REVIEW ARTICLE

Consensus Guidance for the Diagnosis and Management of Diabetic Kidney Disease: Executive Summary

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Abstract

Diabetic kidney disease (DKD) is becoming an increasingly common consequence of diabetes in India, where the number of affected individuals is rising at an alarming pace. The illness is often silent in its early stages, and many patients are diagnosed only when kidney damage is advanced, leading to high rates of kidney failure and cardiovascular complications. This consensus document was developed by a broad group of experts to provide practical, evidence-based recommendations tailored for Indian healthcare settings. It stresses the importance of timely screening using the urine albumin-to-creatinine ratio and estimated glomerular filtration rate, along with routine evaluation of cardiovascular risks. The guidance covers key management areas such as blood pressure and glycemic control, the use of renin–angiotensin system blockers, newer agents such as sodium–glucose cotransporter 2 inhibitors (SGLT2) inhibitors and finerenone, as well as lifestyle and dietary measures. Equal attention is given to affordability, patient education, and integrating care into national health programs. By adapting international standards to local realities, this document aims to improve early detection, reduce inequalities in treatment, and support better long-term outcomes for people living with DKD in India.

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Introduction

Diabetic kidney disease (DKD) is a major complication of diabetes, marked by proteinuria and progressive loss of kidney function, often leading to kidney failure and elevated cardiovascular risk. [1,2] In India, the burden of diabetes is rapidly growing, with 77 million people affected in 2019, projected to exceed 134 million by 2045.[3] A significant proportion of these individuals develop DKD, often silently, as the condition may remain undetected without routine screening. [4–6] Studies across India have reported varying DKD prevalence, from under 1% to over 60%, with urban and rural populations both heavily affected.[7–10] DKD contributes significantly to mortality and

disability, with deaths attributed to it rising by 94% over two decades.[7] Regional studies have identified poor glycemic control, long disease duration, and elevated blood pressure as major risk factors.[11,12] Given this rising burden, addressing DKD is essential to reduce kidney failure, cardiovascular events, and mortality in India.[13] Its progression is influenced by clinical, social, and systemic factors, underscoring the need for guidelines tailored to India's specific realities (Table 1).[14]

Purpose and Scope

This consensus aims to deliver practical, evidence-based recommendations for managing DKD in India. It adapts global guidelines, such as those from the American Diabetes Association (ADA) and Kidney Disease: Improving Global Outcomes (KDIGO), to address India's specific healthcare challenges. The focus is on standardizing care, improving early detection and treatment, and reducing DKD progression and cardiovascular risks. Emphasis is placed on affordable therapies, primary care integration, and culturally sensitive approaches suited to diverse Indian settings.

Target Audience

This guidance is designed for a wide range of healthcare providers involved in the care of people with diabetes and kidney disease across India. It includes family physicians, endocrinologists, nephrologists, cardiologists, nurses, diabetes educators, and allied health personnel. Policymakers, public health planners, administrators, and insurance providers may use this document to inform program design, resource planning, health systems integration, and financing. Researchers will find it a useful resource for contextual evidence-building. People living with DKD and their caregivers are also encouraged to engage with this guidance to support informed decision-making and strengthen collaboration with healthcare teams.

Target Population and Key Areas Covered

This guidance targets adults with type 1 or type 2 diabetes and any stage of chronic kidney disease (CKD), especially in high-risk, underserved populations. It covers early diagnosis using the urine albumin-to-creatinine ratio (UACR) and estimated glomerular filtration rate (eGFR), culturally sensitive lifestyle modifications, and evidence-based use of medications such as sodium–glucose cotransporter 2 inhibitors (SGLT2i) and nonsteroidal mineralocorticoid receptor antagonists (nsMRAs). It emphasizes multidisciplinary care and structured patient education for self-management. Together, these elements aim to improve outcomes and equity in DKD care.

Adaptation and Local Context

India's healthcare delivery system comprises a vast mix of public and private sectors with significant urban-rural disparities. The consensus takes into account limited resources, diagnostic variability, treatment accessibility, health literacy, and cost constraints. Recommendations emphasize context-sensitive solutions—such as tiered screening protocols, prioritization of affordable drug options, and culturally relevant lifestyle modifications. It also advocates integrating DKD care into national programs such as Ayushman Bharat and emphasizes the need for affordable, widely available medications and diagnostics under universal health coverage.

Consensus Process

This consensus statement was developed through a rigorous, multistep Delphi process involving experts from nephrology, diabetology, cardiology, internal medicine, pharmacology, and public health. Multiple rounds of structured discussion, literature review, and iterative feedback were used to achieve agreement. Draft versions of the guidance statements were refined with stakeholder input before finalization. Consensus strength was determined by agreement threshold (>80%) and categorized based on evidence level and clinical applicability.

Testing for Kidney Disease in People with Diabetes

- People with diabetes should be periodically tested to detect the development of kidney disease.[15]
- Given that early kidney disease is asymptomatic, delayed screening can result in a significant gap between biochemical evidence of CKD and clinical diagnosis, leading to suboptimal care.
- Delaying testing means missing the opportunity for early intervention with renoprotective therapies, lifestyle modifications, and other management strategies that can slow CKD progression.
- Early detection allows for the institution of therapies that can slow the progression of DKD.
- Early detection and management of DKD can
  - Reduce the risk of CVD, a major cause of morbidity and mortality in people with diabetes.
  - Increase life expectancy in people with diabetes.
  - Improve the quality of life by preventing the complications associated with advanced kidney disease.
  - Reduce healthcare costs by preventing the progression to KF and the need for expensive treatments.
- Early detection of kidney disease in those with diabetes allows for the development of personalized treatment plans that address each person's specific needs and risk factors.

Identification of Kidney Disease in Those with Diabetes

- For people with type 1 diabetes, begin annual screening for diabetic kidney disease 5 years after diagnosis.
- For people with type 2 diabetes, begin annual testing for kidney disease at diagnosis.
- Test all people with diabetes and comorbid hypertension for kidney disease at least annually.

Table 1: The burden of diabetic kidney disease in India[7]

Attributes	*Incident cases in 2019*	*Prevalence of cases in 2019*	*Deaths in 2019*	*DALYs in 2019*
Type 1 diabetes	16,757	8.02 lakh	15,788	588,074
Increase over 30 years (1990–2019)	3.5%	24.8%	120.1%	169.1%
Type 2 diabetes	278,934	22,293,223	60,989	1,648,771
Increase over 30 years (1990–2019)	100.8%	35.7%	168.8%	214.7%

Tests for the Diagnosis of Diabetic Kidney Disease

- Use both eGFR and albuminuria screening using the urine albumin-to-creatinine ratio (UACR) to evaluate for kidney disease in people with diabetes.
  - Use a random spot urine sample, preferably the first-morning void, to measure UACR.
    - Report UACR results in mg/gm units.
    - Use standardized categories for albuminuria: normal (<30 mg/gm), moderately increased (30–300 mg/g), and severely increased (>300 mg/gm).
  - Estimate glomerular filtration rate (eGFR) using serum creatinine and the CKD-EPI equation.
- Diagnose diabetic kidney disease when there is persistent albuminuria (UACR ≥30 mg/gm) and/or sustained reduction in eGFR <60 mL/min/1.73 m^2.
  - Confirm the diagnosis of DKD with at least two elevated UACR measurements (≥30 mg/gm) over a 3–6 month period.
  - Classify CKD stage using KDIGO criteria (Figs 1 and 2).[16]

Albuminuria Testing:

- Spot urine ACR is the standard method for initial screening and monitoring. It corrects for urine concentration variations and is more practical than timed collections.
- First-morning voids are preferred over random samples when possible, especially for confirmation.
- Dipstick testing is acceptable when quantitative measurement is not available.
- Repeat abnormal results: elevated ACR requires confirmation with ≥2 of three tests within 3–6 months due to high biological variability (>20%).
- Significant change threshold: A doubling of ACR warrants clinical evaluation.
- Avoid testing during confounding conditions: Defer during menstruation, UTI, acute illness, strenuous exercise, or uncontrolled hypertension.

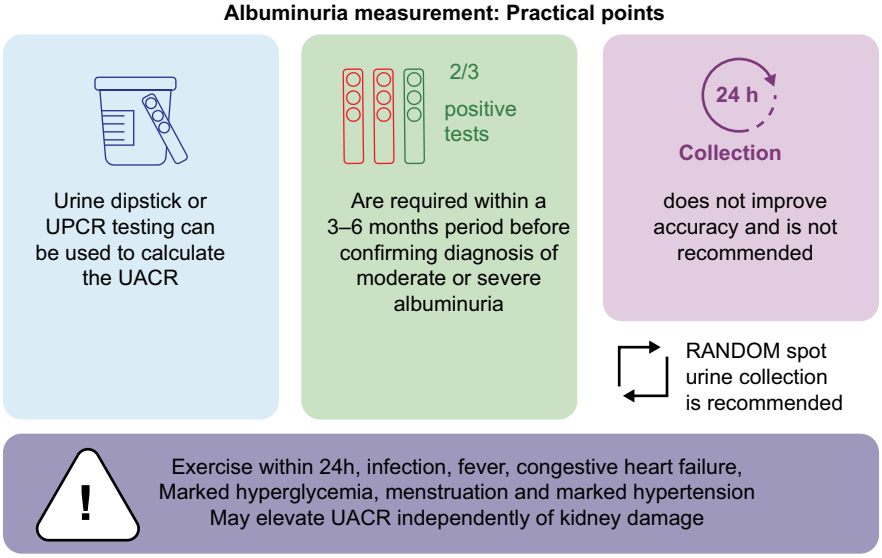

Fig. 1: Albuminuria measurement: practical points

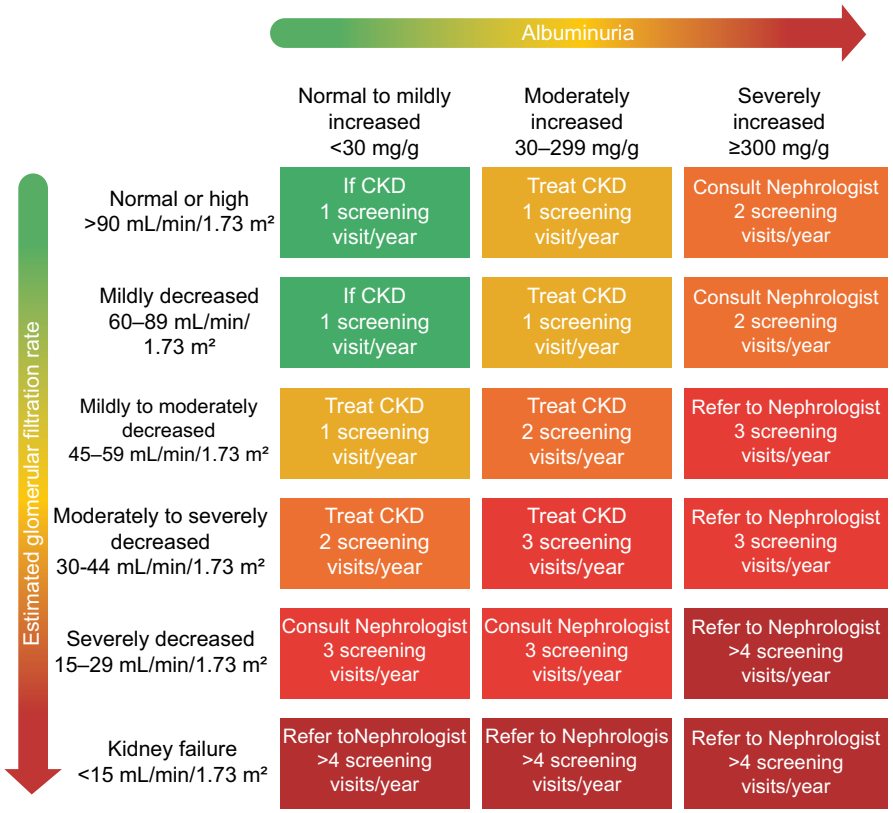

Fig. 2: Risk-based testing in CKD. *Source*: Picture under CC-BY license[17]

Monitoring

- For people without evidence of DKD at initial testing, repeat testing at yearly intervals.
- For people with confirmed DKD, monitor UACR and eGFR at least twice annually.
- Increase monitoring frequency to 3–4 times per year for people with advanced CKD or moderate to severely increased albuminuria.

Comprehensive Assessment

- Evaluate and manage cardiovascular risk factors in all people with DKD.
- Assess for other diabetes-related complications during all clinical visits.

Management of Kidney Disease in Diabetes

- Undertake a comprehensive approach to DKD management, including blood pressure control, glycemic management, lifestyle interventions, pharmacologic therapies, and treatment of comorbid conditions.
- Glycemic control
  - Optimize glycemic control to reduce the risk or slow the progression of DKD, with a target HbA1c of <7% for most people.
  - Use metformin as first-line therapy for glucose management in people with eGFR ≥30 mL/min/1.73 m^2, with

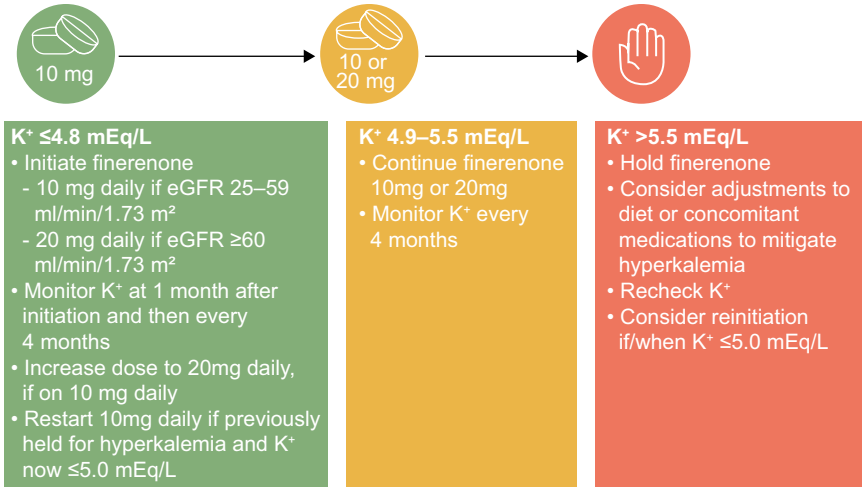

Fig. 3: Serum potassium monitoring during treatment with a nonsteroidal mineralocorticoid receptor antagonist (MRA)

appropriate dose adjustments based on kidney function.

- Blood pressure control
  - Optimize blood pressure control with a <130/80 mm Hg target for most people with DKD.
  - Use an angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) as first-line therapy for hypertension in people with DKD and UACR ≥ 300 mg/gm.
- Renal and cardiovascular protection
  - For people with UACR ≥300 mg/gm and eGFR ≥20 mL/min/1.73 m^2, use a sodium-glucose cotransporter 2 (SGLT2) inhibitor to reduce CKD progression and cardiovascular events. Once initiated, it can be continued even if eGFR declines below this level.
  - Consider using a nonsteroidal mineralocorticoid receptor antagonist (nsMRA) with proven kidney and cardiovascular benefit for people with T2D, eGFR≥ 25 mL/min/1.73 m^2, normal serum potassium concentration, and UACR ≥ 30 mg/gm).
  - Finerenone should be prioritized over other MRAs because of clinical trial data about its superiority in improving renal and cardiovascular outcomes.
  - Consider using a glucagon-like peptide 1 (GLP-1) receptor agonist to reduce albuminuria and cardiovascular risk in people with DKD who do not meet their individualized glycemic target with metformin and/or SGLT2i or are unable to use these drugs.
  - Do not discontinue RAS-blockers for a minor decline in eGFR (≤30%) in the absence of volume depletion.
  - Manage cardiovascular risk factors, including dyslipidemia, aggressively.
- Monitor serum potassium and eGFR regularly in people on ACE inhibitors, ARBs, or nsMRAs (Fig. 3).

Serum Potassium Monitoring in Patients Being Started on nsMRAs

Pretreatment Monitoring

- Baseline assessment: Serum potassium must be measured before initiation. Treatment should not start if the baseline potassium exceeds 5.0 mEq/L. If potassium is >4.8 but ≤5.0 mEq/L, initiation requires clinical judgment with close monitoring.
- Risk stratification: Patients with reduced GFR, diabetes, cardiovascular disease, or those concurrently using RAAS inhibitors (e.g., ACEIs/ARBs) warrant heightened vigilance.
- Repeat potassium measurement within 4 weeks of starting therapy.
- Monitor potassium levels weekly until stabilization.
- Withhold finerenone if potassium exceeds 5.5 mEq/L.
- Restart at 10 mg/day only when potassium drops to ≤5.0 mEq/L.
- Increase dose to 20 mg/d if repeat K <5.0 mEq/L.
- Check potassium every 4–6 months after stabilization.
- High-risk patients may require more frequent testing.

- Consider referral to a nephrologist when eGFR <30 mL/min/1.73 m^2, for difficult management issues, or when there is uncertainty about the etiology of kidney disease.
- Educate all patients about the importance of adherence to therapy, lifestyle modifications, and regular monitoring of kidney function.

Guideline for Using Finerenone to Treat Diabetic Kidney Disease

- Before initiating finerenone, assess baseline eGFR and serum potassium levels. Finerenone should not be initiated in patients with an eGFR <25 mL/min/1.73 m^2 or serum potassium levels >5.5 mmol/L.
  - The recommended starting dose of finerenone is 10 mg once daily for people with an eGFR of 25–59 mL/min/1.73 m^2 and 20 mg once daily for those with an eGFR ≥60 mL/min/1.73 m^2. Adjust the dose based on serum potassium levels and eGFR during follow-up.
  - Educate patients about the potential side effects of finerenone, including hyperkalemia, and the importance of regular monitoring and adherence to prescribed therapy.
  - Monitor serum potassium and eGFR levels at baseline, one month after initiation, and periodically thereafter. If serum potassium exceeds 5.5 mEq/L, consider dose reduction or discontinuation of finerenone till the values return to <5 mEq/L.
  - Common adverse events such as hyperkalemia should be managed with dietary modifications, potassium binders, or diuretics.
  - Severe persistent hyperkalemia (>5.5 mEq/L) may require permanent discontinuation of finerenone.
- Finerenone should be used as one of the pillars, along with optimizing standard care, including optimal RAS inhibitors and SGLT2 inhibitors, in those with proteinuria.
- In people with a high risk of cardiovascular events, finerenone should be used to reduce the risk of cardiovascular death, nonfatal myocardial infarction, nonfatal stroke, and hospitalization for heart failure.
- Use finerenone with caution in people with moderate hepatic impairment, and avoid use in people with severe hepatic impairment.

Pillar-based Therapy of Diabetic Kidney Disease

- The pillar-based approach to managing DKD involves using multiple therapeutic agents that target different pathophysiological mechanisms of the disease. This approach is designed to maximize treatment efficacy by combining drugs shown in clinical trials to reduce cardiovascular and renal outcomes.

Table 2: Therapeutic approach to management of DKD

Goal	*Timely diagnosis[1], reduce risk of complications, especially CVD* and CKD, optimize QOL, minimize OOPE*					
Risk factor optimization	Glycemic control	Blood pressure control	Weight optimization	Physical activity	Avoid tobacco, alcohol, indigenous medicines without medical advice	Increase dietary diversity
Pharmacotherapy	Oral hypoglycemic agents; insulin	RASB at maximally tolerated dose; other antihypertensives	SGLT2 inhibitors[2]	nsMRA[3]	GLP-1 RA[4]	Lipid-lowering (statins, ezetimibe)

CVD, cardiovascular disease; CKD, chronic kidney disease; QOL, quality of life; OOPE, out-of-pocket expenditure; RASB, renin–angiotensin system blockers; SGLT2, sodium–glucose cotransporter 2; nsMRA, nonsteroidal mineralocorticoid receptor antagonist; [1]Use only approved therapies. Consider tolerability, identifying and managing side effects. Use drugs in the proper dosage. Remember to restart therapies if withheld temporarily. Do not use unproven treatments; [1]Use eGFR and ACR; [2]eGFR >20 mL/min/1.73 m^2, UACR >200 mg/gm; [3]eGFR >60 mL/min/1.73 m^2: 20 mg/day; eGFR 25–60 mL/min/1.73 m^2: 10 mg/day; [4]Irrespective of glycemic control; * Use aspirin if indicated for secondary prevention

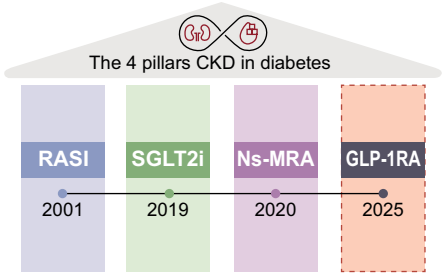

Fig. 4: The four pillars of CKD in diabetes[17]

- ACE inhibitors and ARBs have been the cornerstone of DKD management for many years. They work by reducing blood pressure and proteinuria, thereby slowing the progression of kidney disease. All clinical trials for other agents have used background RASi therapy (Fig. 4).
- SGLT2 inhibitors reduce blood glucose levels by promoting the excretion of glucose in the urine. They have been shown to have significant renal and cardiovascular protective effects, including reducing the risk of kidney disease progression and heart failure.
- The addition of finerenone to adults with type 2 diabetes and CKD stages 2–4 with albuminuria, already receiving maximally tolerated RASi, with or without SGLT2i, reduces proteinuria and slows kidney disease progression.
- Glucagon-like peptide 1 Receptor Agonists (GLP-1 RAs) improve glycemic control and have been shown to reduce cardiovascular risk. Emerging evidence suggests they may also have direct renal protective effects, making them an additional pillar in DKD management.
- Statins, used to manage dyslipidemia, help reduce cardiovascular risk, which is particularly important in people with DKD at high risk for cardiovascular events.

Implementation in Healthcare System

- Advocate for the inclusion of CKD management in national health policies and programs, ensuring that it receives adequate attention and resources.
  - Implement testing for CKD in all people with diabetes throughout the healthcare system.
  - Ensure the availability of essential diagnostics (e.g., eGFR, UACR) at all levels of public healthcare facilities, including primary health centers.
  - Ensure the availability of essential medications (e.g., ACE inhibitors, ARBs, SGLT2 inhibitors, nsMRAs, statins) at all levels of public healthcare facilities, including primary health centers.
  - Implement a system for regular monitoring and follow-up of people with DKD, including periodic assessment of eGFR, UACR, and other relevant clinical parameters.
- The decision to include any new intervention in the healthcare system should be informed by properly conducted Health Technology Assessment studies.
- Integrate CKD management into existing government health insurance schemes, ensuring that all diagnostic tests, medications, and follow-up visits are covered to eliminate out-of-pocket expenditure for all people.
- Strengthen the infrastructure of primary and secondary healthcare centers to support the diagnosis and management of CKD, including training healthcare providers, ensuring the availability of necessary equipment, and establishing efficient referral pathways. Develop sustainable, participatory models of care to effectively manage diabetes and CKD through primary care.
- Develop and implement comprehensive patient education programs to increase awareness about CKD, its risk factors, and the importance of regular monitoring and adherence to treatment. Table 2 provides the consolidated approach.

Conclusion

This consensus guidance offers a comprehensive, context-specific framework for the diagnosis and management of diabetic kidney disease (DKD) in India. It emphasizes early detection through routine testing of eGFR and albuminuria to enable timely intervention. The recommendations support a multidisciplinary, patient-centered approach involving nephrologists, endocrinologists, primary care physicians, cardiologists, dietitians, and others. Evidence-based therapies—including RAAS inhibitors, SGLT2 inhibitors, GLP-1 receptor agonists, non-steroidal MRAs, and statins—are prioritized to delay DKD progression and reduce cardiovascular risk. The document also advocates for patient education, individualized treatment, and integration with national programs such as Ayushman Bharat to ensure equitable access and affordability. By addressing these key areas, this guidance aims to standardize care, reduce disparities, and improve outcomes for people living with DKD across India.

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Conflict of Interest

None.

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