



# NATIONAL CLINICAL GUIDELINE FOR TRANSFUSION USING BLOOD COMPONENTS

## Quick guide

**Use as an indication B-haemoglobin values  $< 4.3$  mmol/l and/or clinical symptoms of anaemia in hospitalised patients with a stable circulation and without heart disease when transfusion of red blood cells is being considered. Use a dose of 1 portion of red blood cells and re-evaluate.**

### Strong recommendation

The recommendation was updated without amendments in 2018.

The recommendation applies to hospitalised patients with stable circulation and with anaemia, including patients undergoing a surgical intervention. Patients with heart disease, haematological disorders and patients with life-threatening bleeding are excluded.

Increased incidence of pulmonary oedema and heart failure is seen when using a liberal transfusion trigger as compared with a restrictive trigger.

The purpose of transfusion is to relieve clinical symptoms and organ ischaemia, not to normalise the haemoglobin concentration. It is to be expected that transfusion of an erythrocyte portion will lead to an increase in the haemoglobin concentration of about 0.5 mmol/l in an adult patient weighing 60-80 kg. Clinical symptoms of anaemia include chest pain, orthostatic hypotension or tachycardia not responding to fluid treatment.

**Use as an indication B-haemoglobin values of  $< 4.7$  mmol/l and/or clinical symptoms of anaemia in patients with stable circulation and chronic heart disease when transfusion of red blood cells is being considered. Use a dose of 1 portion of red blood cells and re-evaluate.**

### Strong recommendation

The recommendation was updated and amended in 2018.

The recommendation applies to hospitalised patients with anaemia, including perioperative patients. Patients with a haematological disorder and patients with life-threatening bleeding are excluded. Clinical symptoms of anaemia include chest pain, orthostatic hypotension or tachycardia not responding to fluid treatment.

As a general rule, only 1 portion of red blood cells should be transfused at a time if the patient has a stable circulation and a B-haemoglobin value near the trigger value. The trigger value is the B-haemoglobin value that serves as a threshold for when transfusion of red blood cells is indicated, in conjunction with the clinical picture.



**It is good practice to use an individual clinical assessment and B-haemoglobin values of  $< 5.6$  mmol/l as an indication for transfusion to patients with a stable circulation and acute coronary syndrome (ACS). Use a dose of 1 portion of red blood cells and re-evaluate.**

Good practice

An update of the recommendation was not considered necessary in 2017.

Please note that transfusion of red blood cells should not be used in patients with a stable circulation and without current ischaemia (e.g. following ACS-related revascularisation) with a B-haemoglobin value of  $>4.7$  mmol/L.

**Use TEG<sup>®</sup>/ROTEM<sup>®</sup> for monitoring of haemostasis in bleeding patients when platelet and plasma transfusion is being considered.**

Strong recommendation

The recommendation was updated without amendments in 2018.

**For intended curative treatment consider use of a restrictive transfusion strategy with a transfusion trigger of  $<4.3$  mmol/l in patients with a malignant haematological disorder.**

Weak recommendation

The recommendation was updated and amended in 2018.

**It is good practice to base transfusion of red blood cells in haematology patients with a malignant disorder not undergoing curatively intended treatment on an individual assessment after documentation of anaemia symptoms, as a general, precise transfusion trigger cannot be recommended.**

**Determination and documentation of a transfusion trigger should be sought for every single patient, based on an individual assessment of the effect of blood transfusion.**

Good practice

An update of the recommendation was not considered necessary in 2017.

The systematic review of the literature did not result in any evidence for a general recommendation in favour of transfusion when the haemoglobin value is  $>5.6$  mmol/l, but there is no solid documentation for use of this limit in patients with haematological diseases. The Danish Health Authority's Guideline concerning Blood Transfusion of 2007 stated a trigger haemoglobin value of  $>6.0$  mmol/l, though this was also based on an expert consensus.



**Consider using a platelet value of  $<10 \times 10^9/l$  rather than higher values ( $20-30 \times 10^9/l$ ) as an indication for prophylactic platelet transfusion in haematology patients with cytostatics-induced thrombocytopenia during chemotherapy, including in connection with allogenic and autologous bone-marrow transplantation.**

Good practice

An update of the recommendation was not considered necessary in 2017.

A transfusion trigger of  $<10 \times 10^9/l$  should not be used in the event of ongoing bleeding or the following risk factors for bleeding: Fever, sepsis, splenomegaly or other well-established causes of increased platelet use, drug treatment with substances that affect platelet function or coagulation defects, including in the event of promyelocytic leukaemia (PML). In this case a higher platelet value is to be set for transfusion based on a specific clinical assessment of the patient, taking into account the underlying disorder.

The use of a transfusion trigger of  $10 \times 10^9/l$  requires that the patient be admitted to a special ward for monitoring by staff with experience of haematology/trombocytopenia patients and with quick access to platelet transfusion.

**It is good practice for any transfusion of red blood cells in patients with a malignant disorder to take place in order to alleviate clinical symptoms of anaemia, and for reversible causes of anaemia to be examined and treated before transfusion of red blood cells. There is no documentation of a beneficial effect of transfusion at haemoglobin values of  $>5.6 \text{ mmol/l}$ .**

Good practice

An update of the recommendation was not considered necessary in 2017.

**Only after careful consideration should a liberal transfusion strategy be used in patients with malignant solid tumours as a preliminary treatment prior to radiotherapy, as there is no documented beneficial effect, whilst there are documented adverse effects of blood transfusion.**

Weak Recommendation

An update of the recommendation was not considered necessary in 2017.

**Consider a red blood cell:plasma:platelet ratio equivalent to whole blood for transfusion in patients with life-threatening bleeding.**

Weak recommendation

The recommendation was updated without amendments in 2018.

Balanced blood-component treatment is to be initiated as early as possible (defined as  $<15 \text{ min}$ ) in connection with life-threatening bleeding.



## About the quick guide

The quick guide contains the key recommendations in the national clinical guideline on indication for blood-component transfusion. The guideline was prepared under the auspices of the Danish Health Authority.

The focus of the national clinical guideline is provision of knowledge-based national recommendations for blood transfusion.

The guideline contains recommendations regarding selected parts of the area. It cannot stand alone, but must be seen in conjunction with other guidelines, process descriptions etc. in the area.

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### **Further information at sundhedsstyrelsen.dk**

On the Danish Health Authority's website ([www.sst.dk](http://www.sst.dk)) the full version of the national clinical guideline is available, including a detailed review of the underlying evidence for the recommendations.

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### **About the national clinical guidelines**

This national clinical guideline is one of the Danish Health Authority's 47 national clinical guidelines that were assessed in terms of updating during the period 2017-2020.

Further material regarding the choice of subjects, method and process is to be found at [www.sst.dk](http://www.sst.dk)

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