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# Understanding kidney care needs and implementation strategies in low- and middle-income countries: conclusions from a “Kidney Disease: Improving Global Outcomes” (KDIGO) Controversies Conference

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Evidence-based clinical practice guidelines improve delivery of uniform care to patients with and at risk of developing kidney disease, thereby reducing disease burden and improving outcomes. These guidelines are not well-integrated into care delivery systems in most low- and middle-income countries (LMICs). The KDIGO Controversies Conference on Implementation Strategies in LMIC reviewed the current state of knowledge in order to define a road map to improve the implementation of guideline-based kidney care in LMICs. An international group of multidisciplinary experts in nephrology, epidemiology, health economics, implementation science, health systems, policy, and research identified key issues related to guideline implementation. The issues examined included the current kidney disease burden in the context of health systems in LMIC, arguments for developing policies to implement guideline-based care, innovations to improve

kidney care, and the process of guideline adaptation to suit local needs. This executive summary serves as a resource to guide future work, including a pathway for adapting existing guidelines in different geographical regions.

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**K**idney diseases (KDs), both acute and chronic, are recognized as major public health issues worldwide. More than half of patients with advanced chronic kidney disease (CKD) do not receive any treatment, especially in the low and low middle income countries (LMICs).<sup>1</sup> Similarly, acute kidney injury (AKI) contributes to about 1.7 million preventable deaths every year worldwide.<sup>2</sup>

Implementation of existing knowledge can substantially reduce KD burden and improve outcomes. Kidney Disease: Improving Global Outcomes (KDIGO) has been at the forefront in developing evidence-based best practice guidelines to optimize the management of KD patients. Using rigorous methodology that represents the best global science, KDIGO has produced 9 guidelines and held 25 conferences on

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important issues in KDs and their treatment. The KDIGO guidelines have been adapted and/or adopted by several professional organizations, and disseminated through publications, seminars, webinars, symposia, and in digital format. Thus, KDIGO aims at providing the highest level of guideline-based care that can be adapted for local needs and models of care, including in the presence of resource limitations.

Over time, it has become apparent that these guidelines are not well-integrated into routine care in the LMICs. To achieve an international, multidisciplinary, transparent, and unbiased analysis, KDIGO brought together experts from around the world to a Controversies Conference in Bangkok, Thailand, in June 2015 to identify means to overcome the barriers to improved nephrology care in resource-constrained settings.

### CONFERENCE METHODS AND PARTICIPANTS

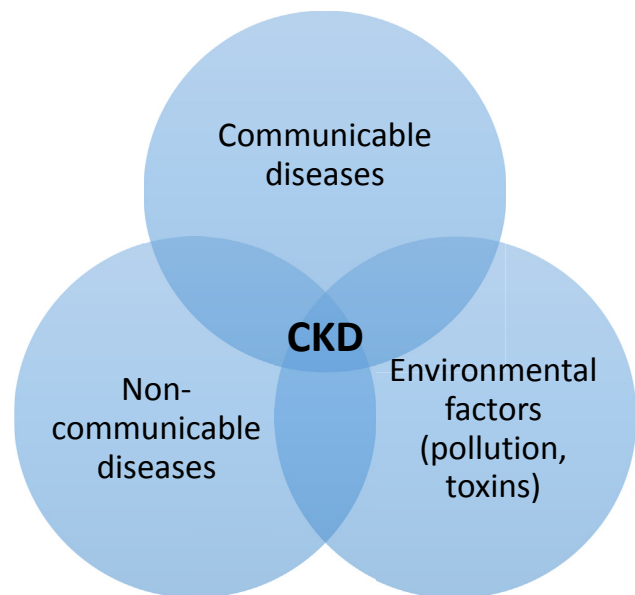
Drs. Vivekanand Jha (George Institute for Global Health, New Delhi, India) and Goce Spasovski (University of Skopje, Skopje, Macedonia) co-chaired this conference. The objectives were to: (i) develop and deliver arguments for policies to implement guideline-based care; (ii) summarize the current state of knowledge on health systems and KD burden in LMICs; (iii) discuss the technological and manpower restructuring innovations needed to improve guideline-based delivery of kidney care; and (iv) assess requirements to develop resource-sensitive guidelines by understanding the barriers and facilitators of guideline implementation. The overall aim of this conference was to propose approaches to help facilitate implementation of evidence-based clinical practice guidelines for the care of patients with KD in LMICs. To this end, consensus was achieved on the recommended action plans based on plenary presentations and discussions at the meeting, narrative literature reviews, and deliberations on a series of questions defined in advance of the meeting.

The conference included experts in nephrology, epidemiology, health economics, implementation science, health systems, policy, and research. Participants worked in breakout groups to review strategies and develop recommendations for advancing models of care and research in the LMIC setting. Conference details can be found at <http://kdigo.org/home/conferences/implementation-strategies/>.

### SETTING THE STAGE

Demographic and disease transitions in LMICs have produced a growing burden of KD. Persisting public health issues such as inadequate sanitation, lack of safe drinking water, suboptimal infection control and reproductive health, and environmental hazards continue to generate a large and preventable burden of AKI and CKD.<sup>3</sup> Increasing urbanization, lifestyle and dietary changes have brought on an escalating burden of non-communicable diseases (NCDs), which increases the risk of CKD (Figure 1).<sup>4</sup> Malnutrition affects serum creatinine, interfering with its role as a diagnostic marker. Maternal malnutrition may result in low-birth weight neonates, which imposes a lifetime risk of developing diabetes, hypertension, and CKD.<sup>5</sup>

Health care systems in LMICs often exhibit a lack of evidence-based policy, mismatch between disease burden and



**Figure 1 | Interaction of traditional and nontraditional risk factors in the epidemiology of CKD.**

care provisions, shortage and maldistribution of care providers, absence of organized primary care, fragmentation and disparities in access and quality, and reliance on unproven therapies. The high cost of treatment, combined with lack of reliable social security, results in out-of-pocket payments, pushing families into poverty.

### DEVELOPING AND DELIVERING ARGUMENTS FOR IMPROVED HEALTH POLICIES TO IMPLEMENT GUIDELINE-BASED CARE

Most LMICs have prioritized spending the limited funds available for health care to combat malnutrition, prevent infectious diseases, and improve reproductive health, as articulated in the Millennium Development Goals established by the United Nations (UN) (<https://www.un.org/millenniumgoals/>). Most countries made substantial progress, and earlier this year, the UN announced a new Sustainable Development agenda. In setting up the Sustainable Development Goal (SDG) targets, the UN panel took into account the rising global burden of premature deaths and disabilities due to NCDs. The new health-related SDG includes reducing by one-third premature mortality due to NCDs through prevention and treatment (<http://www.un.org/sustainabledevelopment/health/>). The SDG 3.8 calls for achievement of universal health coverage, including financial risk protection; access to quality essential health care services; and access to safe, effective, quality, and affordable essential medicines for all, making prevention/treatment of AKI and CKD progression a complementary goal rather than a competing one, while combating malnutrition and infections for overall health care improvement in LMICs.

NCDs are currently the driving force of CKD throughout the world, with regional nephropathies such as infection-related glomerulonephritides and Mesoamerican, Balkan, and Chinese herbal nephropathies being important causes of CKD

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