

Transfusion management approach in non-bleeding adult patients: avoiding the risks of mismanagement in severe chronic anaemia. An update of the NBTC Indication Codes.

Avoidable transfusions and inappropriate volume of red cell transfusions are significant risks for TACO. SHOT has received several cases where this has contributed to patient deaths and major morbidity.

Patients with severe chronic anaemia are especially vulnerable. SHOT data have shown that severe anaemia is an independent risk factor for TACO (Narayan, et al., 2019) and these patients are vulnerable to over-transfusion leading to TACO-related deaths and major morbidity.

The NBTC indication codes were recently reviewed against current evidence and re-published [<https://nationalbloodtransfusion.co.uk/sites/default/files/documents/2024-10/NBTC-indication-codes-V3-2024.pdf>]. The red cell codes R1-R6 have refreshed descriptions but remain broadly the same. **The main change is the addition of the R7 code which was introduced to highlight the appropriate management of patients with severe chronic anaemia.** It was clear from SHOT data that more needed to be done to help protect this vulnerable patient group from TACO.

Red cell concentrates	
R1	Acute bleeding
R2	Acute anaemia (e.g. following bleeding/ surgery/ critical illness) – haemodynamically stable patient and Hb ≤ 70 g/l
R3	Anaemia – haemodynamically stable patient with acute coronary syndrome (excluding stable ischaemic heart disease) and Hb ≤ 80 g/l
R4	<ul style="list-style-type: none"> Chronic transfusion-dependent anaemia
R4a	<ul style="list-style-type: none"> Chronic bone marrow failure
R4b	<ul style="list-style-type: none"> Haemoglobinopathies
R5	Radiotherapy and Hb ≤ 100 g/l
R6	Exchange transfusion
R7	Severe chronic anaemia: non-transfusion dependent (e.g. haematinic deficiency, anaemia of chronic disorder)

Accurate identification of the cause of anaemia is a critical step in safe and appropriate transfusion management. Acute anaemia is defined as anaemia of recent onset which is caused by bleeding, surgery, or critical illness in a haemodynamically stable patient. It

corresponds to NBTC indication codes R2 and R3, the latter in the context of acute coronary syndrome. This contrasts with transfusion-dependent anaemia (R4) which may be caused by bone marrow failure or haemoglobinopathy, and severe chronic anaemia (e.g., caused by haematinic deficiency, or anaemia of chronic disease) (NBTC, 2024).

There is no universal Hb trigger or target for severe chronic anaemia (R7). Physiological compensation means transfusion is not likely to be required if the Hb is >70g/L. The transfusion of a single unit may be indicated to alleviate symptoms in severe anaemia (Hb <70g/L) or prevent the acute complications of severe anaemia while the underlying cause is treated e.g., iron replacement in iron deficiency anaemia.

It is important that clinicians authorising transfusion understand the rationale for different approaches to transfusion management, and the risks of not recognising acute versus chronic anaemia. The presence of acute coronary syndrome and cardiac ischaemia in acute and chronic anaemia present additional challenges and risks.

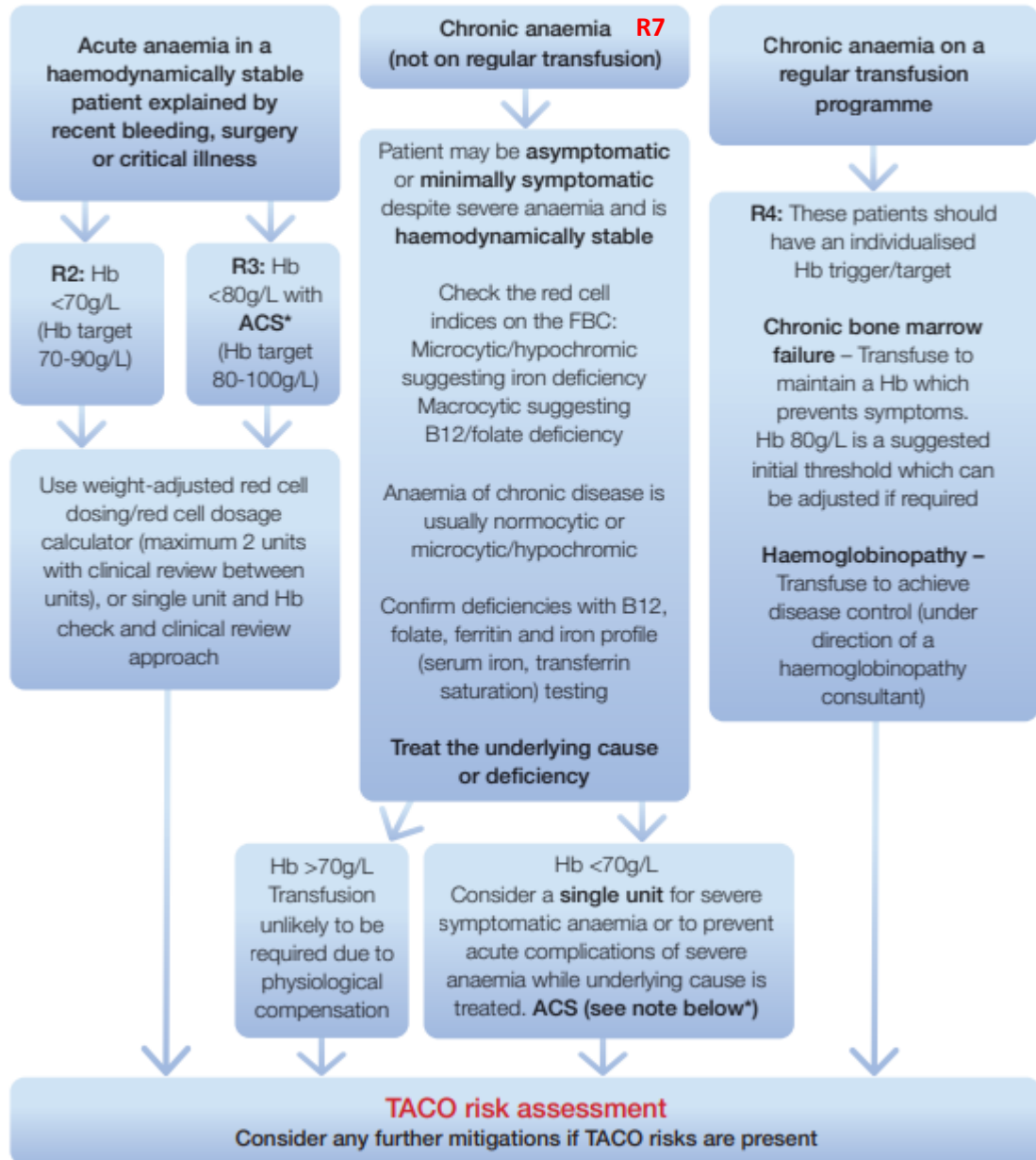
The decision to transfuse further units to achieve a higher Hb target in a patient with acute coronary syndrome/cardiac ischaemia should be balanced against the increased risk of TACO and exacerbation of heart failure. Strategies that support this such as education, training and process-embedded guidelines are key components of safe decision-making in transfusion.

The infographic below describes the transfusion management approach for non-bleeding adult patients and details the specific approach that should be adopted for patients with severe chronic anaemia (code R7).

[You can find the infographic online here.](#)

Anaemia in a non-bleeding adult patient: transfusion management

WHAT IS THE CAUSE OF THE ANAEMIA? – CRITICAL STEP



*The decision to transfuse further units to achieve a higher Hb target in a patient with ACS/cardiac ischaemia should be balanced against the increased risk of TACO and exacerbation of heart failure

ACS=acute coronary syndrome; FBC=full blood count; Hb=haemoglobin; TACO=transfusion-associated circulatory overload