The detection and management of **patients with chronic kidney disease** in primary care

Key practice points

- Offer testing for chronic kidney disease (CKD) to patients with risk factors as part of routine CVD risk assessments and diabetes checks, especially Māori and Pacific patients
- A clinical priority is to distinguish patients with progressive CKD from those with age-related declining renal function
- Controlling blood pressure with an angiotensin converting enzyme (ACE) inhibitor or an angiotensin II receptor blocker (ARB) is the cornerstone of CKD management
- Patients with CKD and diabetes require intensive management

Chronic kidney disease (CKD) describes any long-term condition that affects kidney structure and function. Declining kidney function is a natural part of the ageing process and some older patients will have CKD without active or structural kidney disease. The challenge is to distinguish patients with progressively declining renal function due to disease, who require intensive management, from those with age-related declining renal function.[1]

The number of people in New Zealand with CKD is currently unknown; based on international data it is estimated that 7–10% of the population are likely to have CKD. End-stage kidney disease is three to four times more common in Māori and Pacific peoples compared with people of European descent.[2]

It is recommended that primary care clinicians routinely **offer kidney function testing for patients with risk factors for CKD as part of CVD risk assessments and diabetes checks.**[3] Risk factors for CKD include:[3]

- Hypertension
- Proteinuria
- Diabetes
- Age over 60 years
- Body mass index (BMI) > 35
- Family history of CKD
- Māori, Pacific or Indo Asian ethnicity
- Cardiovascular disease resulting in reduced renal perfusion and endothelial dysfunction
- Prostatic syndrome/urologic disease which has the potential to cause obstructive nephropathy

Patients with risk factors for CKD should be assessed at least every one to two years; annual assessment is required for patients with diabetes.[1] Screening for CKD in people without risk factors is not necessary.

Diagnosing chronic kidney disease

Patients with CKD can be identified in primary care by requesting both:[3]

- A serum creatinine, which automatically generates an eGFR from the laboratory
- An albumin:creatine ratio (ACR) test

The presence of persistent albuminuria further categorises the patient's risk. If the patient has microalbuminuria (ACR 2.5 – 25 mg/mmol for males and 3.5 – 35 mg/mmol for females) or macroalbuminuria (ACR > 25 mg/mmol for males and > 35 mg/mmol for females), the ACR test should be repeated one to two times over the next three months to confirm the diagnosis.[1]

Classifying chronic kidney disease

Chronic kidney disease is classified according to Kidney Disease Improving Global Outcomes (KDIGO) criteria which is independent of cause (Table 1).[3] Each stage is characterised by an eGFR range. Patients with an eGFR > 60 mL/min/1.73m^2 are classified with stage 1 or 2 CKD only if they also have documented evidence of kidney disease, e.g. diabetic nephropathy or polycystic kidney disease as shown by imaging or biopsy abnormalities, or persistent proteinuria.[3] Patients with stage 3 CKD may be asymptomatic, or report nocturia, mild malaise or anorexia.[1] The signs and symptoms of stage 4 and 5 CKD include nausea, pruritus, restless legs and dyspnoea.[1]

Table 1: Classification of chronic kidney disease according to KDIGO criteria using estimated Glomerular Filtration Rate (eGFR) mL/min/1.73m^2. [3]

CKD staging	eGFR
1*	≥ 90
2*	60 – 89
3a	49 – 59
3b	30 – 44
4	15 – 29
5	< 15

* In association with documented evidence of kidney disease or persistent proteinuria

Managing patients with chronic kidney disease in primary care

Most patients with stable CKD can be fully managed in primary care.[1] Lifestyle modifications, e.g. increasing exercise and reducing salt intake, can help to reduce the rate of declining renal function. Smoking is an important modifiable risk factor for CKD progression.[4] Reductions in systolic blood pressure can be used as a measure of the benefits of lifestyle modification in patients with CKD.

Blood pressure control is pivotal in chronic kidney disease management

Managing blood pressure is the cornerstone of CKD management both to slow the rate of CKD progression and to reduce the patient's cardiovascular risk. The goal for blood pressure control is to reduce proteinuria by more than 50%.[1]

The target blood pressure for patients with CKD is:[1]

- ≤ 130/80 mmHg for patients with diabetes or proteinuria with an ACR > 30 mg/mmol
- ≤ 140/90 mmHg for most other patients

Angiotensin converting enzyme (ACE) inhibitors are the first-line treatment for controlling blood pressure in patients with CKD.[1] Angiotensin II receptor blockers (ARBs) are an alternative.[1] Many patients will require multiple medicines to achieve blood pressure targets.[1] It is recommended that a calcium channel blocker be added to an ACE inhibitor or ARB as the second stage in managing hypertension in patients with CKD.[5] The combination of ACE inhibitors and ARBs should be avoided when treating patients with CKD in primary care.[1]

Glycaemic control

In patients with CKD and diabetes, glycaemic control is essential to prevent or delay the progression of microvascular complications and to reduce cardiovascular risk.[6] A HbA_{1c} target < 53 mmol/mol is generally appropriate for patients with CKD and diabetes, although in patients at risk of hypoglycaemia a higher target may be more appropriate.[6]

Managing total cardiovascular risk

Patients with stable CKD (stage 3 – 4) have a five-year cardiovascular risk > 15%, which increases to > 20% if diabetes is also present. All patients with CKD need appropriate cardiovascular risk management and it is important that additional medicines, e.g. statins and aspirin, are initiated according to cardiovascular guidelines.

Monitoring patients with established chronic kidney disease

Patients with established CKD should have their eGFR and albuminuria assessed at least annually,[1] and more frequently if they have an increased risk of progressive CKD.

Progressive CKD refers to patients with an eGFR that is declining at a rate > 5 mL/min/year.[3] Patients with progressive CKD have a high risk of experiencing a cardiovascular event, and if they live long enough are likely to require dialysis and/or kidney transplantation. These patients require close supervision, will often need to be intensely managed and may need to be referred to secondary care.[1] Patients with progressive stage 3 – 4 CKD require weekly or fortnightly review of risk factor management until their condition is stable.[3]

Referral to nephrology

The decision to refer a patient with CKD to a nephrologist and/or diabetologist should be made on a case-by-case basis.[1]

All patients with the following factors should be referred to a nephrologist:[3]

- Progressive CKD in patients with an eGFR < 45 mL/min/1.73[2]
- Evidence of intrinsic kidney disease, e.g. glomerulonephritis, polycystic kidney disease or interstitial nephritis
- Resistant hypertension and/or significant issues with blood glucose control and/or multiple vascular complications

In younger patients, a lower threshold for referral is usually appropriate.

For further information, see: "The detection and management of patients with chronic kidney disease in primary care", BPJ 66 (Feb, 2015).

References

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CKD SmartPath: decision support module for chronic kidney disease

BPAC Inc in conjunction with the Southern DHB, have created a CKD decision support module for health professionals working in primary care. The module is funded by the Ministry of Health and will be rolled out nationally by region. This tool will automatically classify a patient's CKD as stable or progressive and individual management and referral recommendations will be made based upon information already recorded, e.g. eGFR, including pre-populated electronic referrals, where appropriate.

Further information is available from: **www.bestpractice.net.nz/feat_mod_fullList.php#ckd**