The hidden threat: Primary care–driven strategies for earlier chronic kidney disease detection in Australia

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Background
Chronic kidney disease (CKD) is a growing and underdiagnosed public health challenge. General practitioners are central to early detection, yet missed opportunities persist. Evidence suggests up to 90% of stage 3 CKD remains unrecorded, despite simple, cost-effective screening and treatment that slows progression. With a projected 39% rise in the number of Australians with stage 3–5 CKD by 2034, immediate action is required.

Objective
Three roundtable meetings were conducted across Australia with 35 primary care providers and kidney experts to identify barriers and supporting solutions to increase CKD detection and diagnosis.

Discussion
Six themes were identified to improve early CKD detection: (1) education, audits and supportive technologies; (2) guideline harmonisation and a unified risk calculator; (3) automated pathology integrated into practice software, linked to the *CKD management in primary care* handbook and decision tools; (4) defined CKD codes reflecting staging and cause; (5) multidisciplinary communication and models of care; and (6) government policy and advocacy to raise public awareness.

CHRONIC KIDNEY DISEASE (CKD) represents a significant yet largely hidden health burden. Approximately three in four Australian adults are at risk,[1,2] and 1.7–2 million have reduced kidney function,[1,3] although fewer than 10% are aware of their diagnosis.[1,3] The insidious nature of the disease allows up to 90% of kidney function to be lost before symptoms manifest.[1,3] Although Australia's prevalence 1 in 10) aligns with other high-income countries,[3,4] Aboriginal and Torres Strait Islander peoples experience double this rate (1 in 5)[1,3] and have among the highest prevalence globally,[5,6]

The escalating burden of CKD is a public health crisis, costing Australia over $9.9 billion annually.[7,8] Each year CKD claims 20,000 lives[1,2] and leads to 3300 Australians requiring renal replacement therapy[2] – equivalent to 55 deaths and 14 new people progressing to kidney failure each day.[2] Diabetes and cardiovascular disease often co-exist, and people with CKD are 20 times more likely to die from cardiovascular causes than to progress to kidney failure.[1,9–11] By 2032, Australia's CKD burden is expected to surge, with a 85.9% increase in dialysis and a 39% rise in stage 3–5 CKD.[12] These projections underscore the urgency for earlier identification and timely diagnosis to improve patient outcomes.

General practitioners (GPs) play a pivotal part in early detection and intervention, which can slow the rate of kidney deterioration[1] and, if implemented early, delay the progression to kidney failure by more than 15 years.[13–15] To support this, Kidney Health Australia (KHA) updated the *CKD management in primary care* handbook (hereafter the CKD Handbook) in 2024, including a revised algorithm for initial detection and diagnosis of CKD in individuals at increased risk of developing CKD (Box 1, Figure 1).[1] Screening is simple and cost effective,[16] involving a urine test for albuminuria, a blood test for estimated glomerular filtration rate (eGFR) – calculated from serum creatinine – and blood pressure (BP) measurement.[1] This targeted strategy could prevent 38,200 premature deaths, generate 164,956 healthy life years and deliver $45 for every $1 invested over the next 20 years.[7]

Evidence reveals substantial gaps in identification of CKD, with up to 80–90% of Australians with stage 3 disease lacking a recorded diagnosis.[17–19] Screening rates among certain high-risk groups – such as those with hypertension, cardiovascular disease (CVD) or obesity – remain significantly lower than in people with diabetes (unpublished data Turner GL, Aggar C, Rafferty R, et al). Notably, up to 90% of patients with CKD lack any urine albumin–creatinine ratio (uACR) assessment,[20–22] which is essential for CKD screening, diagnosis and staging.[1] Late referral to a kidney service is common, with 15% of people commencing dialysis within 90 days of referral to a kidney service.[1,23]

Aims

This article examines real-world barriers to CKD screening and detection in Australian primary care and outlines strategies to raise GP and patient awareness, promoting early diagnosis for better kidney health.

This consensus paper is based on discussion from three roundtable meetings held between October 2023 and April 2024 with primary care providers and kidney experts (Table 1). Participants were invited to attend one of the three roundtable meetings and were briefed on the format of the meeting including the audio recording of the meetings for data analysis. Verbal consent was obtained at the start of the roundtable. Presentations were made drawing on the literature on gaps and barriers to CKD screening. The roundtable meeting identified local and contextualised barriers to CKD detection and screening, and participants explored potential solutions. The notes of the meeting were reviewed by RA and CG using multiple horizontal (line by line) and vertical (sections of notes) passes to allow the development of barriers and themes emerging from the data.

An editorial committee developed a publication plan and prioritised outcomes. Literature searches were performed in November 2024 to provide evidence-based validation of themes.

Box 1. Case study

Patient profile: Mr RA

History

- Age: 40 years
- Occupation: Accountant
- Family history:
  - Mother: T2DM diagnosed at 51 years
  - Father: Smoker, died of MI at 65 years
- Lifestyle/medication:
  - Works long hours; sedentary lifestyle
  - 8 hours sleep/night; no medication

Examination

- BP: 138/92 mmHg; pulse: 76 bpm, regular
- BMI: 34 kg/m^2 (central obesity); waist circumference: 102 cm
- General examination: Unremarkable

Investigations/tests

- FBE: normal
- U&Es: eGFR: 61 mL/min/1.73m^2; K^+: 4.1 mmol/L
- Lipids: TC 5.8; HDL 1.0; LDL 3.0; TG 1.9 mmol/L
- HbA1c: 5.7%

Is opportunistic kidney screening warranted?

- Yes, obesity/metabolic syndrome and elevated blood pressure are risk factors for CKD (refer to Figure 1 for people who should be offered a kidney health check)[1]
- uACR (in addition to eGFR and BP) is essential to check for kidney disease (Figure 1)
- A uACR was ordered. Test result: 15 mg/mmol

What are the next steps?

- Repeat eGFR and uACR to diagnose and stage CKD (Figure 1)
- Repeated test results show eGFR of 63 mL/min/1.73m^2 and uACR of 20 mg/mmol indicating stage 2 renal disease with microalbuminuria (Figure 1)
- Refer to KHA *CKD management in primary care* handbook to identify CKD cause and follow the 'yellow' management plan for stage 2 CKD (refer to https://kidney.org.au/health-professionals/ckd-management-handbook)[1]

BMI, body mass index; BP, blood pressure; bpm, beats per minute; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate; FBE, full blood examination; HbA1c, haemoglobin A1c; HDL, high-density lipoprotein; K^+, potassium; KHA, Kidney Health Australia; LDL, low-density lipoprotein; MI, myocardial infarction; T2DM, type 2 diabetes mellitus; TC, total cholesterol; TG, triglycerides; uACR, urine albumin–creatinine ratio; U&Es, urea and electrolytes.

Results and discussion

Six key barriers limiting CKD detection in general practice were identified, along with corresponding strategies to address each (Figure 2). Many solutions are interconnected across barriers, highlighting the potential for system-wide approaches such as clinical decision support tools and automated enhanced laboratory reporting to improve diagnosis.[19,24–27]

Barrier 1: Low awareness and clinical inertia in primary care

Although CKD is twice as prevalent as diabetes,[1,3] it has historically received less primary care focus, often being overshadowed by other comorbidities.[28] Studies indicate gaps in CKD primary care training and education.[28] A recent anonymous survey[29] of 399 Australian GPs found 33% were unaware of the KHA CKD Handbook.[1]

> *CKD sits in the shadow of other chronic diseases.* (Sydney GP)

Strategy: Educational activities, tools and supportive technology

Multidisciplinary education, practice audits and supportive technologies are recommended to help identify and diagnose at-risk patients.[19,24–27] CKD screening is straightforward and cost effective (approximately $26.00 for blood and urine test); fasting blood or first-void urine samples are not essential for opportunistic screening (Figure 1). Tools such as PenCS and integrated clinical decision models have demonstrated effectiveness in improving CKD diagnosis and management.[19,24–27] Greater promotion and utilisation of KHA resources such as the CKD Handbook,[1] CKD-Go! App and Kidney Health Professional Hub can strengthen primary care knowledge and practice (Figure 2).

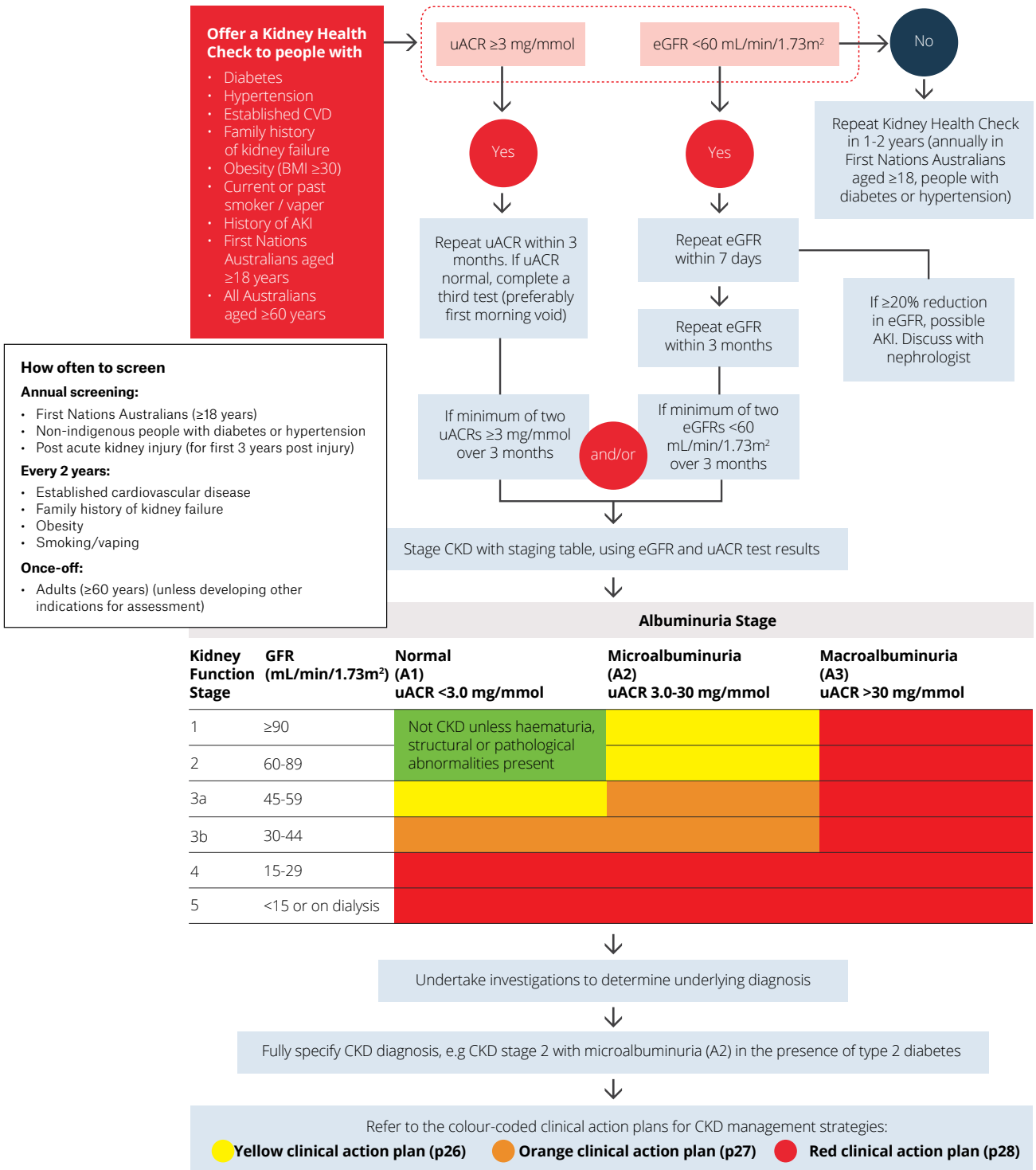

Figure 1. Kidney Health Australia algorithm for detection and diagnosis of chronic kidney disease.

Reproduced from Kidney Health Australia. Chronic kidney disease (CKD) management in primary care (5th edn). Kidney Health Australia, 2024, with permission. Please refer to the handbook for further information including management strategies and action plans.

Barrier 2: Multiple and disparate clinical guidelines

Kidney disease, heart disease and metabolic disorders, collectively known as cardiovascular-kidney-metabolic (CKM) syndrome,[30] are closely interconnected and should trigger assessment of all related conditions.[31] Separate guidelines for CKD, diabetes and heart disease can confuse GPs and hinder effective care, especially if there are multiple comorbidities.[24,28]

Strategy: Guideline harmonisation

Recognising metabolic syndrome as a shared precursor of CKM syndrome and adopting a multisystem approach[30] may enhance GP awareness and facilitate guideline adherence. CKD information in primary care resources, such as The Royal Australian College of General Practitioners' (RACGP's) *Guidelines for preventive activities in general practice* (Red Book) and HealthPathways, should align with the KHA CKD Handbook[1] to ensure consistency. Additionally, a unified risk calculator could help identify individuals at risk for both CVD and CKD, enabling more comprehensive care.

> *He found in his education with GPs that despite seeing the KHA book 20 times over, they have never engaged with it.* (Sydney consultant pharmacist)

Barrier 3: CKD pathology and interpretation

Australian pathology reports define an eGFR >60 mL/min/1.73m^2 as 'normal' without considering any change over time or clinical context, such as patient age, history or concomitant illness. Moreover, uACR is often missed as part of CKD screening,[20–22] although it is vital for staging CKD to determine the best management approach.[1]

Strategy: Automated pathology tests integrated with clinical pathways

Integrating a predefined kidney health request into general practice software is recommended to automate eGFR and uACR testing, accompanied by digital reminders to check blood pressure. Standardised pathology reporting, tailored to the clinical context, should seamlessly integrate with patients' electronic medical records (EMRs). Decision support tools within prescribing software, linked to the KHA CKD Handbook,[1] can further assist GPs.[19,24–27] Additionally, any abnormal pathology should automate a prompt in clinical software to initiate further assessment.

> *PSA* [prostate specific antigen] *historical graph is included in pathology reports. eGFR longitudinal graph would be useful with a low eGFR flag, that shows historical data.* (Brisbane GP)

Barrier 4: Inconsistent CKD documentation and coding

Currently, GPs do not consistently record a complete diagnosis of CKD,[24,32] which requires eGFR, uACR and underlying aetiology.[1] Furthermore, EMR systems do not clearly distinguish CKD staging and have limited functionality to link comorbid conditions, impairing accurate diagnosis and effective management.

Strategy: Comprehensive CKD documentation

General practice software should integrate standardised CKD codes[31] to record aetiology and automate longitudinal eGFR results and uACR tests to monitor disease staging and progression. Other recommendations include digital prompts to remind clinicians to screen at-risk patients and repeat eGFR/uACR testing as needed for monitoring or rescreening. Moreover, incorporating CKD on death certificates would enable more precise measurement of disease burden.

> *Coding in the system is a big barrier and easily solved.* (Brisbane GP)

Barrier 5: Insufficient time and funding

Limited time and funding are major barriers to CKD screening in primary care.[28,33] Time pressures are exacerbated by poor communication among healthcare providers and fragmented care.[28,34] Collaborative multidisciplinary approaches can improve diagnosis and optimise outcomes, particularly for patients with multiple comorbidities.[28,31,35]

Strategy: Multidisciplinary communication and enhanced care models

A CKD RACGP Specific Interest group, or broader 'metabolic disease' subspecialty, is recommended to advocate for increased CKD investment. Opportunistic 'spot testing' in high-risk groups should be encouraged wherever possible[33] and effective recall mechanisms incorporated into clinical practice.[31] Utilisation of home medication reviews and alternative workforce, such as practice nurses, chronic care or CKD nurses and diabetes educators, can enhance CKD screening efforts.[31,36] New models of care that enhance interdisciplinary communication are recommended to improve patient outcomes.[35,37]

> *Biggest barrier with CKD is limited time where GPs are faced with so many other factors and are unlikely to prioritise CKD.* (Brisbane GP)

Table 1. Chronic kidney disease roundtable attendees, according to state and profession (n=35)

State	Renal physician	General practitioner	Nurse or nurse practitioner	Pharmacist	Patient or professional organisation	Number of participants
Victoria	1	4	1	2	2	10
New South Wales	0	8	2	3	0	13
Queensland	0	12	0	0	0	12
Total	**1**	**24**	**3**	**5**	**2**	**35**

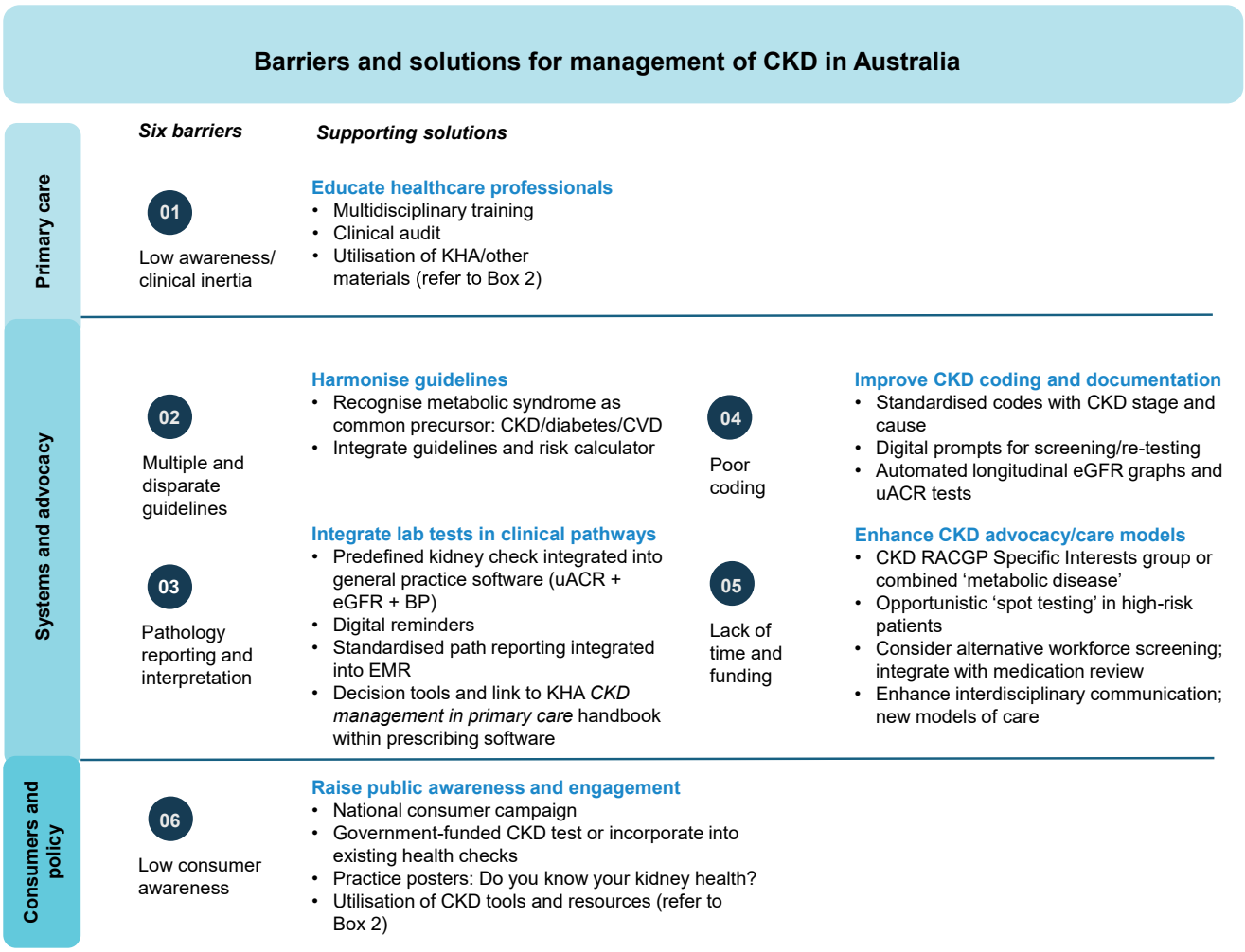

Figure 2. Key barriers to CKD screening and detection in Australian primary care and supporting strategies.

BP, blood pressure; CKD, chronic kidney disease; CVD, cardiovascular disease; eGFR, estimated glomerular filtration rate; EMR, electronic medical record; KHA, Kidney Health Australia; RACGP, The Royal Australian College of General Practitioners; uACR, urine albumin–creatinine ratio.

Barrier 6: Low consumer awareness

Limited consumer knowledge and understanding of CKD and its risk factors remains a significant barrier to early detection.[31,34,38,39]

Strategy: Government policy and tools to raise public awareness and engagement

Government-funded programs are essential to improve CKD screening in at-risk populations. Recommendations include a national consumer campaign and either a Medicare Benefits Schedule–funded kidney health check or expansion of the Heart Health Check to integrate heart/kidney/metabolic screening. Patient-focused surveys and posters in general practice can prompt earlier detection. Greater promotion and utilisation of the KHA Helpline (https://kidney.org.au/ways-we-help/kidney-helpline) and patient resources (https://kidney.org.au/your-kidneys), including Aboriginal and Torres Strait Islander–specific information, can empower shared decision making to improve patient outcomes.[31,40] Engagement with Aboriginal and Torres Strait Islander communities and elders is essential to formulate targeted strategies for this at-risk population.[5,41]

> *If there was more patient awareness and advocacy that helps keep these things front of mind. Consumer demand can improve doctor performance.* (Brisbane GP)

Conclusion

The projected 39% rise in the number of Australians with stage 3–5 CKD from 2022 to 2034[12] demands immediate action. Earlier detection through targeted screening can reduce the healthcare burden and improve patient outcomes. With effective treatments now available to slow disease progression

Box 2. Useful resources

Primary provider materials

- Kidney Health Australia CKD Management in Primary Care handbook, https://kidney.org.au/health-professionals/ckd-management-handbook
- CKD-Go! App, https://kidney.org.au/new-ckd-go-app
- Kidney Health Professional Hub, https://kidney.org.au/health-professionals/hp-hub-sign-up
- Tools to identify at-risk patients (eg PenCAT, POLAR, Cubiko)

Patient resources

- Kidney helpline, https://kidney.org.au/ways-we-help/kidney-helpline
- Patient support materials, https://kidney.org.au/your-kidneys

and prevent both kidney failure and cardiovascular complications, the investment in early detection is compelling.[1,7] Although targeted CKD screening is cost effective[16] and straightforward, shifting from late-stage treatment to early intervention requires innovative approaches. A coordinated, multipronged strategy is essential to expand screening to all at-risk groups. Success will require systematic strategies, government support and improved coding and documentation to monitor disease impact and intervention effectiveness.

Key points

- The asymptomatic nature of CKD demands proactive, repeated screening for early identification.
- Early detection and intervention delay disease progression.
- Screening is simple, effective and cheap: non-fasting blood + urine sample + BP (Figure 1).
- It is important to make the link between the kidneys, diabetes and the heart, with detection of disease at one site prompting investigation at the others.
- Resources available for GPs include the KHA CKD Handbook, CKD-Go! App, Professional Hub, patient materials and helpline.

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