



2009 Bravo Health Early Renal Disease Guidelines

Bravo Health supports the National Institute for Health and Clinical Excellence (NICE) 2008 chronic kidney disease guidelines. Guidelines should never supersede clinical judgment. The practitioner, in conjunction with the patient or responsible party, should decide whether these or other recommended services should be performed more frequently, less frequently, or not at all.

The stages of CKD (Chronic Kidney Disease) are mainly based on measured or estimated GFR (Glomerular Filtration Rate). There are five stages but kidney function is normal in Stage 1, and minimally reduced in Stage 2.

The stages of kidney disease are:

Stage	GFR*	Description	Treatment stage
1	90+	Normal kidney function but urine findings or structural abnormalities or genetic trait point to kidney disease	Observation, control of blood pressure.
2	60-89	Mildly reduced kidney function, and other findings (as for stage 1) point to kidney disease	Observation, control of blood pressure and risk factors.
3A 3B	45-59 30-44	Moderately reduced kidney function	Observation, control of blood pressure and risk factors.
4	15-29	Severely reduced kidney function	Planning for end stage renal failure.
5	<15 or on dialysis	Very severe, or end stage kidney failure (sometimes call established renal failure)	Treatment choices.

* All GFR values are normalized to an average surface area (size) of 1.73m²

Labeling someone as having CKD requires two samples at least 90 days apart. Historical values can be used.

Stage 0 Normal Renal Function

GFR over 90mls/min/1.73m² is normal unless there is other evidence of kidney disease, in which case CKD is stage 1. Other evidence of kidney disease may include:

- Proteinuria or hematuria
- A genetic diagnosis of kidney disease (e.g. known to be have a disease such as polycystic kidney disease)
- Evidence of structurally abnormal kidneys (e.g. reflux nephropathy, renal dysgenesis).

If any of these are present, CKD stage is 1.

Stages 1 and 2 CKD

In Stage 1 CKD kidney function is normal but there is other evidence of kidney disease. Stage 2 CKD is mildly reduced kidney function, GFR 60-89mls/min/1.73m². Both stages require other evidence of kidney disease, for example:

- Proteinuria or hematuria
- A genetic diagnosis of kidney disease (e.g. known to be have a disease such as polycystic kidney disease)
- Evidence of structurally abnormal kidneys (e.g. reflux nephropathy, renal dysgenesis).

Assessment and management of Stages 1 and 2 CKD

Almost all patients with stages 1 and 2 CKD can be appropriately managed in primary care. The aim is to identify individuals at risk of progressive renal disease, and reduce associated risks.

- Risk of cardiovascular events and death is substantially increased by the presence of CKD; at CKD 1-2, particularly by proteinuria. The risk of cardiovascular death is (on average) much higher than the risk of needing dialysis or a renal transplant.
- Some patients need further investigation where there are indications that progression to end stage renal failure (Stage 5) may be likely. Pointers to progression of renal disease are:
 - Proteinuria
 - Hematuria - of renal origin
 - Declining GFR
 - Young age
- Long term monitoring of renal function and other parameters is indicated.

Initial assessment of Stages 1 and 2 CKD

- Patients have normal or near-normal GFR, but have other evidence of renal disease.
 - Assessment of hematuria
 - Assessment of proteinuria
- Deteriorating renal function needs rapid assessment.
- Where hematuria or proteinuria are present but referral is not indicated, annual monitoring, with later referral if there is evidence of progression (see below), is appropriate.

Management of Stages 1 and 2 CKD

- Creatinine - consider referral/advice if significant progression.
- Urinary protein
- Blood pressure - 140/90 max (130-139/90), or 130/80 max (120-129/80) for patients with proteinuria.
- Cardiovascular risk - advice on smoking, exercise and lifestyle. Consider cholesterol lowering therapy if already have macrovascular disease, or if estimated 10 year risk of cardiovascular events $\geq 20\%$.

Stage 3 CKD

In Stage 3 CKD eGFR is approximately 30-60%: eGFR 45-59 (3A) or 30-44 (3B). Remember that eGFR is an estimate and may require a correction for (black) race. Creatinine and eGFR in an individual are usually quite stable. Deteriorating renal function needs rapid assessment.

Assessment and management of Stage 3 CKD

Most Stage 3 CKD can be appropriately managed in primary care. The aim is to identify individuals at risk of progressive renal disease, and reduce associated risks.

- Risk of cardiovascular events and death is substantially increased by the presence of CKD. The risk of cardiovascular death is (on average) much higher than the risk of needing dialysis or a renal transplant.
- Some patients need further investigation where there are indications that progression to end stage renal failure (Stage 5) may be likely. Pointers to progression of renal disease are:
 - Proteinuria
 - Hematuria of renal origin
 - Declining GFR
- Long term monitoring of renal function and other parameters is indicated.

Initial assessment of Stage 3 CKD

- Consider referral if systemic disease process involving kidneys supported by urinary abnormalities or other indicators.
- Deteriorating renal function needs rapid assessment.
- Clinical assessment - especially for heart failure, hypovolemia, examination for bladder enlargement (imaging indicated if obstruction suspected from symptoms or examination).
- Medication review – review for any potentially nephrotoxic drugs, or drugs that need dose alterations when GFR reduced.
- Urine tests: dipstick for blood and quantitation of proteinuria. Presence of hematuria or proteinuria may suggest progressive renal disease.
- Imaging - exclusion of obstruction is indicated in patients with significant urinary symptoms or other things to suggest obstruction.

Management of Stage 3 CKD:

- Creatinine and potassium
- Hemoglobin - if low, exclude non-renal cause. Hemoglobin falls progressively as GFR falls, but renal anemia rarely becomes significant before stage 3B or 4 CKD.
- Urinary protein
- Blood pressure - 140/90 max (130-139/90), or 130/80 max (120-129/80) for patients with proteinuria.
- Cardiovascular risk - advice on smoking, exercise and lifestyle. Consider cholesterol lowering therapy if already have macrovascular disease, or if estimated 10 year risk of cardiovascular events $\geq 20\%$.
- Immunization - influenza and pneumococcal
- Medication review - regular review of medication to minimize nephrotoxic drugs (particularly non steroidal anti inflammatory drugs) and ensure doses of others are appropriate to renal function.