

Platelet indication Algorithm

developed using Guidelines for the Use of Platelet Transfusions

for full guideline see <http://www.b-s-h.org.uk/guidelines/guidelines/use-of-platelet-transfusions/>

Also can be used in conjunction with the 'Blood Component Indication App' developed by NHSBT available for free download from Apple App Store, Google Play and Windows phone store. (Search for blood components)

Prophylactic use

Prophylactic Use
(No bleeding or WHO grade 1*)
One adult dose required

No

Prophylactic Use with risk factors for bleeding?
(eg sepsis, infection, abnormalities of haemostasis etc.)

No

Platelet Transfusion Pre-procedure
To prevent bleeding with invasive procedures

P3a Central Venous Line	Plts <20x10 ⁹ /L
P3b Lumbar puncture/spinal anaesthesia	Plts <40x10 ⁹ /L
P3c Percutaneous Liver Biopsy/Major Surgery	plts <50x10 ⁹ /L
P3d Epidural Anaesthesia	Plts <80x10 ⁹ /L
P3e Critical site surgery eg CNS	Plts <100x10 ⁹ /L

No

Multiple Trauma, Brain or eye injury, spontaneous intracerebral haemorrhage?

P4b Critical site bleeding Plt <100x10⁹/L

Reversible Bone marrow failure

P1 reversible BMF Plts <10x10⁹/L
Including allogeneic Stem Cell Transplant
n.b. for reversible BMF with autologous SCT consider no prophylaxis

Yes

Reversible/chronic BMF or critical care

P2 Plts 10-20x10⁹/L

No

PLATELETS NOT INDICATED
Abnormal Platelet function
Platelet consumption/destruction e.g. DIC, TTP
Immune Thrombocytopenia (ITP, HIT, PTP)

Prior to invasive procedure or surgery

PLATELETS NOT INDICATED
Bone Marrow Biopsy/Trephine Biopsy
PICC line insertion
Traction removal of central venous catheters
Cataract surgery

Therapeutic use to treat bleeding (WHO grade 2 or above*)

Severe Bleeding?

P4a Major Haemorrhage Plt <50 x10⁹/L

No

Bleeding but not severe (WHO grade ≥2*)

P4c Clinically significant bleeding
Plt < 30x10⁹/L

Critical Illness/ITU/ICU

P1 Plts <10x10⁹/L

No

Chronic BMF

P1 Intensive therapy Plt <10x10⁹/L
P1 To prevent persistent bleeding of WHO grade ≥2 Count variable

No

PLATELETS NOT INDICATED
Chronic stable BMF
Abnormal Platelet function
Platelet consumption/destruction e.g. DIC, TTP
Immune Thrombocytopenia (ITP, HIT, PTP)

No

Specific clinical conditions[§]

P5a DIC bleeding or pre procedure
P5b Primary immune thrombocytopenia (severe bleeding/emergency pre-procedure)

Platelet Dysfunction[§]

P6a Consider if critical bleeding on anti-platelet medication
P6b Inherited platelet disorders directed by specialist in haemostasis

* WHO bleeding criteria overleaf

§ For further guidance refer overleaf

§Indication for platelet requesting for Specific clinical conditions	Transfusion indicated (threshold)	Indication code
Disseminated Intravascular Bleeding		
Pre - procedure or therapeutic use. Consider recommended threshold counts but may not be achievable and individual case review required	Use pre-procedure or therapeutic threshold as guide	P5a
Thrombotic Thrombocytopenic Purpura (TTP)		
Platelet transfusion contraindicated unless life-threatening bleeding	Count variable	P5b/6b
Immune Thrombocytopenia		
Immune thrombocytopenia Purpura (ITP), Heparin induced Thrombocytopenia (HIT), post-transfusion purpura (PTP). –Pre-procedure when other therapy ineffective/procedure urgent or to treat severe bleeding. Consider recommended threshold counts but this may be unachievable or unnecessary and individual case review required.	Use pre-procedure or therapeutic threshold as guide	P5b
Platelet Function defect		
- Congenital – Pre-procedure or therapeutic use. When alternative therapy contraindicated or ineffective. Directed by specialist in haemostasis	Count variable	P6b
- Acquired (anti-platelet agents, uraemia) – only indicated for severe bleeding		P6a

Possible alternatives to platelet transfusion

- Apply surface pressure after superficial procedures and correct surgical causes for bleeding
- Surgical patients expected to have at least a 500ml blood loss, use tranexamic acid (TXA) unless contraindicated
- Trauma patients who are bleeding/at risk of bleeding, early use of TXA
- Severe bleeding replace fibrinogen if plasma concentration less than 1.5g/l
- Anti-platelet agents –discontinue or if urgent procedure/bleeding use TXA if risk/benefit would support.
- Uraemia with bleeding or pre-procedure - dialyse, correct anaemia, consider desmopressin
- Inherited platelet function disorders – specialist haematology advice required. Consider desmopressin
- Chronic BMF with bleeding – consider TXA

Modified[‡] WHO Bleeding Grades

Grade 0 or 1 –type of bleeding includes
<ul style="list-style-type: none"> No evidence of bleeding Mild/moderate petechiae, purpura Mild/moderate oropharyngeal bleeding, epistaxis<30 minutes in duration
Grade 2 – type of bleeding includes
<ul style="list-style-type: none"> Melaena, haematemesis, haemoptysis, fresh blood in stool, musculoskeletal bleeding or soft tissue bleeding not requiring red cell transfusion within 24 hours of onset and without haemodynamic instability Profuse epistaxis or oropharyngeal bleeding i.e.>30 minutes in continuous duration Symptomatic oral blood blisters i.e. bleeding or causing discomfort Extensive petechiae, purpura i.e. numerous in number and/or positioned on either face or abdomen and/or spreading by comparison to previous assessment Visible blood in urine Bleeding from invasive sites requiring 2≥ changes of dressing in a 24 hr period Unexpected vaginal bleeding saturating 2≥ pads with blood in a 24 hr period Red cells in body cavity fluids obvious macroscopically Retinal haemorrhage with/without visual impairment
Grade 3 – type of bleeding includes
<ul style="list-style-type: none"> Melaena, haematemesis, haemoptysis, haematuria –including intermittent gross bleeding without clots, abnormal vaginal bleeding, fresh blood in stool, epistaxis, and oropharyngeal bleeding, bleeding from invasive sites, musculoskeletal bleeding, or soft tissue bleeding requiring red cell transfusion specifically for support of bleeding within 24 hours of onset and without haemodynamic instability Body cavity fluids reported as grossly bloody in laboratory, nursing or medical notes CNS bleeding noted on CT (computerized tomography) without clinical consequences
Grade 4 – type of bleeding includes
<ul style="list-style-type: none"> Debilitating bleeding including retinal bleeding with visual impairment* Non-fatal CNS bleeding with neurological signs and symptoms Bleeding associated with haemodynamic instability (hypotension, >30mm Hg change in systolic or diastolic BP) Fatal bleeding from any source
*visual impairment is defined as a field deficit, and patients with suspected visual impairment require an ophthalmologic consultation
[‡] Spreading or generalised petechiae, and nose bleeds over 30 minutes were included as WHO grade 2 bleeds. Discussions with clinicians after piloting data collections forms indicated these outcomes were considered clinically significant in patients with severe thrombocytopenia and platelet count<10x10 ⁹ /L and therefore would require platelet transfusions.