

Signs and symptoms and indications for referral

Stage	1	2	3	4	5
Estimated GFR (mL/min/1.73m ²)	≥ 90	60-89	30-59	15 - 29	<15
Signs and symptoms	Nil	Nil	Nil or nocturia, mild malaise, poor appetite	As before + lethargy, nausea, restless legs, dyspnoea	As before + risk of pericarditis, GIT bleeding, confusion, seizures, coma
Referral	Consider specialist referral, if any indications for referral to a nephrologist (see list below) are present.			All patients should be referred for assessment of chronic renal failure management and preparation for dialysis or transplantation.	

INDICATIONS FOR REFERRAL TO A NEPHROLOGIST

- **eGFR <30mL/min/1.73m²**
- **Unexplained decline in kidney function (>15% in eGFR over 3 months)**
- **Proteinuria >1g/24hrs (urine protein:creatinine ratio of 100 mg/mmol ~ daily protein excretion of 1g/24hrs)**
- **Glomerular haematuria (particularly if proteinuria present)**
- **CKD (any stage) and hypertension that is hard get to target**
- **Diabetes with eGFR <60mL/min/1.73m²**
- **Unexplained (Hb <100g/L) anaemia with eGFR <60mL/min/1.73m²**

CLINICAL TIP

When referring to a nephrologist ensure patient has had a recent kidney ultrasound and current blood chemistry

Treatment targets for management of CKD complications

Condition	Targets	Treatment
Hypertension	≤ 130/80 mmHg if proteinuria < 1 g/day	ACEI +/- ARB first-line if proteinuria or diabetes [3, 4, 5, 6]
	≤ 125/75 mmHg if proteinuria > 1 g/day. [2]	Multiple medications may be required to meet targets. [3]
Cardiovascular disease	Blood pressure	Lifestyle modification - nutrition, physical activity, smoking cessation
	Lipid	Medications - antihypertensives, statins, oral hypoglycaemics/insulin. [1]
	Glycaemic control	
Secondary hyperparathyroidism/CKD-Mineral and Bone Disorder	PO ₄ : ≤ 1.6 mmol/L [7]	Calcitriol
	PTH : 2-5 x upper limit of normal. [1]	Phosphate binders (calcium carbonate, aluminium hydroxide, magnesium trisilicate, sevelamer) Cinacalcet
Anaemia	Hb: 110 - 120 g/L	Correct iron deficiency
		Erythropoietin/darbepoietin. [1]
Sleep apnoea	Avoid apnoeic episodes	Weight reduction
		Avoid central nervous system depressants
		CPAP therapy if indicated. [1]
Restless legs	Symptom control	Correct iron deficiency
		Dopaminergic agents. [1]
Malnutrition	Albumin: ≤ 35 g/L	Nutritional advice. [1]

References:

- [1] Johnson DW, Usherwood T. Chronic kidney disease-management update. Aust Fam Phys 2005;34(11):915-23.
- [2] CARI guidelines. Prevention of Progression of Kidney Disease: BP Control - Targets. 2006. Viewed on 18/7/2006, at: <http://www.cari.org.au/Blood%20pressure%20control%20-%20-%20targets.pdf>
- [3] K/DOQI clinical practice guidelines on hypertension and antihypertensive agents in chronic kidney disease. Am J Kidney Dis 2004;43(5 Suppl 1):S1-290.
- [4] Levey AS, Uhlig K. Which antihypertensive agents in chronic kidney disease? Ann Intern Med 2006;144(3):213-5.
- [5] eTG complete. ACEI, ARB. Therapeutic Guidelines Ltd: etg17, 2006.
- [6] Ruilope LM, Schiffrin EL. Blood pressure control and benefits of antihypertensive therapy: does it make a difference which agents we use? Hypertension 2001;38(3 Pt 2):537-42.
- [7] CARI Guidelines. Prevention of Progression of Kidney Disease: Phosphate. 2006. Viewed on 1/09/2006, at: <http://www.cari.org.au/Recommended%20target%20for%20Serum%20Phosphate.pdf>