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

Offer testing for CKD using eGFRcreatinine 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)

**Identification of CKD**

Offer testing for CKD using eGFRcreatinine 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)

**Algorithm A**

1. **Estimate GFR using serum creatinine**
   - (using the CKD-EPI creatinine equation [see recommendation 1.1.2])
   - AND
   - Test for proteinuria using ACR, ideally on early morning sample

2. **Opportunistic/ incidental detection of reduced GFR or proteinuria.**

3. **Carry out a dipstick urinalysis where ACR ≥ 3 mg/mmol and haematuria status unknown.**

4. **For a new finding of eGFR<60 ml/min/1.73 m² repeat eGFR within 2 weeks to exclude AKI (see recommendation 1.1.13)**

   - **No AKI**
   - **AKI**

5. **Where GFR < 60 ml/min/1.73 m² and ACR ≥ 3 mg/mmol repeat the abnormal test (using an early morning urine where the initial ACR was 3-70 mg/mmol) after 3 months to determine if the abnormality is persistent.**

6. **Where ACR is abnormal**
   - **If ACR ≥ 3 mg/mmol in repeat tests**
   - **If eGFR < 45 ml/min/1.73 m² in repeat tests**

7. **Where GFR is abnormal**
   - **If eGFR is persistently 45-59 ml/min/1.73 m² for 90 days and ACR < 3 mg/mmol, consider using eGFrystatin C (CKD-EPIcys)**
   - (see recommendation 1.1.14)
   - **Confirmed by CKD-EPI cystatin C (eGFrystatin C < 60 ml/min/1.73 m²)**
   - **Not confirmed by CKD-EPI cystatin C (eGFrystatin C ≥ 60 ml/min/1.73 m²)**

8. **Diagnose CKD**
   - **Classify according to algorithm B**
   - (see recommendation 1.2.1)

9. **Do not diagnose CKD**
   - **If risk factors for CKD are present, repeat testing at a frequency (annual) tailored to the individual**
   - (see recommendations 1.3.1 and 1.3.2)

**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
## Classification and referral for specialist assessment

<table>
<thead>
<tr>
<th>ACR categories (mg/mmol)</th>
<th>Description and range</th>
<th>GFR categories (ml/min/1.73m²)</th>
<th>Description and range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Normal to mildly increased</td>
<td>G1</td>
<td>Normal and high</td>
</tr>
<tr>
<td>A2</td>
<td>Moderately increased</td>
<td>G2</td>
<td>Mild reduction related to normal range for a young adult</td>
</tr>
<tr>
<td>A3</td>
<td>Severely increased</td>
<td>G3a</td>
<td>Mild–moderate reduction</td>
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<tr>
<td></td>
<td></td>
<td>G3b</td>
<td>Moderate–severe reduction</td>
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<tr>
<td></td>
<td></td>
<td>G4</td>
<td>Severe reduction</td>
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<tr>
<td></td>
<td></td>
<td>G5</td>
<td>Kidney failure</td>
</tr>
</tbody>
</table>

### Manage in primary care according to recommendations (see algorithm C)

- No CKD in the absence of markers of kidney damage

### Refer for specialist assessment if the person has:

- 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 m² or more within 12 months
- hypertension that remains poorly controlled despite the use of at least 4 antihypertensive drugs at therapeutic doses (see also ‘Hypertension’ NICE clinical guideline 127)
- known or suspected rare or genetic causes of CKD
- suspected renal artery stenosis

### Refer for specialist assessment if the person has any of the criteria in A2, or:

- ACR 70 mg/mmol or more, unless known to be caused by diabetes and already appropriately treated
- haematuria

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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

<table>
<thead>
<tr>
<th>GFR category (ml/min/1.73m²)</th>
<th>Identify and delay progression (see section 1.1 of the NICE guideline)</th>
<th>Modify comorbidities (see sections 1.3 and 1.4 of the NICE guideline)</th>
<th>Education and information</th>
<th>Prevent uraemic complications (see recommendation 1.7.8 of NICE guideline)</th>
<th>Education about treatment options for category G5 CKD and preparation for renal replacement therapy (see section 1.4 of the NICE guideline)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFR ≥60</td>
<td>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)</td>
<td>Offer a low-cost renin–angiotensin–aldosterone system antagonist (see recommendation 1.6.3 in the NICE guideline) to people with CKD and: - diabetes and an ACR of 3 mg/mmol or more (ACR category A2 or A3) - hypertension and an ACR of 30 mg/mmol or more (ACR category A3) - an ACR of 70 mg/mmol or more (irrespective of hypertension or cardiovascular disease).</td>
<td>Offer education and information (see recommendation 1.4.2 of the NICE guideline) to enable people with CKD to understand: - What CKD is and how it can affect them - What questions they should ask about their kidneys - The advantages and disadvantages of the treatments that are available - How they can manage their own condition - The social and financial impact of CKD and the benefits/allowances available - How to adjust psychologically to a diagnosis of CKD and where to find help Ensure systems are in place to enable people to share in decision-making about their care, and support self-management (recommendation 1.4.10)</td>
<td>Check haemoglobin in people with GFR &lt;60 ml/min/1.73m² to identify anaemia Consider oral sodium bicarbonate supplementation for people with both a GFR &lt;30 ml/min/1.73m² 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/1.73m² (recommendation 1.7.2)</td>
<td>Explain to people the importance of: - Informed choice - Creating a fistula or inserting a peritoneal catheter - Timely renal replacement treatment (recommendation 1.4.2) - Conservative management and when it may be considered</td>
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<tr>
<td>GFR 45–59</td>
<td>Assess risk of adverse outcomes using GFR and ACR category</td>
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<td>GFR 30–44</td>
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<td>GFR 15–29</td>
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<td>GFR &lt;15</td>
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</table>

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