



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

OCEANIA AND SOUTH EAST ASIA (OSEA)

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.

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- 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 Oceania and South East Asia (OSEA) region.

SLIDE 11 – 12:

- Responses were received from 6 of the 19 of the 30 countries (63.3%) representing 97.7% of the region's population.
- There were 7 LMICs (Cambodia, Indonesia, Lao PDR, Philippines, Samoa, and Vietnam), 3 UMICs (Fiji, Malaysia, and Thailand), and 5 HICs (Australia, Brunei Darussalam, New Caledonia, New Zealand, and Singapore).
- At the time of the survey, there were 750,284,052 people living in all the countries in the region. Indonesia had the highest population (277.3 million) while Samoa had the lowest population (206,179).
- GDP (PPP) in the region ranges from US\$ 1.3 billion (Samoa) to US\$ 3.57 trillion (Indonesia).
- Total health spending as a percentage of GDP ranged from 2.2% in Brunei Darussalam to 9.9% in Australia.
- Total health spending per capita ranged from US\$ 60 (Lao PDR and Myanmar) to US\$ 5,598 (Australia). However, government health spending per capita ranged from US\$ 9 (Myanmar) to US\$ 4,057 (Australia).

SLIDE 13:

- The median CKD prevalence in the OSEA region was 10.4% (global median was 9.5%) and ranged from 8.2% in Cambodia to 16.7% in Thailand.
- Median disability adjusted life years (DALYs) attributed to CKD was 2.4%; lowest in Australia (1.4%) and highest in Philippines (3.52%).
- Median deaths attributable to CKD was 3.4%; lowest in Cambodia (1.98%) and highest in Thailand (5.22%).
- The prevalence of other risk factors (hypertension, obesity, and smoking) varied across countries in the OSEA region.



SLIDE 14 – 15:

- Incidence data on treated kidney failure (dialysis and kidney transplantation) was available for many countries (Australia, Brunei Darussalam, Indonesia, Malaysia, New Zealand, Philippines, Singapore, and Thailand).
- Overall, the median incidence and prevalence of treated kidney failure were 282.5 per million population (pmp) and 1,203 pmp, respectively.
- Incidence of treated kidney failure ranged from 127 pmp in Australia to 393 pmp in Brunei Darussalam. Prevalence of treated kidney failure ranged from 319 pmp in Philippines to 2030.3 pmp in Singapore.
- Overall, the median incidence and prevalence of chronic dialysis (HD and PD) was 245.7 pmp and 973 pmp, respectively. Incidence of chronic dialysis was lowest in Australia and New Zealand (119 pmp) and was highest in Singapore (364.2 pmp). Prevalence of chronic dialysis was lowest in the Philippines (314 pmp).
- The overall median incidence and prevalence of HD in the region was 168 pmp and 653.9 pmp, respectively while incidence and prevalence of PD was 46.4 pmp and 95 pmp, respectively.
- Overall incidence of KT was 2.9 pmp and ranged from 0.04 pmp in Myanmar to 38.96 pmp in New Zealand. Median prevalence of KT in the region was 245.4 pmp and ranged from 5 pmp in Philippines to 505 pmp in Australia.
- The overall median incidence of deceased donor KT and living donor KT were 0.5 pmp and 2.0 pmp, respectively. Incidence of pre-emptive KT was unavailable in this region.

SLIDE 16:

- The median annual cost of in-centre HD, PD, and first year KT were US\$ 10,086.3, US\$ 8,381.5, and US\$ 30,132.6, respectively.
- Myanmar had the lowest annual cost of HD (US\$ 3,644) while Australia had the highest (US\$ 44,432). Australia also had the highest annual cost of PD (US\$ 48,026) while Myanmar had the lowest (US\$ 5,011). Singapore had the highest annual cost of first-year KT (US\$ 71,621) while Myanmar had the lowest (US\$ 4,680).
- HD to PD cost ratio was lower than one only in Australia and Myanmar highlighting the higher cost of PD than HD in both countries. Other countries had ratios equal to or higher than unity.



SLIDE 17 – 18:

- 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.
- Only Solomon Islands and Vanuatu do not have HD services. There was variable availability of PD and KT services.
- CKM is not readily available in many countries in the region.
- Public funding is not readily used to cover the cost of kidney care in the region.
- Dialysis and KT registries are variably present in the region.
- Advocacy groups for CKD, kidney failure and KRT are available in many countries in the region.

SLIDE 19 – 20:

- Different reimbursement methods are used to cover the cost of non-dialysis CKD (ND-CKD) services. Overall, 4 (21%) countries (American Samoa, Australia, Brunei Darussalam, and Solomon Islands) reimbursed ND-CKD services through public funds (and free), 3 (16%) countries (Lao PDR, New Zealand, and Thailand) through public funds with some fees, 9 (47%) (Fiji, Indonesia, Malaysia, Myanmar, New Caledonia, Philippines, Samoa, Vanuatu, and Vietnam) through a mix of public and private funding systems. Only Papua New Guinea uses solely out of pocket and private methods to cover the cost of ND-CKD medications.
- Public government funding that is free for acute dialysis, chronic HD, chronic PD, and KT medications were available in 5 (26.3%), 3 (15.8%), 2 (13.3%), and 3 (15.8%) of countries, respectively. Only Brunei Darussalam and New Zealand fund these services through public funds and free at delivery.
- Various methods of reimbursement are used to cover the cost of KRT services in this region.

SLIDE 21:

- Nephrologists bear primary responsibility for kidney failure care in most countries (72%) in the region (global median was 87%). Primary care physicians bear responsibility for care in 5 (28%) of countries in the region (Papua New Guinea, Samoa, Solomon Islands, Vanuatu, and Vietnam).



SLIDE 22 – 23:

- Across most domains of healthcare workers, there were varying levels of shortages reported in the region.
- Approximately three quarters of countries reported shortages across different cadres of healthcare workers. Such shortages were reported for nephrologists (74%), paediatric nephrologists (79%), transplant surgeons (79%), transplant coordinators (74%), dialysis nurses (74%), and kidney supportive care nurses (74%).

SLIDE 24:

- The median prevalence of nephrologists in OSEA was 3.2 pmp (global median of 11.75 pmp). New Caledonia had the highest density of nephrologists (33.7 pmp) while Papua New Guinea had the lowest (0.1 pmp). Samoa, Solomon Islands, and Vanuatu do not have nephrologists.
- Overall, median prevalence of nephrology trainees was 0.96 pmp; New Caledonia had the highest density of nephrology trainees (6.73 pmp) while Papua New Guinea had the lowest (0.10 pmp).

SLIDE 25 – 27:

- Estimates of the number of centres providing KRT was assessed across all countries.
- Median prevalence of HD centres in the region was 5.5 pmp. Papua New Guinea had the lowest density of HD centres (0.21 pmp) while New Caledonia had the highest density of HD centres (40.4 pmp).
- Median prevalence of PD centres in the region was 1.48 pmp (compared to 1.57 pmp globally). Brunei Darussalam had the highest density of PD centres (4.2 pmp) while Myanmar had the lowest (0.02 pmp).
- KT centres are available in 11 (61%) countries in the region; median prevalence of KT centres was 0.34 pmp and was highest in New Caledonia (3.37 pmp) and lowest in Indonesia (0.03 pmp).

SLIDE 28:

- Four (36%) countries (Brunei, Indonesia, Myanmar, and Vietnam) have only a live donor KT program while 7 (64%) countries (Australia, Malaysia, New Caledonia, New Zealand, Philippines, Singapore, and Thailand) have a combined donor KT program.



- Nine (82%) countries (Australia, Brunei Darussalam, Indonesia, Malaysia, New Zealand, Philippines, Singapore, and Thailand) have a national KT waitlist while 2 (18%) (Myanmar and New Caledonia) use a regional KT waitlist.

SLIDE 29:

- Capacity to provide adequate frequency of HD i.e., three times weekly for 3 – 4 hours per session, was available in 67% of countries in the region (compared to 81% globally).
- Capacity to provide adequate PD exchanges i.e., three to four exchanges per day was available in 56% of countries (compared to 61% globally).

SLIDE 30:

- Home HD was only available in Australia, New Zealand, and Philippines.

SLIDE 31 – 32:

- Conservative kidney management (CKM) established through shared-decision making was available in 7 (39%) countries (Australia, Brunei Darussalam, Indonesia, Malaysia, Myanmar, New Zealand, and Thailand) (compared to 53% global median)
- Choice restricted CKM (where resource constraints prevent or limit access) was only available in 11 (61%) countries (compared to 39% global median).
- Choice restricted CKM (where no resource constraints prevent or limit access) was available in 6 (33%) of countries (compared to 40% global median).

SLIDE 33 – 35:

- Multiple methods are used for funding cost of kidney care medications in this region.
- Medications for ND-CKD are funded publicly and free in 2 (17%) countries (Brunei and Solomon Islands); however, they are available through public funds with some fees in 6 (28%) countries, and through a mix of public and private funds in 8 (44%) countries. They are only available solely through private and out of pocket payment methods in Papua New Guinea.
- However, medications for dialysis patients (HD or PD) are free in only 1 (6%) country (Brunei Darussalam), while publicly funded with some fees was used in 6 (33%) countries. Medications for dialysis patients is funded through a mix of private and public funds in 5 (28%) countries and solely private in 2 (11%) countries (Papua New Guinea and Vanuatu).



- Similarly, KT medications are funded through public funds and free in 2 (11%) (Brunei and Indonesia) while more countries fund KT medications through a mix of public and private methods (n=6; 33%) while 5 (28%) countries do this solely through private and out of pocket methods.

SLIDE 36:

- Availability of official kidney registries varied across countries.
- ND-CKD registry was not available in the region. However, 11 (57.9%) and 9 (47.4%) countries, respectively, have a dialysis and KT registries. Acute dialysis and CKM registries are not available in the region.

SLIDE 37-38: SUMMARY OF FINDINGS

In summary, the 2023 ISN-GKHA highlights several important findings for the OSEA region.

KRT availability, access, and quality is high.

- Only Solomon Islands and Vanuatu do not have HD services. PD and KT services were variably available.
- Capacity to provide adequate frequency of HD i.e., three times weekly for 3 – 4 hours per session, was available in 67% of countries.
- Capacity to provide adequate PD exchanges i.e., three to four exchanges per day was available in 56% of countries.
- Home HD was only available in Australia, New Zealand, and Philippines.

CKM is available and predominately chosen or medically advised.

- Conservative kidney management (CKM) established through shared-decision making was available in 7 (39%) countries.
- Choice restricted CKM (where resource constraints prevent or limit access) was only available in 11 (61%) countries.
- Choice restricted CKM (where no resource constraints prevent or limit access) was available in 6 (33%) of countries.



Government funding for kidney care services and medication is low.

- Medications for ND-CKD are funded publicly and free in 2 (17%) countries (Brunei and Solomon Islands).
- Medications for dialysis patients (HD or PD) are free in only Brunei Darussalam, while publicly funded with some fees was used in 6 (33%) countries.
- KT medications are funded through public funds and free in 2 (11%) (Brunei and Indonesia)
- Reimbursement that is free for acute dialysis, chronic HD, and chronic PD were available in 5 (26.3%), 3 (15.8%), and 2 (13.3%) countries, respectively.

Most have registries for advanced kidney disease, few for CKD or AKI

- Availability of kidney registries varied across countries in the region.
- ND-CKD registry was not available in the region. However, 11 (57.9%) and 9 (47.4%) countries, respectively, have a dialysis and KT registries. Acute dialysis and CKM registries are not available in the region.

Some workforce limitations are present.

- The median prevalence of nephrologists in OSEA was 3.2 pmp (global median of 11.75 pmp). New Caledonia had the highest density of nephrologists (33.7 pmp) while Papua New Guinea had the lowest (0.1 pmp). Samoa, Solomon Islands, and Vanuatu do not have nephrologists.
- Overall, median prevalence of nephrology trainees was 0.96 pmp; New Caledonia had the highest density of nephrology trainees (6.73 pmp) while Papua New Guinea had the lowest (0.10 pmp).
- Approximately three quarters of countries reported shortages across different cadres of healthcare workers. Such shortages were reported for nephrologists (74%), paediatric nephrologists (79%), transplant surgeons (79%), transplant coordinators (74%), dialysis nurses (74%), and kidney supportive care nurses (74%).

Moderate advocacy for kidney disease in the NIS and Russia.

- Advocacy groups for CKD, kidney failure and KRT remains low in the region.



SLIDE 39-40: 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.).

