 countries (27%) have data on either the prevalence or incidence of treated ESKD (dialysis or transplant).
- The median incidence and prevalence of these 8 countries is 215.5 pmp and 1189 pmp, respectively.
- Information on the prevalence of chronic dialysis is only available in 5 and 9 countries, respectively.
- The country with the highest prevalence of chronic dialysis (either peritoneal or hemodialysis) was Malaysia with 1295 people receiving dialysis per million population. The lowest was Vietnam with 53.2 pmp.
- The overall prevalence of chronic HD was substantially higher than for PD. In this region, the average prevalence of chronic HD was 553.7 pmp compared to only 98.05 pmp for PD.

Slide 13:

- Data on kidney transplantation in OSEA is similarly scarce.
- Only 9 countries in the region has data available on the overall incidence of kidney transplantation and 6 have data on the overall prevalence.
- Of countries with data available, the average overall incidence of kidney transplantation was 4.7 pmp. Australia had the highest with 46 pmp and Myanmar the lowest with 0.04 pmp.
- Living donation was much higher in OSEA than deceased donation. On average, the incidence of living donation was 3.2 pmp and 0.8 pmp for deceased donation.

Slide 14:

- Annual costs of kidney replacement therapy were estimated for each country. 10 countries had data to estimate the annual cost of HD, which was USD 22,601. The costs of PD were available in 9 countries and estimated at USD 16,479 per year.
- Transplantation costs were available in 8 countries. It was estimated that the first year of transplantation would cost USD 20,070 and 8,003 per year following.
- The HD/PD cost ratio was estimated for 9 countries and estimated to be exactly 1.0



60 years
1960-2020

Advancing kidney health worldwide. Together.

Slide 15:

- Responses were received from 15 of 30 countries in OSEA (50%) representing 95% of the region's population.

Slides 16-17:

- 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 was available in all 15 countries.
- Peritoneal dialysis was available in 12 of the 15 countries (not available in: Cambodia, Lao PDR, and Samoa).
- Kidney transplantation was available in 10 of the 15 countries (not available in: Cambodia, Fiji, Lao PDR, New Caledonia, and Samoa).
- Five (33%) countries (Australia, Brunei Darussalam, Indonesia, New Caledonia, and Thailand) cover medication costs for dialysis patients.
- Similarly, 5 countries (Australia, Brunei Darussalam, Indonesia, Malaysia, and Thailand) cover medication costs for kidney transplantation.
- 10 countries in OSEA have an advocacy group for CKD and 8 have an advocacy group for ESKD. One country (New Zealand) has an advocacy group for AKI.

Slide 18:

- Five countries in OSEA reported that non-dialysis CKD care was funded by the government: 3 exclusively (Australia, Brunei Darussalam, and New Caledonia) and 2 with some fees at the point of care (Indonesia and New Zealand). One (Cambodia) reported that care was provided only on a private and out-of-pocket basis. Six use a combination of public and private sources and 2 (Fiji and Lao PDR) have multiple systems supporting funding (government, NGOs, and communities).
- This is slightly under was reported worldwide. In OSEA, one-third of countries provide government funding, compared to nearly 50% globally.

Slide 19:

- Nine countries in OSEA reported that kidney replacement therapy was funded by the government: 4 exclusively (Australia, Brunei Darussalam, New Caledonia, and New Zealand) and 5 (Indonesia, Philippines, Samoa, Thailand, and Vietnam) with some fees at the point of care.



60 years
1960-2020

Advancing kidney health worldwide. Together.

- One country (Cambodia) reported that KRT was exclusively covered out-of-pocket by patients and 2 (Fiji and Malaysia) 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.
- Government funding for KRT was slightly lower in OSEA compared to the global score. Nearly 45% of countries worldwide reported that KRT was exclusively funded by the government, whereas only 27% (4/15) do in OSEA.

Slide 20:

- All countries in OSEA except for one (Lao PDR) reported that nephrologists are primarily responsible for people with ESKD. In this country, the only providers responsible for ESKD care are health officers or extension workers.
- Other healthcare providers share the responsibility in most countries in OSEA. For example, 5 countries reported that primary care physicians are responsible for ESKD care and 5 also reported that nurse practitioners or specialized nurses provide care.
- Five countries (New Zealand, Philippines, Samoa, Thailand, and Vietnam) reported that multidisciplinary teams are used to provide ESKD care.
- Overall, these findings are similar to what was reported worldwide. 92% of all countries stated that nephrologists are primarily responsible for providing ESKD care, followed by 22% of PCPs and 15% of nurse practitioners. Multidisciplinary teams were utilized greater in OSEA (33% of countries) compared to the global score of 19%.

Slide 21:

- Workforce shortages, highlighted in red, were commonly reported in OSEA. Only 1 country in the region (Australia) reported no shortages of any provider type and all countries but 3 (Australia, New Caledonia, and New Zealand) reported shortages of nephrologists.

Slide 22:

- Worldwide, the median number of nephrologists is 9.95 nephrologists per million population. In OSEA, the density of nephrologists was slightly less at 5.7 nephrologists per million population.
- Countries in the region with the highest density were: New Caledonia (40.67 pmp) and Brunei Darussalam (28.85 pmp).
- Countries with the lowest densities were: Indonesia (0.49 pmp) and Myanmar (0.49 pmp).
- Nephrology trainee density was similarly low in the region. The global median density of trainees is 1.4 per million population. In OSEA, the median density was 0.965 pmp.



60 years
1960-2020

Advancing kidney health worldwide. Together.

- Countries in the region with the highest trainee density were: Lao PDR (11.34 pmp) and Brunei Darussalam (11.1 pmp).
- 2 countries reported 0 trainees: New Caledonia and Samoa.

Slide 23:

- Respondents were asked to report the number of centres that provide chronic hemodialysis in their country. All countries in OSEA reported that chronic HD services were available.
- Globally, the median density was 4.5 centers per million population. In OSEA, the density was 5.67 pmp.
- Countries in OSEA with the lowest HD centre density were: Cambodia (0.61 pmp) and Lao PDR (1.24 pmp).
- Countries with the highest centre density were: New Caledonia (47.74 pmp) and Malaysia (23.58 pmp).

Slide 24:

- Respondents were also asked to report the number of centres that provide chronic peritoneal dialysis in their country.
- In OSEA, 12 (80%) countries reported that chronic PD was available (unavailable in: Cambodia, Lao PDR, and Samoa). This is similar than the global average, which indicated that 81% of countries worldwide offer PD.
- Of the 12 countries that offer PD, centre density was available for 11 (not available for the Philippines).
- In OSEA, the density of chronic PD centres was 2.16 centres per million population. This was higher than the global median density, which was 1.3 centers pmp.
- New Caledonia had a significantly higher density in the region with 26.52 PD centres pmp. Myanmar had the lowest with only 0.07 pmp followed by Indonesia with 0.17 pmp.

Slide 25:

- Respondents were also asked to report the number of centres that provide kidney transplantation in their country. In OSEA, 10 countries (67%) reported that kidney transplantation was available. This is slightly lower than the global average, which indicated that 74% of countries worldwide offer kidney transplantation.
- Cambodia, Fiji, Lao PDR, New Caledonia, and Samoa do not have kidney transplantation services available.
- Globally, among the countries with kidney transplantation services, the average is 0.4 centers pmp. In OSEA, the median density was similar with 0.36 pmp.



60 years
1960-2020

Advancing kidney health worldwide. Together.

- Countries in the region with the lowest density (that offer kidney transplantation) were: Indonesia (0.02 pmp) and Myanmar (0.08 pmp). Brunei Darussalam had the highest with 2.22 pmp, followed by Australia at 0.85 pmp.

Slide 26:

- Of the 10 countries in OSEA that offer kidney transplantation services, most (7; 70%) rely on a combination of live and deceased donors. Only 3 (Brunei Darussalam, Indonesia, and Myanmar use live donations only).
- Six countries have a national transplant list, 2 have a regional list, and one country (Philippines) doesn't have a list at all.
- These data are similar to what was reported worldwide.

Slide 27:

- All 15 countries in OSEA reported that chronic HD was available and all but 2 (Cambodia, and Myanmar) have center-based HD services that involves treatment 3x week for 3-4 hours. This is much higher than the global average, which reported that 77% of countries offer adequate frequency for HD services, compared to 89% in OSEA.
- Of the 12 countries in OSEA with PD services available, 10 (83%) reported an ability to do adequate exchanges 3-4x day (or equivalent cycles on automated PD).
- Similarly, the quality of PD services reported in the region is significantly higher than the global average, where only 58% of countries offer adequate PD exchange.

Slide 28:

- Home hemodialysis was limited in OSEA. Only 3 countries (Australia, New Caledonia, and New Zealand) reported that home hemodialysis services are generally available, meaning that home hemodialysis *training* is offered in at least 50% of dialysis centres.
- This is similar (slightly higher) to the 13% of countries worldwide that offer home hemodialysis.
- 6 countries in OSEA (Brunei Darussalam, Cambodia, Fiji, Indonesia, Samoa, and Vietnam) stated that home hemodialysis is never available.

Slide 29:

- 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



60 years
1960-2020

Advancing kidney health worldwide. Together.

deliberate choice of CKM as it is likely the better treatment option for an individual rather than KRT.

- Most countries in OSEA (93%; Cambodia did not) reported that CKM was available.
- Of these 14 countries that offer CKM services, slightly more countries reported that CKM was chosen or medically advised (40%) as opposed to choice-restricted (33%).

Slide 30:

- Most countries in OSEA have registries for dialysis (10/15) and transplantation (8/15) populations.
- Only 2 countries (Brunei Darussalam and Lao PDR) reported a registry for non-dialysis CKD and one (Lao PDR) for AKI.
- Existence of registries in OSEA was similar to what was reported worldwide, where the majority have registries for ESKD but not early-stage or AKI.

Slide 31:

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

KRT availability, access, and quality is high

- HD was available in all 15 countries.
- Twelve of the 15 countries in OSEA (80%) have chronic PD services available and 10 (67%) offer transplantation services.
- Access to HD care and quality of treatment was high in OSEA. Center-based service that involves treatment 3x week for 3-4 hours was generally available in 13 (87%) of countries in the region.
- Home hemodialysis is generally not available in any country within OSEA. Of the 15 countries in the region, only 3 reported that home HD was generally available, and 6 reported it was never available.
- Of the 12 countries in the region that offer PD, only 10 (83%) reported an ability to do adequate exchanges 3-4x day.
- Ten countries (67%) in OSEA offer transplantation services. Of these, 9 have an official wait list.

Conservative kidney management is available, not often chosen or medically-advised

- Most countries in OSEA (93%) reported that CKM is available.
- Of these 14 countries, slightly more countries reported that CKM was chosen or medically advised (40%) as opposed to choice-restricted (33%).
- This was slightly less than what was reported globally; overall, 50% of countries reported that chosen or medically-advised CKM was generally available.



60 years
1960-2020

Advancing kidney health worldwide. Together.

Government funding for kidney care is low

- Only 5 countries in OSEA (33%) fund non-dialysis CKD care through the government and 9 countries (60%) fund KRT through the government, slightly under what was reported globally.
- Similarly, only one-third of countries cover medication costs for dialysis patients or those receiving transplantation.

Moderate use of registries, low for AKI and CKD.

- 10 countries (67%) reported a registry for dialysis and 8 (53%) reported one for transplantation.
- Only 2 countries have a registry for non-dialysis CKD and one for AKI.
- Overall, this was similar as to what was reported globally.

Many workforce limitations, especially nephrologists

- All countries in OSEA except for one (Australia) reported shortages of at least one provider type. Twelve countries (80%) in OSEA reported a shortage of nephrologists.
- The nephrologist density of OSEA (5.7 pmp) was smaller than the overall (9.10 pmp).
- Similarly, nephrology trainee density was similarly low in the region. Worldwide, there are 1.4 trainees per million population. In OSEA, the median density was 0.97 pmp. 2 countries reported 0 trainees.
- Efforts to increase nephrologists in most countries in OSEA 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 OSEA

- Advocacy groups were minimal in both regions for kidney disease, particularly AKI
- 10 countries (67%) have an advocacy group for CKD. Eight (53%) have a group for ESKD. Only one country (New Zealand) has 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.
- 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.



60 years
1960-2020

Advancing kidney health worldwide. Together.

Slide 32:

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.

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



60 years
1960-2020

Advancing kidney health worldwide. Together.

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 33:

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