

# Identification of CKD

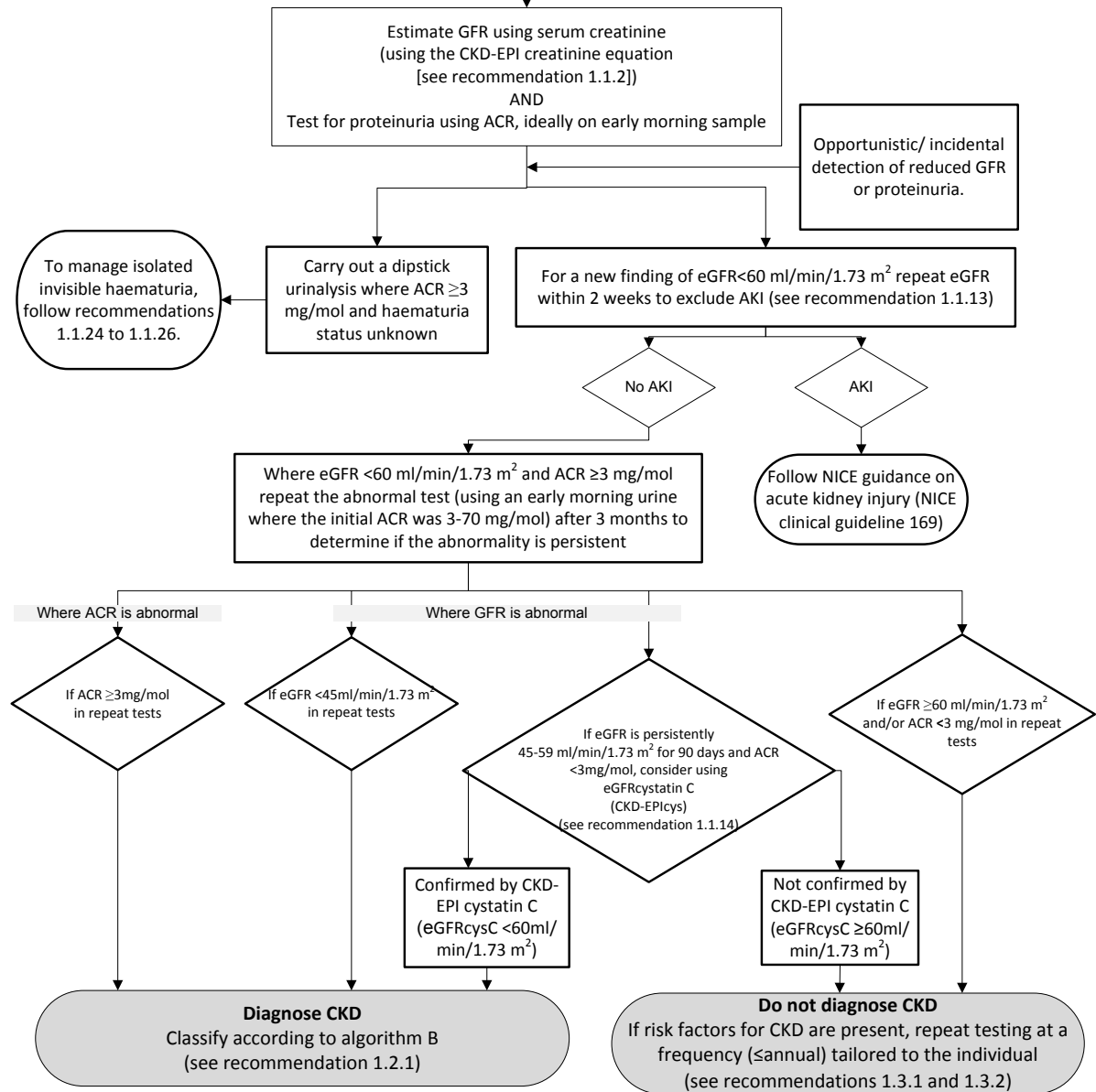
## Algorithm A

Offer testing for CKD using eGFR/creatinine and ACR to people with any of the following risk factors:

- diabetes
- hypertension
- acute kidney injury
- cardiovascular disease (ischaemic heart disease, chronic heart failure, peripheral vascular disease or cerebral vascular disease)
- structural renal tract disease, recurrent renal calculi or prostatic hypertrophy
- multisystem diseases with potential kidney involvement - for example, systemic lupus erythematosus
- family history of end-stage kidney disease (GFR category G5) or hereditary kidney disease
- opportunistic detection of haematuria.

Monitor eGFR at least annually in people prescribed drugs known to be nephrotoxic.

(see recommendations 1.1.27 and 1.1.28)



Abbreviations: ACR = albumin creatinine ratio; AKI = acute kidney injury; CKD = chronic kidney disease; CKD-EPI= chronic kidney disease epidemiology collaboration); eGFR = estimated glomerular filtration rate; G5=eGFR<15ml/min/1.73m²

Classification and referral for specialist assessment

Algorithm B

				ACR categories (mg/mmol)			
				Description and range			
				A1	A2	A3	
				Normal to mildly increased	Moderately increased	Severely increased	
				<3	3–30	>30	
GFR categories (ml/min/1.73m <sup>2</sup> ) Description and range	G1	Normal and high	≥90	No CKD in the absence of markers of kidney damage	<p><b>Manage in primary care according to recommendations (see algorithm C)</b></p> <p><b>Refer for specialist assessment if the person has:</b></p> <ul style="list-style-type: none"> <li>- a sustained decrease in GFR of 25% or more and a change in GFR category or sustained decrease in GFR of 15 ml/min/1.73 m<sup>2</sup> or more within 12 months</li> <li>- hypertension that remains poorly controlled despite the use of at least 4 antihypertensive drugs at therapeutic doses (see also 'Hypertension' NICE clinical guideline 127)</li> <li>- known or suspected rare or genetic causes of CKD</li> <li>- suspected renal artery stenosis</li> </ul> <p><b>Refer for specialist assessment if the person has any of the criteria in A2, or:</b></p> <ul style="list-style-type: none"> <li>- ACR 70 mg/mmol or more, unless known to be caused by diabetes and already appropriately treated</li> <li>- haematuria</li> </ul>		
	G2	Mild reduction related to normal range for a young adult	60–89				
	G3a	Mild–moderate reduction	45–59				
	G3b	Moderate–severe reduction	30–44				
	G4	Severe reduction	15–29	Refer for specialist assessment			
	G5	Kidney failure	<15				

For guidance on frequency of GFR monitoring, see recommendation 1.3.2 in the NICE guideline. For guidance on referral, see also recommendations 1.5.1 to 1.5.5

Abbreviations: ACR, albumin creatinine ratio; CKD, chronic kidney disease; GFR, glomerular filtration rate.

## Classification and referral for specialist assessment

### Algorithm C

GFR category (ml/min/1.73m <sup>2</sup> )				
GFR ≥60	GFR 45–59	GFR 30–44	GFR 15–29	GFR <15
<p><b>Identify and delay progression (see section 1.1 of the NICE guideline)</b>                      Identify those at risk of progression (presence of cardiovascular disease; proteinuria; acute kidney injury, hypertension; diabetes; smoking; African-Caribbean or Asian family origin; chronic use of NSAIDs; untreated urinary outflow tract obstruction) and work with them to optimise their health (recommendation 1.3.7 in the NICE guideline)                      Assess risk of adverse outcomes using GFR and ACR category</p> <p>Offer a low-cost renin–angiotensin–aldosterone system antagonist (see recommendation 1.6.3 in the NICE guideline) to people with CKD and:</p> <ul style="list-style-type: none"> <li>diabetes and an ACR of 3 mg/mmol or more (ACR category A2 or A3)</li> <li>hypertension and an ACR of 30 mg/mmol or more (ACR category A3)</li> <li>an ACR of 70 mg/mmol or more (irrespective of hypertension or cardiovascular disease).</li> </ul> <p>Control blood pressure (see recommendations 1.6.1 and 1.6.2 in the NICE guideline) to targets of:</p> <ul style="list-style-type: none"> <li>120–139/&lt;90 mmHg in people without diabetes with ACR &lt; 70 mg/mmol</li> <li>120–129/&lt;80 mmHg in people with diabetes or with ACR ≥ 70 mg/mmol</li> </ul>				
<p><b>Modify comorbidities (see sections 1.3 and 1.4 of the NICE guideline)</b>                      Reduce risk of cardiovascular disease (control blood pressure; use antiplatelet therapy where indicated) (see recommendations 1.6.3, 1.6.5 and 1.6.16)                      Follow the recommendations in Lipid modification (NICE clinical guideline 181) for the use of statins in CKD                      Manage diabetes according to Type 1 diabetes and Type 2 diabetes (NICE clinical guidelines 15 and 87)                      Encourage people to exercise, achieve a healthy weight and stop smoking (recommendation 1.4.6)                      Prevent and treat osteoporosis (recommendation 1.7.3) in people with CKD (offer bisphosphonates if indicated in people with a GFR of 30 ml/min/1.73 m<sup>2</sup> or more [GFR category G1, G2 or G3])</p> <p>If vitamin D supplementation is indicated (recommendation 1.7.5 and 1.7.6) in people with CKD:</p> <ul style="list-style-type: none"> <li>offer colecalciferol or ergocalciferol to people who also have vitamin D deficiency</li> <li>offer alfacalcidol (1<math>\alpha</math>-hydroxycholecalciferol) or calcitriol (1-25-dihydroxycholecalciferol) to people with GFR &lt;30 ml/min/1.73m<sup>2</sup> if vitamin D deficiency has been corrected and symptoms of CKD–mineral and bone disorders persist</li> </ul>				
		<p><b>Education and information</b>                      Offer education and information (see recommendation 1.4.2 of the NICE guideline) to enable people with CKD to understand:</p> <ul style="list-style-type: none"> <li>What CKD is and how it can affect them</li> <li>What questions they should ask about their kidneys</li> <li>The advantages and disadvantages of the treatments that are available</li> <li>How they can manage their own condition</li> <li>The social and financial impact of CKD and the benefits/allowances available</li> <li>How to adjust psychologically to a diagnosis of CKD and where to find help</li> </ul> <p>Ensure systems are in place to enable people to share in decision-making about their care, and support self-management (recommendation 1.4.10)</p>		
		<p><b>Prevent uraemic complications (see recommendation 1.7.8 of NICE guideline)</b>                      Check haemoglobin in people with GFR &lt;45 ml/min/1.73m<sup>2</sup> to identify anaemia                      Consider oral sodium bicarbonate supplementation for people with both a GFR &lt;30 ml/min/1.73m<sup>2</sup> and a serum bicarbonate concentration of &lt;20 mmol/litre                      Measure serum calcium, phosphate and parathyroid hormone concentrations in people with a GFR &lt;30 ml/min/1.73m<sup>2</sup> (recommendation 1.7.2)</p>		
		<p><b>Education about treatment options for category G5 CKD and preparation for renal replacement therapy (see section 1.4 of the NICE guideline)</b>                      Explain to people the importance of:</p> <ul style="list-style-type: none"> <li>Informed choice</li> <li>Creating a fistula or inserting a peritoneal catheter</li> <li>Timely renal replacement treatment (recommendation 1.4.2)</li> <li>Conservative management and when it may be considered</li> </ul>		

Abbreviations: ACR, albumin creatinine ratio; CKD, chronic kidney disease; GFR, glomerular filtration rate.