

# Shaping the Future of AKI: Trends to Watch in 2025

By Jia Hwei Ng

<https://doi.org/10.62716/kn.000372024>

As we move into 2025, the field of acute kidney injury (AKI) research continues to evolve, promising exciting advances in science, technology, and patient care. Based on recent developments and presentations, the following are key trends to watch:

## 1 Interorgan communication in AKI

Emerging research is shedding light on the critical interplay between organs during AKI. The Kidney Week 2024 presentation “Interorgan Cross-Talk: Kidney Injury and More” emphasized the systemic effects of AKI, moving beyond kidney-centric models to study crosstalk among the kidney, gut, heart, brain, lungs, and other organs (1). Understanding these connections could unlock new therapeutic approaches targeting systemic inflammation and organ protection.

## 2 Advancements in prognostication and management in AKI

Oral abstracts presented at Kidney Week last year highlighted key advancements in predicting and managing AKI. Researchers are improving risk stratification using biomarkers and uncovering new insights into AKI subtypes through precision medicine. Innovative tools, such as ultrasound-guided diuretic therapy and muscle ultrasonography, are being studied to predict fluid responsiveness and aid in patient management. These approaches aim to enhance care for patients who are critically ill by streamlining care transitions and improving recovery predictions. Together, these studies offer practical strategies to personalize and optimize AKI treatment.

## 3 Novel therapeutic pathways

Emerging therapies are paving the way for transformative AKI treatment through metabolic reprogramming and regenerative medicine. The LiMiT AKI trial, for example, is investigating metformin as a treatment for sepsis-associated AKI (2). By activating kidney tubular adenosine monophosphate-activated protein kinase, metformin has

shown potential to reduce AKI severity and mortality in animal models (3). At the same time, regenerative medicine is advancing with mesenchymal stem cell (MSC) therapies. MSCs provide anti-inflammatory and tissue-regenerative benefits, and early trials confirm their safety (4). Future innovations, such as engineered extracellular vesicles derived from MSCs, hold promise for even greater therapeutic efficacy. These therapies reflect a multifaceted approach to addressing AKI’s systemic and localized impacts.

This year promises to be a transformative year for AKI research, driven by breakthroughs in interorgan communication, prognostication tools, and therapeutic innovations. By combining systemic insights, advanced management strategies, and cutting-edge therapies, researchers and clinicians are redefining the future of AKI care. ■

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Dr. Ng reports receiving funding support from the National Institutes of Health and the Breslin Family Foundation and has received consultancy fees from George Clinical and Vifor Pharmaceuticals. She is the founder of PublishedMD Consulting, LLC.

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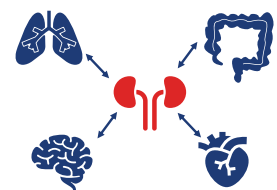
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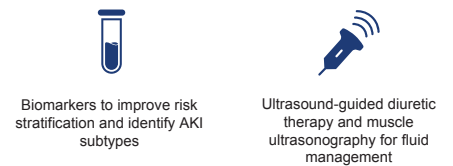
## Shaping the future of acute kidney injury care: Trends to watch in 2025

### 1) Interorgan communication in AKI



Research highlights crosstalk among the kidney, gut, heart, brain, lungs, and other organs.

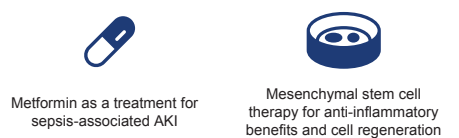
### 2) Advancements in prognostication and management in AKI



Biomarkers to improve risk stratification and identify AKI subtypes

Ultrasound-guided diuretic therapy and muscle ultrasonography for fluid management

### 3) Novel therapeutic pathways



Metformin as a treatment for sepsis-associated AKI

Mesenchymal stem cell therapy for anti-inflammatory benefits and cell regeneration

Visual Graphic by Jia H Ng, MD, MSCE

# What Role Should Nephrologists Play in the Care of Patients With Kidney Diseases?

By Katherine Kwon

<https://doi.org/10.62716/kn.000292024>

Patients with advanced kidney diseases usually see their nephrologists far more often than the other members of their care team. This has worked well for nephrologists in a fee-for-service environment, for whom these patients represent a reliable income stream for the practice due to their frequent visits. However, when patients are shifted to value-based care (VBC) models, financial success is uncoupled from visit volume and instead comes from reduction in care costs, especially hospitalizations. A particular focus of VBC efforts includes patients with multiple comorbid illnesses, since they are hospitalized frequently and are at high risk for care gaps because they are seen by multiple specialists. Nephrologists risk being sidelined in the care of patients with kidney diseases if they do not embrace updated clinical guidelines, polychronic care, and efforts to address care fragmentation.

Cardiovascular-kidney-metabolic (CKM) syndrome is common in the population of patients living with chronic kidney disease (CKD). Therapies for CKM syndrome,

including angiotensin-converting enzyme inhibitors (ACEis), sodium-glucose cotransporter-2 inhibitors (SGLT2is), and glucagon-like peptide-1 receptor agonists (GLP-1RAs), now have multiple indications and can be reasonably prescribed by primary care physicians, cardiologists, endocrinologists, and nephrologists. The prevalence of CKM syndrome and the high cost of care inspired St. Luke’s Mid America Heart Institute to create the Cardiometabolic Center Alliance, a network of clinical centers of excellence. Most of the founding clinics are run by cardiologists, with scant representation from nephrologists. Earlier this year, the alliance published its results in improving use of guideline-directed medical therapy (1). The rate of SGLT2i use in patients with diabetes and CKD improved from 33.3% to 82.3% over 6 months. This is substantially better than the 13% reported nationwide in patients with diabetic kidney disease (2).

The Advancing American Kidney Health Initiative VBC programs focus on patients with stages 4–5 CKD and

kidney failure. Many of the companies that partner with nephrologists in these programs are choosing to hire their own clinical staff to implement their interventions. One company describes the fragmented care that patients can experience and notes, “Nephrologists are focused on dialysis and care within their centers.” They tout their “multispecialty teams of employed physicians and nurse practitioners” to provide complex, coordinated care (3). Another company lists the tasks its nurse practitioners perform, including “deliver[ing] the best care” and “break[ing] communication [silos]” (4).

Where, then, are the nephrologists in the care of these patients with kidney diseases? For now, they may be happy that someone else is taking on the load. Gaining experience with new medications such as GLP-1RAs takes effort, and fee-for-service visits pay the same, whether or not updated

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