Primary Care Services

Cauldwell Medical Centre
Chronic Kidney Disease Protocol
Version 1

Version	**1.0**
Approved By (sponsor group)	**QAG**
Ratified By	**Quality and Assurance Group**
Date Ratified	
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Implementation Date	
Last Review Date	**July 2024**
Next Review Date	**July2027**

Version Control Summary

Version	Date	Author	Comment
1.0	**July 2024**	**Dr Shivani Jaiswal**	

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1. INTRODUCTION

The NHS England Quality and Outcomes Framework (QOF) Guidance for 2023/24 has one indicator for Chronic Kidney Disease (CKD), which is: 'CKD005. The contractor establishes and maintains a register of patients aged 18 or over with CKD with classification of categories G3a to G5 (previously stage 3 to 5).'

The NICE Clinical Knowledge Summaries, Chronic Kidney Disease, last revised May 2023 (https://cks.nice.org.uk/topics/chronic-kidney-disease/) and NICE Visual Summary Identifying Chronic Kidney Disease in Adults (https://www.nice.org.uk/guidance/ng203/resources/visual-summary-identifying-chronic-kidney-disease-in-adults-pdf-9206256493) have been used as the references for this document.

CKD is a reduction in kidney function or structural damage or both that is present for more than 3 months. This is associated with health implications. Classification is based according to cause, GFR and proteinuria category.

Causes and risk factors of CKD and it's progression include:

- Hypertension,
- Diabetes mellitus,
- Glomerular disease,
- Cardiovascular disease (CVD),
- Acute kidney injury,
- Nephrotoxic drugs,
- Obstructive uropathy,
- Gout,
- Incidental findings of haematuria and proteinuria,
- Multisystem disease with potential renal involvement eg. Systemic lupus erythematosus, vasculitis and myeloma, and,
- A family history of CKD stage 5 or hereditary kidney disease such as Polycystic kidney disease, Alport's syndrome and familial glomerulonephritis.

There can be complications of CKD and the risk of complications increases with progression. These include:

- Acute kidney injury,
- Hypertension,
- Dislipidaemia,
- CVD,
- Renal anaemia,
- Renal mineral and bone disorder,

- Peripheral neuropathy and myopathy,
- Malnutrition,
- Malignancy,
- End stage renal disease, and
- All-cause mortality.

Maintaining an accurate register of patients with CKD at the practice will aid with improving the care of these patients.

The incidence and prevalence of CKD varies depending of the population studied, including ethnic group and socio-economic class. A UK retrospective longitudinal cohort study of data from more than 400 primary care practices in the General Practice Research Database in 2010 found the prevalence of CKD stages 3-5 was 5.9%.

On 11th April 2023, the practice population of 18 years and over was 6785 and there were 131 patients on the practice QOF CKD register. When the 5.9% prevalence rate is applied to the practice population, then the number of patients on the register should be 400.

2. CLASSIFICATION OF CKD

The following table is from NICE Clinical Knowledge Summaries, Chronic Kidney Disease, last revised May 2023 that shows the classification of CKD using eGFR and urinary ACR categories:

Table 1. Classification of CKD using eGFR and urinary ACR categories.

eGFR (mL/min/1.73 m^2)		**Urinary ACR categories (mg/mmol)**		
		< 3 Normal to mildly increased	**3–30 Moderately increased**	**> 30 Severely increased**
		A1	**A2**	**A3**
>=90 Normal and high	G1 (stage 1)	Not CKD in the absence of markers of kidney damage†	G1 A2	G1 A3
60–89 Mild reduction related to normal range for a young adult	G2 (stage 2)		G2 A2	G2 A3
45–59 Mild to moderate reduction	G3a (stage 3a)	G3a A1	G3a A2	G3a A3
30-44 Moderate to severe reduction	G3b (stage 3b)	G3b A1	G3b A2	G3b A3
15–29 Severe reduction	G4 (stage 4)	G4 A1	G4 A2	G4 A3
<15 Kidney failure	G5 (stage 5)	G5 A1	G5 A2	G5 A3
† Markers of kidney damage include albuminuria (urinary ACR more than 3 mg/mmol), urine sediment abnormalities, electrolyte and other abnormalities due to tubular disorders, abnormalities detected by histology, structural abnormalities detected by imaging, or a history of kidney transplantation. Note: a significant increase in serum creatinine, for example by more than 20%, may indicate significant renal impairment, in the presence of normal eGFR readings.				
Based on: [KDIGO, 2013; NICE, 2015a]				

3. INVESTIGATIONS AND DIAGNOSIS

When CKD is suspected, the following investigations should be organised:

- Serum creatinine and eGFR (advise person not to eat meat 12 hours before the test) and repeat within 2 weeks if eGFR is less than 60ml/min/1.73m² (unless stable). If the eGFR remains less than 60ml/min/1.73m² on repeat, and acute kidney injury has been excluded, repeat the eGFR within 3 months.
- Early morning urine albumin:creatinine ratio (ACR) should be arranged and if the result is less than 3.0mg/mmol, no action is needed. If it is between 3-70mg/mmol, repeat within 3 months. A result of 70mg/mmol or more indicates significant proteinuria and does not need to be repeated.
- Urine dipstick should also be carried out to check for haematuria. If there is 1+ or more of blood on dipstick, a mid-stream urine sample should be sent to the laboratory to exclude an urinary tract infection (UTI) and be managed accordingly. If there is isolated persistent haematuria (two out of three dipstick tests show 1+ or more of blood after exclusion of UTI) with no decrease in eGFR and no proteinuria please look at the guidance for urological cancers.

A diagnosis of CKD can be made if there is persistent reduction in eGFR (eGFR less than 60ml/min/1.73m²) and/or proteinuria (urinary ACR greater than 3mg/mmol) lasting for at least 3 months. Be aware that a significant increase in serum creatinine eg. by more than 20% may indicate severe renal impairment in the presence of normal eGFR.

Assess for cardiovascular risk factors eg. BMI, BP, Lipids and HbA1c.

Consider requesting a renal tract ultrasound scan eg. if suspecting urinary tract stones or obstruction, or a family history of polycystic kidney disease and is aged over 20 years old.

4. CODING OF CKD

Once a diagnosis of CKD has been made, it should be coded using a code that will put the patient on the QOF CKD register. This can be found using the Arden's Chronic Kidney Disease template in SystmOne. For simplicity, the practice team collectively agreed that codes for the stages as follows should be used in order to help improve the coding of CKD. These are:

- Chronic Kidney Disease Stage 3 (XaLHI),
- Chronic Kidney Disease Stage 3A (XaNbn),
- Chronic Kidney Disease Stage 3B (XaNbo),
- Chronic Kidney Disease Stage 4 (XaLHJ), and
- Chronic Kidney Disease Stage 5 (XaLHK).

5. MONITORING FOR DISEASE PROGRESSION AND COMPLICATIONS

Check serum creatinine, eGFR and urinary ACR to identify accelerated progression of CKD which is indicated by a sustained decrease in eGFR of 25% or more from baseline and a change in CKD category within 12 months, or a sustained decrease in eGFR of 15ml/min/1.73m² within 12 months. To assess the rate of progression, repeat the serum eGFR three times over at least 3 months. If present, assess for reversible causes, arrange a renal tract ultrasound scan and refer to the nephrologist. Monitor for the development or progression of CKD for at least 2-3 years after an episode of AKI, even if the serum creatinine has returned to baseline.

The following table is from NICE Clinical Knowledge Summaries, Chronic Kidney Disease, last revised May 2023 that shows the recommended frequency of eGFR monitoring for people with or at risk of CKD. More frequent monitoring may be needed in people with previous variable or erratic renal function. Less frequent monitoring may be needed for those with stable results.

Table 1. Frequency of eGFR monitoring (number of times per year) for people with or at risk of CKD.

Serum eGFR (mL/min/1.73 m²)	**Urinary ACR (mg/mmol)**		
	A1 (< 3) Normal to mildly increased	A2 (3–30) Moderately increased	A3 (> 30) Severely increased
G1 >=90 Normal and high	=< 1	1	>= 1
G2 60–89 Mild reduction related to normal range for a young adult	=< 1	1	>= 1
G3a 45–59 Mild to moderate reduction	1	1	2
G3b 30–44 Moderate to severe reduction	=< 2	2	>= 2
G4 15–29 Severe reduction	2	2	3
G5 <15 End-stage kidney failure	4	>=4	>=4
Data from: [NICE, 2015a]			

Check for anaemia (arrange FBC) in stages 3b, 4 and 5 or in people who develop symptoms of anaemia. Consider checking for anaemia (arrange FBC) in stages 1, 2, 3a if clinically suspected. Arrange for serum calcium, phosphate, vitamin D and parathyroid hormone in stages 4 or 5. Consider checking serum parathyroid hormone and vitamin D in stages 1,2, 3a and 3b if bone disease is suspected clinically.

Arrange an urgent two week wait referral if there is isolated persistent haematuria and a urological cancer is suspected.

Arrange a Nephrology referral the urgency of which depends on clinical judgement, if there is:

- A 5 year risk of needing renal replacement therapy of greater than 5% (measure using the 4-variable Kidney Failure Risk Equation and the link for this is available on the Arden's Chronic Kidney Disease template in SystmOne),
- An eGFR of less than 30ml/min/1.73m²,
- Accelerated progression of CKD. Urine ACR of 70mg/mmol or more unless known to be associated with diabetes mellitus and managed appropriately.

- Urine ACR of 30mg/mmol or more with persistent haematuria after UTI has been excluded.
- Hypertension that remains uncontrolled with at least 4 antihypertensives at therapeutic dose.
- A suspected or confirmed rare or genetic cause of CKD.
- Suspected renal artery stenosis which should be suspected if there is a greater than 25% reduction in eGFR within 3 months of starting (or increasing the dose of) a renin-angiotensin system antagonist, refractory hypertension, pulmonary oedema and/or renal artery bruit.
- A suspected complication of CKD.

Arrange an Urology referral if there is a suspected urinary tract obstruction.

6. OTHER MANAGEMENT IN PRIMARY CARE

Assess for and manage risk factors and co-morbidities of CKD including underlying causes and risk factors of progression of CKD, lifestyle risk factors, anxiety and depression, risk of CVD and reduce/stop potential nephrotoxic drugs that may cause AKI in severe intercurrent illness.

Assess for hypertension. If no history of diabetes mellitus:

- Urine ACR less than 30mg/mmol and hypertension manage as without CKD.
- Urine ACR 30mg/mmol or more and hypertension use ACEI or ARB depending on contraindications (CI)/cautions/allergies/drug interactions.
- Urine ACR less than 70mg/mmol, blood pressure (BP) target less than 140 (120-139) /less than 90.
- Urine ACR greater than or equal to 70mg/mmol, target bp less than 130 (120-129)/less than 80.
- If hypertension uncontrolled despite at least 4 antihypertensives at therapeutic doses refer to nephrology.

If urine ACR 70mg/mmol or more irrespective of BP or CVD, prescribe ACEI or ARB depending on CI/cautions/allergies/drug interactions and refer unless known to be associated with diabetes mellitus and managed appropriately.

If a person has diabetes mellitus, the BP targets are as follows:

- Urine ACR less than 70mg/mmol then clinic bp less than 140(120-139)/less than 90,
- Urine ACR 70mg/mmol or more then clinic bp less than 130 (120-129)/less than 80,
- If aged 80 or more regardless of ACR then bp less than 150(140-149)/less than 90.
- Optimise blood glucose control.

For all people with CKD, offer atorvastatin 20mg for primary or secondary prevention of CVD. Increase the dose if greater than 40% reduction in non-HDL cholesterol is not achieved and eGFR is 30ml/min/1.73m² or more. If the eGFR less than 30ml/min/1.73m² then agree the use of higher doses with the renal specialist.

Consider prescribing dapagliflozin for CKD if it is an add-on to optimised standard care including the highest tolerated dose of ACEI or ARB, unless these are contraindicated, and people have an eGFR of 25ml/min/1.73m² to 75ml/min/1.73m² at the start of treatment and have Type 2 diabetes and an ACR of 22.6mg/mmol or more.

Offer immunisations for influenza and pneumococcal disease if appropriate.

7. REFERENCES

- NHS England, Quality and Outcomes Framework Guidance for 2023/24, Publication reference: PRN00289 https://www.england.nhs.uk/wp-content/uploads/2023/03/PRN00289-quality-and-outcomes-framework-guidance-for-2023-24.pdf
- NICE Clinical Knowledge Summaries, Chronic Kidney Disease, last revised May 2023. https://cks.nice.org.uk/topics/chronic-kidney-disease/
- NICE Visual summary for Identifying Chronic Kidney Disease in Adults https://www.nice.org.uk/guidance/ng203/resources/visual-summary-identifying-chronic-kidney-disease-in-adults-pdf-9206256493

APPENDIX

On the following page, is a visual summary for Identifying Chronic Kidney Disease in Adults from NICE: https://www.nice.org.uk/guidance/ng203/resources/visual-summary-identifying-chronic-kidney-disease-in-adults-pdf-9206256493

NHS East London NHS Foundation Trust

Appendix 1

Identifying chronic kidney disease in adults

NICE National Institute for Health and Care Excellence