



Rethinking Kidney Care: From Disease Management to Precision Prevention

Nayak D^{1*}, Chowdhary C¹, Sandu L² and Reddy KV²

¹Department of Nephrology, Associate Professor, Duke University, USA

²PhD Student, Department of Nephrology, Associate Professor, Duke University, USA

***Corresponding author:** Divakar Nayak, Department of Nephrology, Associate Professor, Duke University, USA.

Editorial

Volume 10 Issue 4

Received Date: December 10, 2025

Published Date: December 15, 2025

Abstract

Chronic kidney disease (CKD) remains a major global health challenge, often progressing silently until substantial kidney damage has occurred. Traditional kidney care has largely focused on diagnosing and managing established disease, but growing evidence supports a shift toward early identification of risk and precision prevention. This approach emphasizes recognizing individuals at increased risk, detecting kidney abnormalities at an earlier stage, and tailoring preventive strategies according to individual clinical and biological characteristics. Improved risk prediction, assessment of estimated glomerular filtration rate and albuminuria, kidney-protective therapies, digital health technologies, and patient-centered care provide important opportunities to transform kidney medicine. Prevention should extend beyond pharmacological treatment to include blood-pressure control, diabetes management, healthy nutrition, physical activity, avoidance of nephrotoxic exposures, and improved access to healthcare. A precision-prevention model could reduce disease progression, cardiovascular complications, healthcare costs, and the need for kidney replacement therapy. Rethinking kidney care therefore requires a transition from predominantly reactive treatment toward proactive preservation of kidney health.

Keywords: Chronic Kidney Disease; Precision Prevention; Kidney Health; Early Detection; Risk Assessment; Nephrology; Personalized Medicine

Introduction

Kidney disease is frequently described as a silent condition because significant kidney dysfunction may develop before noticeable symptoms appear. Diabetes, hypertension, cardiovascular disease, obesity, aging, acute kidney injury, medication exposure, and genetic susceptibility are among the factors that can increase the risk of CKD. Despite this, many healthcare systems continue to focus primarily on disease management after kidney damage has already developed.

A more effective approach is to identify individuals at risk earlier and intervene before progressive kidney damage becomes difficult to reverse. This represents a shift from disease management to precision prevention.

Moving Toward Precision Prevention

Precision prevention involves understanding an individual's risk of developing or progressing kidney disease and selecting interventions according to that risk. Kidney function should therefore not be evaluated using a single

laboratory value alone. Estimated glomerular filtration rate, albuminuria, blood pressure, diabetes status, cardiovascular health, previous acute kidney injury, medications, and other relevant factors can provide a more comprehensive picture of kidney risk.

Recent advances in kidney-care guidelines have strengthened the role of risk prediction and individualized assessment. Rather than treating all patients with CKD in the same manner, clinicians can increasingly identify those at greater risk of progression and provide more intensive monitoring and intervention.

Prevention Begins Before Kidney Failure

Precision prevention does not depend solely on sophisticated biomarkers or genetic testing. Many effective preventive measures are already available. Appropriate blood-pressure control, diabetes management, reduction of dietary sodium, regular physical activity, healthy body weight, avoidance of unnecessary nephrotoxic medications, and appropriate use of kidney-protective therapies can help preserve kidney function.

Newer therapies, including SGLT2 inhibitors, have further expanded the possibilities for kidney protection in appropriately selected patients. However, treatment should remain individualized, considering comorbidities, contraindications, affordability, treatment burden, and patient preferences.

The Importance of Early Detection and Primary Care

Early detection is essential for successful prevention. Primary-care professionals play a central role because they frequently manage patients with diabetes, hypertension, cardiovascular disease, and other kidney-risk factors.

Simple assessments such as serum creatinine/eGFR and urinary albumin testing can help identify individuals who may benefit from closer monitoring. Point-of-care testing and digital health technologies may further improve access to kidney assessment, particularly in underserved

communities.

At the same time, prevention must address social and environmental factors. Healthcare accessibility, medication affordability, health literacy, occupational exposures, nutrition, and socioeconomic circumstances can strongly influence kidney health. Precision prevention will therefore be effective only when it is also equitable prevention.

Conclusion

The future of kidney care should extend beyond treating established CKD and kidney failure. A prevention-focused approach can identify risk earlier, detect disease before substantial functional decline, and provide interventions tailored to individual needs.

Precision prevention represents an opportunity to make kidney care more proactive, personalized, and sustainable. The goal should not simply be to delay dialysis or transplantation, but to prevent avoidable kidney damage and preserve kidney health throughout the life course. Moving from “treating kidney disease” to “protecting kidney health” may ultimately represent one of the most important changes in modern nephrology.

References

1. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group (2024) KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. *Kidney Int* 105(4S): S117-S314.
2. Levin A, Ahmed SB, Carrero JJ, Foster B, Francis A, et al. (2024) Executive summary of the KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease: known knowns and known unknowns. *Kidney Int* 105(4): 684-701.
3. Centers for Disease Control and Prevention (2024) Chronic Kidney Disease: Prevention and Risk Factors. Centers for Disease Control and Prevention, United States.