BRIEF COMMUNICATION

Integrating Early CKD Detection into Primary Care: A Call for Action in South Asia

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ABSTRACT

This article is inspired by and aims to sensitize health care professionals and policymakers in alignment with World Kidney Day 2025, themed "Are Your Kidneys OK? Detect Early, Protect Kidney Health". Chronic kidney disease (CKD) is a growing public health crisis in South Asia, driven by high rates of diabetes, hypertension, and delayed diagnosis. Despite the availability of simple and cost-effective screening tools, early detection remains suboptimal due to gaps in primary care integration, limited awareness, and health care disparities. Primary care physicians (PCPs) play a pivotal role in identifying at-risk individuals through systematic screening using urine albumin-to-creatinine ratio (uACR) and estimated glomerular filtration rate (eGFR) tests. However, barriers such as inadequate training, lack of standardized screening protocols, and resource limitations hinder effective implementation. This review highlights the urgent need to integrate CKD detection into primary health care by leveraging policy-driven guidelines, workforce training, digital health solutions, and community engagement strategies. Strengthening primary care through AI-driven risk prediction models, mobile health (mHealth) interventions, and telemedicine consultations can enhance early diagnosis and timely nephrology referrals. Additionally, public awareness campaigns aligned with World Kidney Day 2025 can empower individuals to take proactive steps in monitoring their kidney health. Addressing these challenges requires a multisectoral approach involving governments, health care organizations, and academic institutions to establish sustainable CKD screening frameworks. By embedding early CKD detection into routine primary care practices, South Asian countries can mitigate disease progression, reduce health care costs, and ultimately improve patient outcomes. This call for action urges health care stakeholders to prioritize early intervention strategies and reinforce kidney health as a fundamental component of primary health care.

Keywords: Chronic kidney disease, early detection, World Kidney Day, primary care, South Asia, health screening

Chronic kidney disease (CKD) has emerged as a silent epidemic in South Asia, affecting millions of individuals and placing a substantial burden on health care systems[1]. CKD is often asymptomatic in its early stages, leading to late diagnoses when irreversible damage has already occurred. The World Kidney Day 2025 theme, "Are Your Kidneys OK? Detect Early, Protect Kidney Health", underscores the critical need for timely identification and management of CKD to prevent its progression to end-stage kidney disease (ESKD)[2]. Despite advancements in nephrology, early detection remains a major challenge due to a combination of factors, including low awareness, inadequate screening protocols, limited access to specialized care, and socioeconomic barriers that prevent timely intervention[3].

In South Asia, the high prevalence of diabetes, hypertension, and obesity- the three leading causes of CKD- exacerbates the problem. According to epidemiological studies, 10%-15% of adults in the region suffer from CKD, but the majority remain undiagnosed until they present with severe complications[4]. Limited nephrology workforce, lack of standardized CKD screening policies, and overburdened health care infrastructure further hinder effective CKD management. This calls for an urgent paradigm shift- one that integrates CKD screening into primary care settings, ensuring that high-risk individuals are identified early and managed appropriately.

Primary care physicians (PCPs) serve as the frontline of health care and are well-positioned to incorporate

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routine kidney function assessments into their practice. However, many PCPs lack formal training in nephrology and are often unaware of simple, cost-effective screening tools like urine albumin-to-creatinine ratio (uACR) and estimated glomerular filtration rate (eGFR). Strengthening the role of primary care in CKD detection requires comprehensive policy interventions, capacity-building initiatives, digital health integration, and public awareness campaigns[5].

This article highlights the pressing need to integrate early CKD detection into primary care as a sustainable and scalable strategy to combat the growing burden of kidney disease in South Asia. By leveraging policy-driven frameworks, technology-assisted screening, and community-driven awareness initiatives, health care stakeholders can work toward reducing CKD-related morbidity and mortality and improving long-term outcomes.

THE ROLE OF PRIMARY CARE IN EARLY CKD DETECTION

Primary care plays a pivotal role in the early detection and management of CKD, as it serves as the first point of contact for individuals at risk. Given the high prevalence of risk factors in South Asia, integrating routine CKD screening into primary care settings can significantly improve early diagnosis and intervention[5]. However, several challenges hinder effective CKD detection as depicted in Table 1[6-8]. Strengthening primary care with structured screening programs, clinical decision tools, and improved referral pathways can bridge these gaps and enhance patient outcomes.

Risk-Based Screening

Primary care serves as the first point of contact for high-risk populations. Systematic screening of individuals with diabetes, hypertension, cardiovascular disease,

Table 1. Challenges in Integrating Early CKD Detection into Primary Care[6-8]

Challenges	Description
Limited Awareness and Low Screening Rates	• Lack of awareness among general population regarding CKD risk factors and early symptoms • Patients seek medical care only when symptoms appear with late diagnosis • Inadequate public health campaigns focusing on kidney health
Insufficient Training of PCPs	• Limited nephrology education in medical curricula for PCPs • Need for CME programs on CKD risk assessment and early management
Absence of Standardized Screening Protocols	• No universal CKD screening guidelines adopted at the national level • Variability in screening recommendations • Lack of consensus on screening frequency and target populations
Financial and Resource Constraints	• High costs of diagnostic tests in some regions • Limited availability of point-of-care diagnostic tools • Budgetary constraints preventing large-scale screening programs
Health Care Disparities Between Urban and Rural Areas	• Unequal access to health care facilities (fewer well-equipped rural centers) • Limited availability of nephrologists and trained PCPs in primary care settings • Inadequate referral networks connecting rural PCPs with nephrology specialists
Fragmented Referral and Follow-Up Mechanisms	• Lack of clear referral guidelines for PCPs • High dropout rates of patients due to lack of structured follow-up
Challenges in Implementing Digital Health Solutions	• Limited access to digital tools, EHRs, or AI-based CKD risk stratification models • Need for reliable internet connectivity and data security measures
Socioeconomic and Cultural Barriers	• Financial constraints preventing individuals from seeking routine check-ups • Lack of emphasis on preventive health care measures in many communities
Need for Policy and Legislative Support	• Inadequate funding for kidney disease awareness campaigns • Limited integration of CKD prevention into existing NCD programs

CKD = Chronic kidney disease; PCPs = Primary care physicians; CME = Continuing Medical Education; EHRs = Electronic health records; AI = Artificial intelligence; NCD = Noncommunicable disease.

obesity, and a family history of CKD can enhance early detection. Simple, cost-effective tests such as urinalysis should be incorporated into routine check-ups to facilitate early identification of kidney dysfunction[5]. Routine screening at primary care centers, particularly for individuals over 40 years of age or those with comorbidities or risk factors, can significantly reduce the burden of late-stage CKD.

EMPOWERING PRIMARY CARE PHYSICIANS

Despite evidence supporting early CKD detection, many PCPs lack adequate training in nephrology. Continuing Medical Education (CME) programs, integration of CKD risk calculators, and point-of-care decision tools can improve diagnostic accuracy and timely referrals to specialists[6,8]. Encouraging routine blood pressure and glucose monitoring in primary care settings can facilitate early risk identification. Additionally, primary care providers should be trained to recognize early CKD symptoms and implement evidence-based interventions, such as lifestyle modifications and pharmacologic management, to slow disease progression[6].

PUBLIC HEALTH AWARENESS AND PATIENT ENGAGEMENT

Community-based screening programs and awareness campaigns can empower patients to recognize CKD risk factors and symptoms. Mobile health (mHealth) interventions and digital platforms can aid in disseminating educational content and facilitating self-monitoring[9,10]. Strengthening patient education on lifestyle modifications, dietary interventions, and medication adherence is essential to slow CKD progression. Engaging community health workers in spreading awareness and conducting screening camps can further enhance early detection efforts, particularly in rural and underserved areas[9,10].

INTEGRATION OF CKD SCREENING INTO ROUTINE PRIMARY CARE CONSULTATIONS

Standardized CKD risk assessment tools should be integrated into electronic health records (EHRs) to streamline detection efforts. PCPs should routinely assess kidney function in high-risk individuals as part of general health check-ups. Ensuring accessibility to affordable diagnostic tests at primary health care centers is critical for large-scale implementation[11]. A structured framework for screening and follow-up care, including predefined intervals for testing based on individual risk factors, can improve early diagnosis rates and timely interventions.

REFERRAL PATHWAYS AND COORDINATION WITH NEPHROLOGY SERVICES

Developing clear guidelines for PCPs on when to refer patients to nephrologists is crucial for optimizing care[6,8]. Strengthening communication between primary care and nephrology services through teleconsultations can enhance specialist input and ensure continuity of care[12]. Implementing a tiered approach where mild-to-moderate CKD cases are managed in primary care, while advanced cases are referred to specialists, can help balance the workload across health care settings. Establishing dedicated referral networks and specialist outreach programs can further facilitate timely access to advanced nephrology care[5].

STRATEGIES FOR INTEGRATING CKD SCREENING INTO PRIMARY CARE

Integrating CKD screening into primary care requires a multifaceted approach that enhances early detection, improves physician awareness, and strengthens health care infrastructure. The following strategies can facilitate the incorporation of CKD screening into routine primary care practices:

- **Incorporating Routine Risk-Based Screening –** Screening for CKD should be incorporated into routine check-ups, particularly for high-risk populations. PCPs should be encouraged to perform simple tests, such as urinalysis, at regular intervals for at-risk patients[5].
- **Enhancing Physician Training and Awareness –** Regular CME programs, workshops, and online modules should be developed to educate PCPs on the latest guidelines for CKD diagnosis and management. Training should emphasize risk assessment, interpretation of laboratory findings, and appropriate referral pathways to nephrologists[5-8].
- **Developing Standardized Screening Guidelines –** A region-specific, evidence-based screening protocol should be established and widely disseminated. This would help ensure that CKD detection efforts are uniform and implemented consistently across health care facilities. National health agencies, nephrology societies, and public health departments should collaborate to integrate CKD screening guidelines into existing noncommunicable disease (NCD) prevention programs.
- **Expanding Access to Affordable Diagnostic Tools –** Governments and health care institutions should work to reduce the costs of essential tests, while ensuring their availability in primary health

care centers. Point-of-care testing and mHealth units can further help bridge the gap in rural and underserved areas.

- **Strengthening Referral and Follow-Up Mechanisms –** PCPs should be equipped with clear guidelines on when to refer patients to nephrologists. Additionally, structured follow-up mechanisms, including digital health records and patient reminders, can ensure continuity of care and reduce attrition rates.
- **Leveraging Digital Health and Telemedicine –** Integrating digital tools can improve CKD screening efficiency in primary care. AI-driven risk prediction models can assist PCPs in identifying at-risk patients and prioritizing early interventions. Teleconsultation services with nephrologists can provide guidance on patient management while reducing unnecessary referrals.

CONCLUSION

Integrating early CKD detection into primary care is a crucial step toward reducing the growing burden of kidney disease, particularly in South Asia, where the prevalence of risk factors is high. A proactive, structured approach that empowers PCPs with the necessary knowledge, tools, and standardized protocols can significantly enhance early diagnosis and intervention. By embedding CKD screening into routine health check-ups, improving physician training, increasing access to affordable diagnostics, and leveraging digital health solutions, primary care can become the frontline defense against CKD progression.

A holistic, patient-centered strategy that prioritizes early detection, timely intervention, and multidisciplinary collaboration will not only help curb the CKD epidemic but also reduce the socioeconomic burden associated with late-stage disease and dialysis dependency. Now is the time for action- primary care must evolve into a robust, prevention-oriented system that safeguards kidney health for future generations.

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