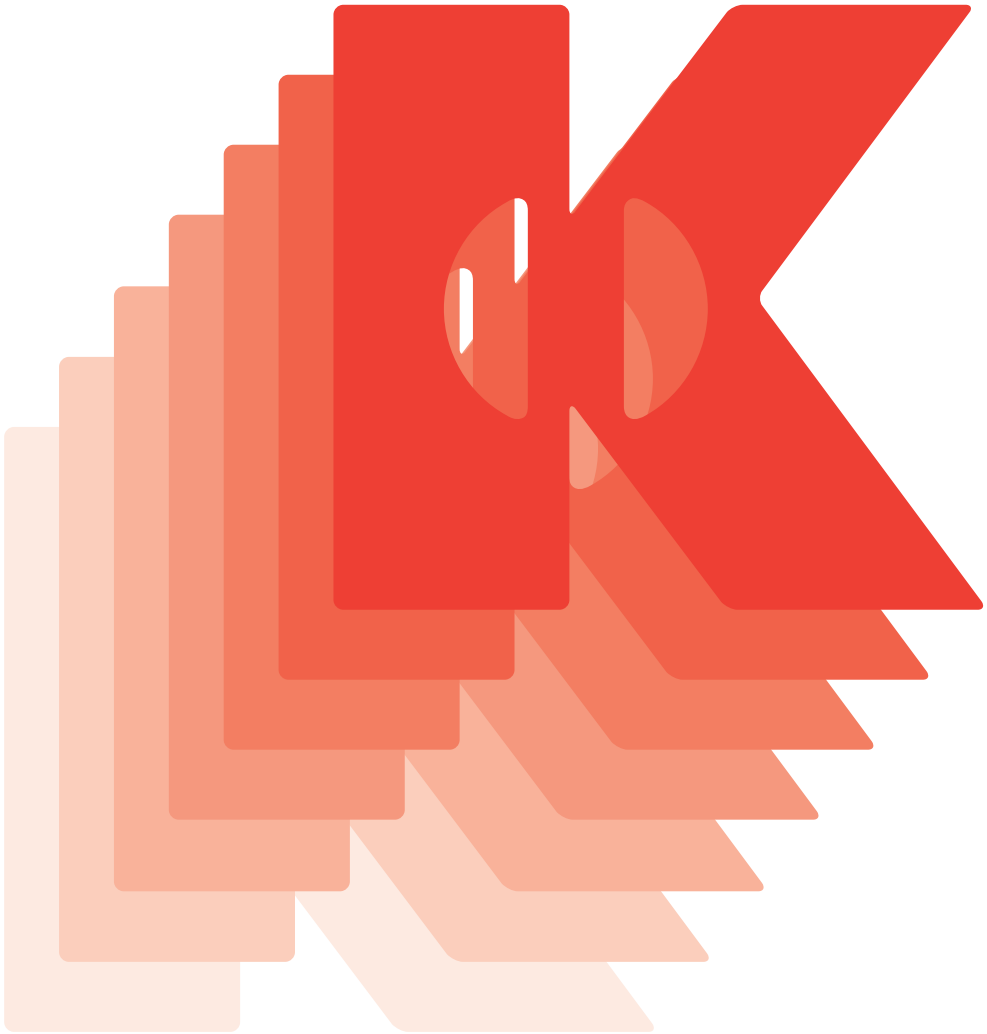
Summary Guide

CHRONIC KIDNEY DISEASE (CKD) MANAGEMENT IN GENERAL PRACTICE



The Royal Australian College of General Practitioners

ANZSN

KIDNEY HEALTH AUSTRALIA

Early detection of CKD using kidney health check

Who is at higher risk of kidney disease?	What should be done?	How often?
Age > 50 years Diabetes High blood pressure Smoking Obesity Family history of kidney disease Aboriginal or Torres Strait Islander	blood pressure urine dipstick (microalbum-inuria if diabetes present) eGFR	Every 12 months

Source: Adapted from Guidelines for preventive activities in general practice (The Red Book) 6th edition. 2005. The Royal Australian College of General Practitioners, South Melbourne, Victoria, Australia.

DEFINITIONS OF ALBUMINURIA AND PROTEINURIA

	Micro-albuminuria	Macro-albuminuria	Proteinuria
Albumin/ creatinine ratio	Females: 3.6–35 mg/mmol Males: 2.6–25 mg/mmol	Females: > 35 mg/mmol Males: > 25 mg/mmol	–
Dipstick	> 3 mg/dL (albumin specific dipstick)	> 20 mg/dL (albumin specific dipstick)	Dipstick = 1 + or more
Protein/ creatinine ratio	–	–	> 30 mg/mmol
24 hour protein	–	–	> 0.3 g/24 hrs

eGFR clinical action plan

* imaging or biopsy abnormalities, or proteinuria/haematuria
** hypertension, diabetes, smoker, age > 50 yrs, obesity, family history of kidney disease, Aboriginal and Torres Strait Islander people

eGFR mL/min/1.73m^2	Description	Clinical Action Plan
90	Stage 1 CKD – kidney damage* with normal kidney function	Further investigation for CKD may be indicated in those at increased risk**: – blood pressure – assessment of proteinuria – urinalysis Cardiovascular risk reduction: – blood pressure – lipids – blood glucose – lifestyle modification (smoking, weight, physical activity, nutrition, alcohol)
60–89	Stage 2 CKD – kidney damage* with mild ↓ kidney function	
30–59	Stage 3 CKD – moderate kidney function	As above, + : – monitor eGFR three monthly – avoid nephrotoxic drugs – prescribe antiproteinuric drugs (ACE inhibitors and/or ARBs) if appropriate – address common complications – ensure drug dosages appropriate for level of kidney function Consider indications for referral to a nephrologist
15–29	Stage 4 CKD – severe kidney function	As above + referral to nephrologist is usually indicated for physical and psychosocial preparation for renal replacement therapy (dialysis, pre-emptive transplantation, transplantation) or conservative medical management
<15	Stage 5 CKD – end-stage kidney disease	As above + referral to a nephrologist

Indications for referral to a Nephrologist

Appropriate referral is associated with:

– reduced rates of progression to end stage kidney disease
– decreased need for and duration of hospitalisation
– increased likelihood of permanent dialysis access created prior to dialysis onset
– reduced initial costs of care following the commencement of dialysis
– increased likelihood of kidney transplantation
– decreased patient morbidity and mortality

WHO MAY BE CONSIDERED FOR REFERRAL TO A NEPHROLOGIST?

Anyone with:

– eGFR < 30mL/min/1.73m^2
– Unexplained decline in kidney function (> 15% drop in eGFR over three months)
– Proteinuria > 1g/24hrs (see clinical tip)
– Glomerular haematuria (particularly if proteinuria present)
– CKD and hypertension that is hard to get to target
– Diabetes with eGFR < 60mL/min/1.73m^2
– Unexplained anaemia (Hb < 100 g/L) with eGFR < 60mL/min/1.73m^2

Anyone with an acute presentation and signs of acute nephritis should be regarded as a medical emergency and referred without delay.

Clinical tip

Urine protein:creatinine ratio of 100 mg/mmol ≃ daily protein excretion of 1g/24hrs.

WHO DOES NOT USUALLY NEED TO BE REFERRED TO A NEPHROLOGIST?

CKD Stage 2 and 3

- Stable eGFR 30–89 mL/min/1.73m^2
- Minor proteinuria (< 0.5 g/24hrs with no haematuria)
- Controlled blood pressure

The decision to refer or not must always be individualised, and particularly in younger patients the indications for referral may be less stringent (e.g. minor proteinuria).

In CKD Stages 2 and 3

- Don't refer to nephrologist if targets of therapy are achieved
- Pay attention to CVD risk reduction
- Use ACE inhibitors/ARBs
- Monitor three to six monthly

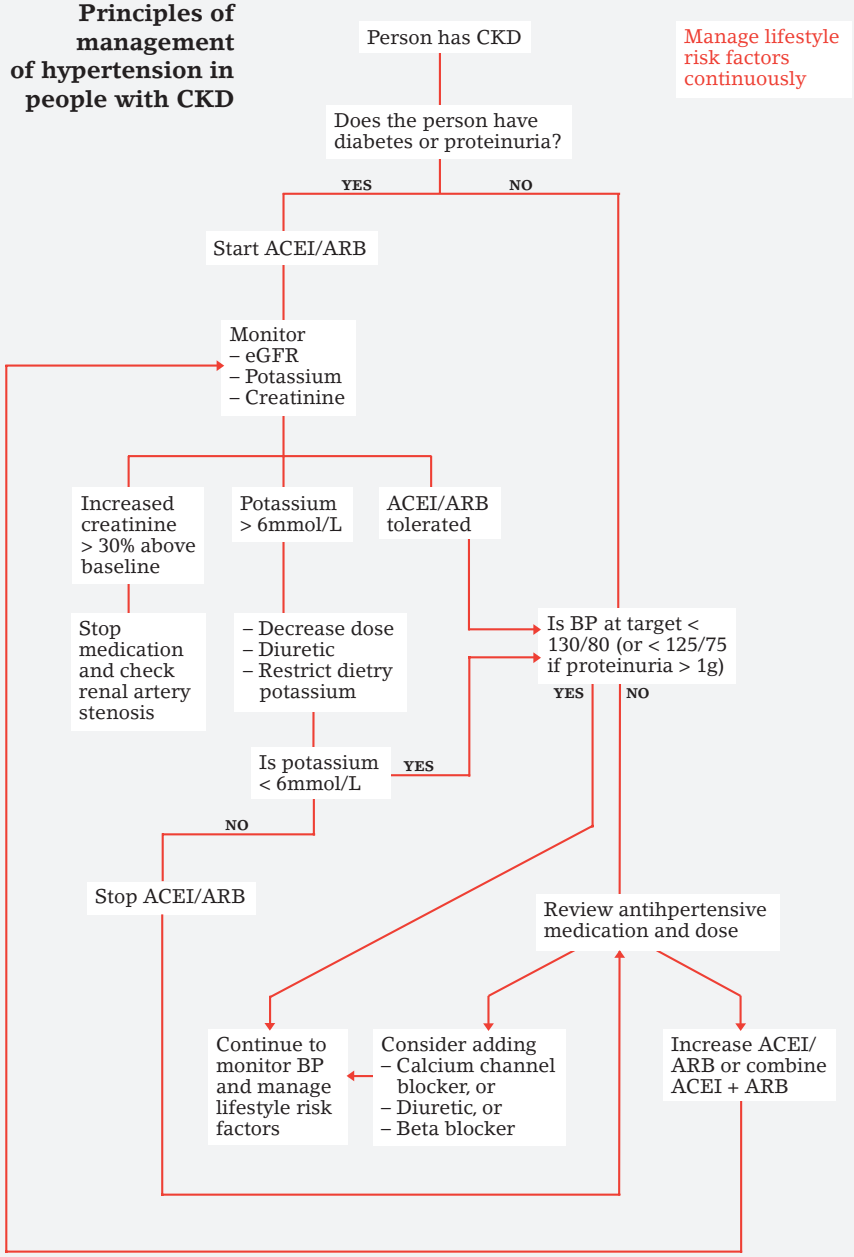
Clinical tip

When referring to a nephrologist, ensure patient has had a recent kidney ultrasound, current blood chemistry, and quantification of proteinuria.

CKD management according to stage

CKD Stage	1	2	3	4	5
Description	Kidney damage + normal or ↑ eGFR	Kidney damage + mild ↓ eGFR	Moderate ↓ eGFR	Severe ↓ eGFR	End stage kidney disease
eGFR (mL/min/1.73m^2)	≥ 90	60–89	30–59	15–29	< 15 or on dialysis
Common Signs and Symptoms	Nil		Nil or nocturia, mild malaise, anorexia	As for stage 3 + nausea, pruritis, restless legs, dyspnoea	As for stage 4
Common Complications	Hypertension		As for stage 1–2 + Mineral and Bone Disorder Anaemia Sleep Apnoea Restless legs CVD Malnutrition Depression	As for stage 3 + Hyperphospha-taemia Acidosis Hyperkalaemia	As for stage 4 + Pericarditis GIT bleeding Encephalopathy Neuropathy
Clinic Assessment	BP Weight Urine dipstick		As for stage 1-2	As for stage 1–2 + Oedema	As for stage 4
Lab Assessment	General chemistry, eGFR Glucose Lipids		As for stage 1-2 + FBC Iron stores Ca/PO_4 PTH (quarterly)	As for stage 3	As per monthly blood schedule specified by Renal Unit
Management	Diagnosis Cardiac and kidney risk factor modification Treat BP to target < 130/80 mmHg or < 125/75 mmHg if proteinuria > 1g/24hrs (urine protein: creatinine ratio of 100 mg/mmol ≃ daily protein excretion of 1g/24hrs)		As for stage 1–2 + Treat complications Medication review	As for stage 3 + Dialysis education Dialysis access surgery	As for stage 4 + Dialysis or transplantation (or conserva-tive medical management)
Frequency of clinical review	4–6 monthly		1–3 monthly	Monthly	Monthly (shared with renal unit)
Nephrologist Referral	Consider referral if indication is present		Consider referral if indication is present	All patients should be referred to a nephrologist	All patients should be referred to a nephrologist

Principles of management of hypertension in people with CKD



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Treatment targets for people with CKD[17]

Golden Rules

- Blood pressure targets in CKD are < 130/80 mmHg or < 125/75 if proteinuria > 1 g/24hrs
- Urine protein:creatinine ratio of 100 mg/mmol ≃ daily protein excretion of 1g/24hrs
- Achieving adequate BP targets will often require the use of more than one agent
- As eGFR declines more drugs will typically be required to achieve target blood pressure

Parameter	Target	Treatment & effects on systolic BP
Lifestyle Factors		
Smoking	Cease smoking	Lifestyle modification – refer to SNAP guide[26]
Weight	BMI ≤ 25 kg/m^2 WC males ≤ 94 cm27 (≤ 90 cm in Asian populations)[28] WC females ≤ 80 cm[27]	Lifestyle modification – refer to SNAP guide SBP reduction = 5–20 mmHg/10 kg loss
Physical activity	> 30 mins physical activity/day	Lifestyle modification – refer to SNAP guide SBP reduction = 4–9 mmHg
Nutrition	Dietary salt intake 40–100 mmol/day[29]	Lifestyle modification – refer to SNAP guide SBP reduction = 2–8 mmHg
Alcohol	Moderate alcohol consumption only (1–2 standard drinks/day)	Lifestyle modification – refer to SNAP guide SBP reduction = 2–4 mmHg
Clinical Factors		
Blood pressure	< 130/80 mmHg < 125/75 mmHg if proteinuria > 1g/24hrs	Lifestyle modification ACE inhibitor and/or ARB first-line
Proteinuria	> 50% reduction of baseline value	ACE inhibitor and/or ARB first-line
Cholesterol	Total < 4.0 mmol/L LDL < 2.5 mmol/L	Dietary advice Statins
Blood glucose (for people with diabetes)	Pre-prandial BSL 4.4 – 6.7 mmol/L HbA1c < 7.0%	Lifestyle modification Oral hypoglycaemics Insulin

The NHMRC also recommends immunisation against influenza and invasive pneumococcal disease for people with diabetes and/or end stage kidney disease.