

## Kai-Uwe Eckardt



### Short Bio/CV

Kai-Uwe Eckardt is Professor of Medicine and Head of the Department of Nephrology and Medical Intensive Care at the Charité in Berlin, one of Europe's largest university hospitals. Prior to taking this position in 2017, he was Chair of Nephrology and Hypertension at the University of Erlangen-Nürnberg, where he also served as Vice Dean for Research and International Affairs.

He studied medicine at the University of Münster, Germany, and the Welsh National School of Medicine, UK, and attained an MD in genetics in 1985. He completed residency and fellowship training in pathology, physiology, internal medicine, nephrology and critical care at the universities of Münster, Hannover, Zurich, Oxford and Berlin. He is board certified in physiology, internal medicine, nephrology, intensive care and emergency medicine.

Dr. Eckardt's major research interests lie in the molecular mechanisms and relevance of oxygen sensing, and the development of acute and chronic kidney injury. Early during his career, he identified peritubular fibroblasts as production sites of erythropoietin and studied mechanisms of oxygen-dependent production of the hormone. His group subsequently characterized many aspects of the HIF-pathway in the normal and diseased kidney, and evaluated opportunities to target the oxygen sensing mechanism. Dr. Eckardt has also served on steering committees of several large clinical trials. He is principal investigator of the German Chronic Kidney Disease (GCKD) study, the largest CKD cohort study worldwide, which provides novel insight into risk factors, molecular profiles and consequences of CKD. Dr. Eckardt has published more than 500 papers, including more than 30 articles in high-impact interdisciplinary journals such as *NEJM*, *Lancet*, *Nature Genetics*, *Nature Medicine*, *Nature Communication* and *J Clin Invest*. His contributions are frequently cited (*h-index* 93, excluding self-citations).

Dr. Eckardt is recipient of the Franz Volhard Prize of the German Society of Nephrology, the International Medal and the Garabed Eknoyan Award of the National Kidney Foundation (USA) and a Full Member of the Academy of Sciences and Literature (Mainz, Germany) since 2015.

He has served on scientific advisory boards of the German Research Foundation, the Dutch Kidney Foundation, the Swiss National Science Foundation and the European Renal Association-European Dialysis and Transplant Association (ERA-EDTA). From 2003 to 2006, he was ordinary Council member of the ERA-EDTA. He was a founding Executive Committee member of Kidney Disease: Improving Global Outcomes (KDIGO) (2004-2015) and served as KDIGO Co-Chair from 2008 to 2012.

Dr. Eckardt has served the International Society of Nephrology (ISN) in various capacities since 2003: Congress Secretary of the World Congress of Nephrology (WCN) 2003 in Berlin; Program Co-Chair of the WCN 2009 in Milan and the WCN 2013 in Hong Kong, and Program Chair of the WCN 2017 in Mexico City; member (2004-2009) and subsequently chair (2009-2015) of the ISN Forefront Committee; member of the Editorial Board of *Kidney International* (since 2013); initiator and founding Co-Chair of the International Network of CKD cohort studies (INetCKD) (2016-2019); member of ISN's CKDu network; Co-Chair of ISN's first Global Kidney Health Summit (2016); member of the Council (2009-2015) and of the Executive Council (2015-2017).

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### Candidate's Statement

Dear Colleagues and Friends.

Kidney disease is firmly established as a major challenge for global health, both as a direct cause of morbidity and mortality and as a key risk factor for cardiovascular disease. By 2040 chronic kidney disease will be the world's fifth leading cause of death (*Foreman et al., Lancet 2018*). Causal therapies for kidney disease remain limited to date, and kidney replacement therapy is associated with high patient burden and opportunity costs for health care systems. Globally the majority of patients with kidney failure die prematurely because of no access to kidney replacement therapy (*Pecoits-Filho et al., Kid Int 2020*). In other words: we are still far from achieving *ISN's vision of a future where all people have equitable access to sustainable kidney health*.

Nevertheless, during the past ten years the ISN has made great progress in aligning its activities with this ultimate goal, based on a reformulated mission triad of *Bridging the Gaps*, *Building Capacity* and *Connecting our Community*. I had the privilege to participate in the strategic planning of this process as a member of the Executive Council and am thrilled how successful the ISN has since evolved. Pursuing the ongoing activities with endurance and adapting them to the challenges and opportunities in highly dynamic health care environments defines our future tasks and perspectives.

### **‘PHILANTHROPY’ OR ‘SCIENCE’ - ASKING THE WRONG QUESTION**

On ISN committees, discussions sometimes arise as to whether ‘philanthropy’ or ‘science’ are more important for the Society. I always felt that there was no contradiction between these two aspects. ISN’s main role is to assess and describe the deficiencies in kidney health at a global scale, and to develop opportunities to overcome these deficiencies in a way that works for different geographical regions and attracts funders. This ‘case for global kidney health’ will be stronger the more it is based on a solid scientific basis.

However, there are fine lines between the kinds of research ISN should or should not engage in. These lines have been drawn carefully over the last years to ensure that ISN primarily serves as a research enabler and catalyst. *ISN-Advancing Clinical Trials (ISN-ACT)* and the *International Network of Chronic Kidney Disease cohort studies (INet-CKD)* are important pillars of this concept. The recent effort to define clinical trial outcomes (*Levin et al., Kid Int 2020*) illustrates an excellent example for this approach. Such activities bring us closer to the urgently needed ‘trial readiness’ and a more global representation of patients in future trials than is currently achieved (*Smyth et al., BMJ Global Health 2019*).

Equally fitting to ISN’s mission is the global assessment of kidney health that includes treatment opportunities and resources. The *ISN Global Kidney Health Atlas*, launched in 2017 and updated in 2019 together with other status assessments (e.g. *Bello et al., BMJ 2019*) represent major steps forward. Continuous efforts to refine and update this database are needed. Capacity building for patient registries, such as through *ISN Sharing Expertise to support the set-up of Renal Registries (ShareE-RR)* will facilitate this process (*Hole et al., Kid Int 2020*).

### **THE THIRD DIMENSION OF TRANSLATION**

ISN can be more than proud of *Kidney International* as the world’s premier journal for the translation of basic science and therapeutic innovations in the field of kidney disease, which is currently flourishing under the leadership of Pierre Ronco and his editorial team. Together with its much younger sister journals, *Kidney International* contributes substantially to the visibility of the ISN. An increasing number of ISN public affairs papers published back to back with cutting-edge research articles reflect the breadth of the Society.

Translational research is frequently described as two-dimensional: from bench to bedside and from bedside to bench. From a global health perspective, a third dimension is of crucial importance: the application in resource-limited environments. Too often, innovations are geared exclusively to health systems of high-income countries.

Nephrology has long lagged behind other medical specialties in terms of innovations. Luckily, we seem to be at a turning point, where clinical trials reveal proof-of-concept breakthroughs, basic research becomes applicable and several pharmaceutical companies focus their development programs on kidney disease. As much as we should welcome these innovations in kidney disease management, they carry the risk that the gap between high- and low-resource settings will widen. ISN therefore needs to consider how upcoming innovations can translate into patient benefits in lower-resource settings. Approaches may include voluntary public health licensing, donation programs, tiered pricing or bilateral arrangements between originators and generic companies. We have to gain more experience in brokering such solutions.

Importantly, innovation does not always need to originate in high-resource settings. Frugal innovation, i.e. the process of reducing the complexity and cost of a good and its production offers exciting opportunities. Reverse innovation, i.e. the development of innovations that are tailored to the needs of developing regions and subsequently spread into industrialized countries can help advance the prevention, diagnosis and management of kidney disease. It would be wonderful to see ISN direct seed money into these fields and establish an innovation hub to connect ideas and people.

## DIGITALIZATION

Digital technologies are revolutionizing healthcare and offer unprecedented opportunities to improve health and well-being worldwide (*WHO Global Health Strategy 2020-2024*). I see a huge potential in these developments to make global kidney health more equitable.

ISN's *digital media team* is already successfully implementing novel means of communication and education. However, the opportunities of digital technology go beyond capacity building. Health care workflows can be reshaped and adapted to resource limitations, and automated procedures can save resources. Examples include the remote evaluation of digitized images of kidney biopsies, the counseling of kidney transplant recipients across large distances using tele-nephrology, or the counseling of patients and/or physicians for diagnosis and treatment of rare kidney diseases by connecting with global experts. Many of such opportunities have the potential to improve kidney health care in both higher- and lower-income countries. Technical, ethical and regulatory hurdles still exist, but can likely be overcome in the near future. There is an increasing number of younger nephrologists all over the world who are fascinated by the opportunities that digitalization offers, and who develop expertise in many fields of application. I propose to pull this expertise together to generate a global digital nephrology platform. Given that digitalization offers a solution for many of the gaps that ISN aims to bridge, and that ISN has the potential to connect global expertise in kidney medicine and information technology, the Society is in an excellent position to become a *global leader in digital nephrology*.

## KIDNEY HEALTH WORKFORCE

WHO estimates a projected shortfall of 18 million health workers by 2030, mostly in low- and lower-to-middle-income countries. Building local capacity and expertise has long been a central goal of ISN's activities and appears timelier than ever.

Expanding the workforce to enable early detection and treatment of kidney disease will require sustained action of several stakeholders, including governments, academic medical centers, local nephrology societies and the international nephrology community (*Swanepoel et al., Kid Int 2020*). The ISN grants program, together with the education program, have been tailored to fit many training needs. Monitoring of the workforce as part of ISN's *Global Kidney Health Atlas* provides an important tool to refine such needs. Recruitment and retention of health care personnel as well as flexible interdisciplinary workforce practices could be extended in collaboration with the Regional Boards and local societies (*Vachharajani et al., Kid Int 2020; Yang et al., Kid Int Suppl 2020*).

## PATIENT EMPOWERMENT

There is uniform agreement that patient values and preferences need to be better incorporated into clinical research and health care. Patient engagement should ideally be based on a formal mechanism of patient involvement, with nominated lead persons representing collective views. In practice, such structures rarely exist. Moreover, coping with advanced kidney disease and its comorbidities usually leaves little time and energy for patient engagement. The ISN should nevertheless enhance efforts for patient empowerment and critical reflection of its activities by patients. Given that ISN's global representation provides access to millions of people with kidney disease and those caring for them, we can probably do better in this respect. The establishment of a *patient engagement-working group* by ISN-ACT is an important step in this direction (*Banerjee et al., Kid Int 2020*).

## COLLABORATIONS AND PARTNERSHIPS

The goals of the ISN can only be achieved through a multitude of partnerships. Chief among them are partnerships with the more than 100 affiliated regional and national renal societies. Members of some of these societies are collective members of the ISN, a model worth expanding.

The official relation between ISN and the WHO established in 2012 is an important asset and allows ISN to provide regular input in policy discussions related to kidney health. This partnership may become even more valuable in the future as several countries intend to strengthen the WHO in response to the Covid-19 pandemic.

KDIGO is another key partner of the ISN. ISN can play an important role in the implementation of KDIGO guidelines. However, in regions with different resources and health care systems this remains a challenging process that would benefit from more formal procedures.

## LESSONS FROM THE SARS-COV-2 PANDEMIC

The pandemic has further highlighted the role of kidney function as a risk factor for and consequence of systemic diseases, and has emphasized the need for sufficient expertise and treatment capacity. Due to an incidence of AKI close to 40% in severely ill Covid-19 patients, kidney replacement therapy has become a bottleneck in otherwise well-served areas.

There is a risk that the pandemic and its financial consequences may aggravate health care disparities. On the other hand, the pandemic may also create global momentum to strengthen health care systems and expand international collaboration. In fact, the unusual experience of resource constraints in high-income countries may increase the solidarity with those who are regularly confronted with such constraints under non-pandemic circumstances (*Luyckx et al., Nat Rev Nephrol 2020*).

Experiencing the ease of communication via video-conferencing platforms will have long lasting implications for connecting individuals all over the world. Moreover, education works surprisingly well via video-conferencing and even the remote presentation of plenary lectures in congresses proved feasible. ISN should quickly embark on making increased use of these developments and strive to become a *global leader in web-based nephrological education*.

Despite these digital opportunities it has also become clear over the last months that personal interaction is indispensable. This holds true for focused small meetings as well as for large congresses. Real get-togethers keep our networks viable and strong. With respect to future annual WCNs a hybrid format with a strong on-site component and a large group of remote participants may combine both aspects and maximize the impact.

## ISN AS A PASSION

Ever since I started working for ISN as the Congress Secretary of the WCN 2003, I have been impressed by the passion with which its leaders, members and staff members are devoted to the goals of the Society and its heritage. In my view, this passion is ISN's most important asset. Increasing the active engagement of ISN's more than 8,500 members was the rationale behind the recent change of governance that strengthens the role of the Regional Boards in ten world regions.

The current strategic plan 2018-2023 developed under the leadership of David Harris has been very successfully implemented under his leadership and that of his successors, Vivek Jha and Agnes Fogo. Carrying this strategic plan forward will be an important task for the next Executive Committee and the incoming President. Being nominated for this position is a great honor. I present my candidacy with gratitude, humbleness and respect for the task, but also with confidence that the breadth of experience that I was privileged to gain over many years of international collaboration will enable me to fulfill this responsibility. Given the significant transformation that ISN has recently undergone, the way that it has redrafted its vision and mission and revised its structure, the Society is in an excellent position to continue the translation of passion into patient benefit.