Building blocks toward sustainable kidney care around the world: results from a multinational survey by the International Society of Nephrology

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Kidney diseases in the form of acute kidney injury (AKI) and chronic kidney disease (CKD) are increasingly recognized as important public health issues due to their associations with a high burden of morbidity, mortality, and rising health care costs around the globe.^{1,2} Despite global efforts, the burden of AKI and CKD is on the rise. For instance, a recent Global Burden of Disease report changed CKD from 36th to 12th position in the Global Burden of Disease ranking within the last 2 decades.^{3–6} There has been increased attention to the problems of both AKI and CKD judging from an increasing number of scientific papers in non-nephrology journals and strategic initiatives alerting the medical community to the importance of both conditions.^{3–6} It is well-established that the presence of reduced kidney function is a risk amplifier for cardiovascular diseases and other chronic conditions including cancer.^{7–9} Despite this, the current status of kidney care capacity, policy, and research around the globe is not well characterized.

The International Society of Nephrology (ISN), working with its regional board structure, and under the leadership of Drs. Aminu Bello and David Johnson, has created the first ever Global Kidney Health Atlas (GKHA), which captured baseline data on the organization and structures for kidney care, policies, financing, and research capacity from 125 United Nations-recognized nations (out of 130 countries invited to participate), constituting 6.8 billion of the world's 7.3 billion population, and this represents 93% of the world population covered in the survey. This landmark report was launched at the recently concluded World Congress of Nephrology on April 21–25, 2017 in Mexico City, and the overview of the findings was published by the *Journal of American Medical Association*.¹⁰ The full GKHA report, with details on the individual country and regional data, is available on the ISN website (<https://www.theisn.org/initiatives/ckd>).

The detailed methodology on the conduct of the GKHA paper is published in *Kidney International Supplements*.¹¹ In brief, this was a multinational survey developed by the ISN to assess readiness, capacity, and response to CKD and AKI based on the World Health Organization building blocks of a health system.

The GKHA is a unique undertaking that examines the current state of kidney care, policy, and research, within the framework of the 66 tenants of universal coverage, to determine country and region “readiness” on each of these dimensions: health finance, service delivery, health workforce for nephrology care, essential medicines and technologies, health information systems, leadership, and governance. The maturity of these systems and availability of resources is essential to ensure optimal outcomes for people living with kidney diseases.

In this issue of *Kidney International Supplements*, there are specific articles synthesizing the data and developing a set of action items for each of the key dimensions.

The paper on governance (describing policies and leadership) describes how few countries have a national position paper on CKD, have identified CKD as a health care priority, or have advocacy groups for CKD.¹² Interestingly, there are more low- and lower middle-income countries that do have statements about CKD care than countries in the upper middle- and high-income categories, an interesting paradox worth further exploration.

The article on health care systems oversight and financing describes the different ways that kidney care (CKD, dialysis, and transplantation services) are funded and organized.¹³ Importantly, there is information about systems and infrastructure for AKI, CKD, and renal replacement therapy services. There is huge variation in public and private financing for each of the different modalities of care (AKI, nondialysis CKD, and renal replacement therapy modalities) within and between countries

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and regions. The relationship of funding to outcomes has not yet been formally explored, but it is greatly needed.

The third paper in the series reports on a shortage of all kidney care providers, significant variation in nephrology workforce between high- and low-income countries, and lack of nephrology training programs in more than one-half of low-income countries.¹⁴ In the face of the growing burden of kidney disease, serious planning and investment in human resources by stakeholders are needed to provide equitable health care for all. Currently, there is no established threshold for an adequate number of nephrologists due to many factors; more research is required to understand this.

Access to services versus availability of services including essential medications is critical: we have not yet consistently defined what is equitable access to quality, affordable, effective therapies including essential medicines, health services (including screening and surveillance in high-risk populations), and health technologies.¹⁵ In some high-income countries with public health care systems, the entire spectrum of CKD care is funded, whereas in other high-income countries only parts are free to the public at the point of delivery: the situation is more complex in low- and lower middle-income countries and regions.

Health information systems are needed to define burden, inform policy development, and identify opportunities for improvement in care delivery.¹⁶ The availability of these within countries and regions again was also shown to be highly variable, contributing further to lack of awareness and ability to engage governments in meaningful dialogue about the problem.

Lastly, we identified a relatively limited capacity for research within the nephrology community worldwide.¹⁷ The national funding of clinical trials is inversely proportional to the size of the populations affected (more in Europe and North America than in the rest of the world), there are limited training opportunities for those interested in clinical research (trials and observational cohort studies), and workforce funding for these positions is similarly limited. Without capacity to perform robust trials worldwide, we will be limited in our knowledge of best care for different populations.

In reading each of these thoughtful papers, which provide an in-depth perspective and view of the state of kidney care, policy, and research in 2016 and 2017, based on robust

data collection, we would ask the readers to reflect on ways to improve the current situation.

If kidney diseases are a possible “marker” for health of a population, that is, a final common pathway that marks for (i) adequate nutrition, (ii) fetal and maternal health, (iii) healthy lifestyle, and (iv) access to education and self-actualization, then this GKHA in all its dimensions becomes an important “supplemental” scorecard for the global community. The GKHA, and this collection of papers, serves to remind us of the very important work that needs to be done, and the multidimensional framework and sets of activities that need to be in place to achieve good outcomes at both patient and population levels.

DISCLOSURE

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