

Anaemia management in people with chronic kidney disease overview

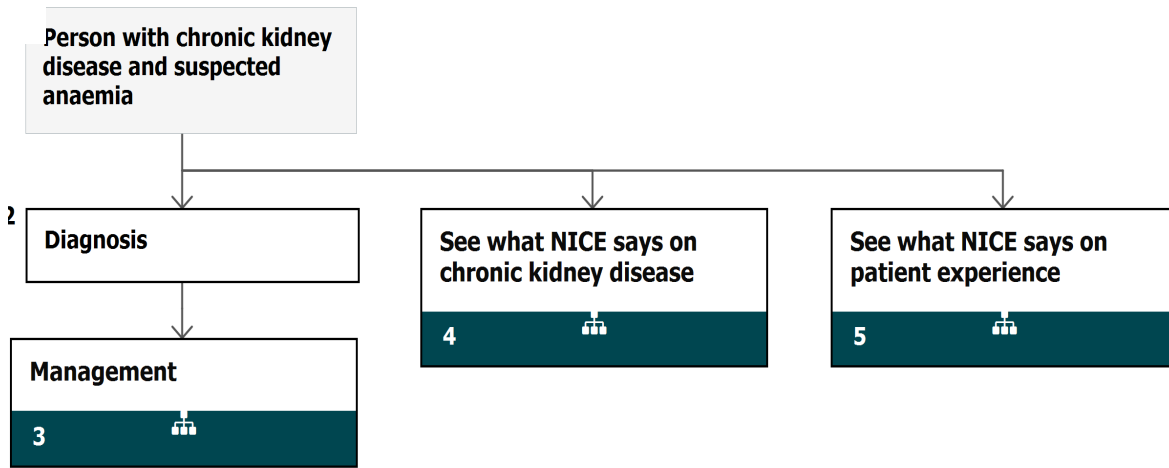
NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

They are updated regularly as new NICE guidance is published. To view the latest version of this NICE Pathway see:

<http://pathways.nice.org.uk/pathways/anaemia-management-in-people-with-chronic-kidney-disease>

NICE Pathway last updated: 26 July 2017

This document contains a single flowchart and uses numbering to link the boxes to the associated recommendations.



1 Person with chronic kidney disease and suspected anaemia

No additional information

2 Diagnosis

Consider investigating and managing anaemia in people with CKD if:

- their Hb level falls to 110 g/litre or less (or 105 g/litre or less if younger than 2 years) **or**
- they develop symptoms attributable to anaemia (such as tiredness, shortness of breath, lethargy and palpitations).

An eGFR of less than 60 ml/min/1.73m² should trigger investigation into whether anaemia is due to CKD. When the eGFR is greater than or equal to 60 ml/min/1.73m² the anaemia is more likely to be related to other causes.

Carry out testing to diagnose iron deficiency and determine potential responsiveness to iron therapy and long-term iron requirements every 3 months (every 1–3 months for people receiving haemodialysis) (see [diagnostic tests to determine iron status and predict response to iron therapy](#) [See page 5]).

- Use percentage of hypochromic red blood cells (%HRC; more than 6%), but only if processing of blood sample is possible within 6 hours.
- If using %HRC is not possible, use reticulocyte haemoglobin content (less than 29 pg) or equivalent tests – for example, reticulocyte haemoglobin equivalent.
- If these tests are not available or the person has thalassaemia or thalassaemia trait, use a combination of transferrin saturation (less than 20%) and serum ferritin measurement (less than 100 micrograms/litre).

Do not request transferrin saturation or serum ferritin measurement alone to assess iron deficiency status in people with anaemia of CKD.

Do not routinely consider measurement of erythropoietin levels for the diagnosis or management of anaemia in people with anaemia of CKD.

Age alone should not be a determinant for treatment of anaemia of CKD.

3 Management

[See Anaemia management in people with chronic kidney disease / Managing anaemia in people with chronic kidney disease](#)

4 See what NICE says on chronic kidney disease

[See Chronic kidney disease](#)

5 See what NICE says on patient experience

[See Patient experience in adult NHS services](#)

Diagnostic tests to determine iron status and predict response to iron therapy

Anaemia management in people with chronic kidney disease NG8 contains new recommendations on diagnostic tests (see [diagnosis](#) [See page 3]). The anticipated national savings of using the newly recommended tests are discussed in the costing statement. The increased use of percentage of hypochromic red blood cells (HRC) tests is likely to lead to more accurate diagnosis, as a result of the considerably higher sensitivity and specificity of HRC testing. The table below indicates test accuracy and estimated cost. This may be useful for clinicians in primary and secondary care responsible for requesting the recommended tests. It could also help to support a change to electronic pathology ordering systems and provide a rationale for purchasing new lab analysers. **For further details, please see full guideline section 4.3.**

Test strategy	Sensitivity	Specificity	Estimated laboratory charge per test (£)
Use percentage of hypochromic red blood cells (% HRC; more than 6% only if processing of blood sample is possible within 6 hours)	82%	95%	3.04
If using percentage of hypochromic red blood cells is not possible, use reticulocyte haemoglobin content (less than 29 pg) or equivalent tests, for example, reticulocyte haemoglobin equivalent.	57%	93%	4.71
If the above tests are not available or the person has thalassaemia or thalassaemia trait, use a combination of transferrin saturation (less than 20%) and serum ferritin measurement (less than 100 micrograms/litre).	Transferrin saturation	64%	6.18
	Serum ferritin (SF)	81%	5.11

	39%		
Do not request transferrin saturation or serum ferritin measurement alone to assess iron deficiency status in people with anaemia of CKD.			

Glossary

ACE

angiotensin-converting enzyme

CKD

chronic kidney disease

ESA

erythropoiesis-stimulating agent

ESAs

erythropoiesis-stimulating agents

eGFR

estimated glomerular filtration rate

GMC's

General Medical Council's

Hb

haemoglobin

high-dose low-frequency

maximum of 2 infusions – for adults a minimum of 500 mg of iron in each infusion

%HRC

percentage hypochromic red cells

low-dose and high-frequency

more than 2 infusions – for adults typically a dose of between 100 to 200 mg of iron in each infusion

MHRA

Medicines and Healthcare products Regulatory Agency

pre-dialysis

includes people with a failing transplant and people having conservative management

PRCA

pure red cell aplasia

primary

Healthcare delivered outside hospitals. It includes a range of services provided by GPs, nurses, health visitors, midwives and other healthcare professionals and allied health professionals such as dentists, pharmacists and opticians. It includes community clinics, health centres and walk-in centres.

secondary

Healthcare provided in hospitals. It includes accident and emergency departments, outpatient departments, antenatal services, genitourinary medicine and sexual health clinics.

Sources

[Chronic kidney disease: managing anaemia \(2015\) NICE guideline NG8](#)

Your responsibility

Guidelines

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Technology appraisals

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take these recommendations fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this interactive flowchart is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Commissioners and/or providers have a responsibility to provide the funding required to enable the recommendations to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to

have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Medical technologies guidance, diagnostics guidance and interventional procedures guidance

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take these recommendations fully into account. However, the interactive flowchart does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Commissioners and/or providers have a responsibility to implement the recommendations, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this interactive flowchart should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.