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Advances in Vascular Patient Blood Management

Nick Schofield
Consultant Anaesthetist
Royal Free London

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(Vascular) Patient Blood Management

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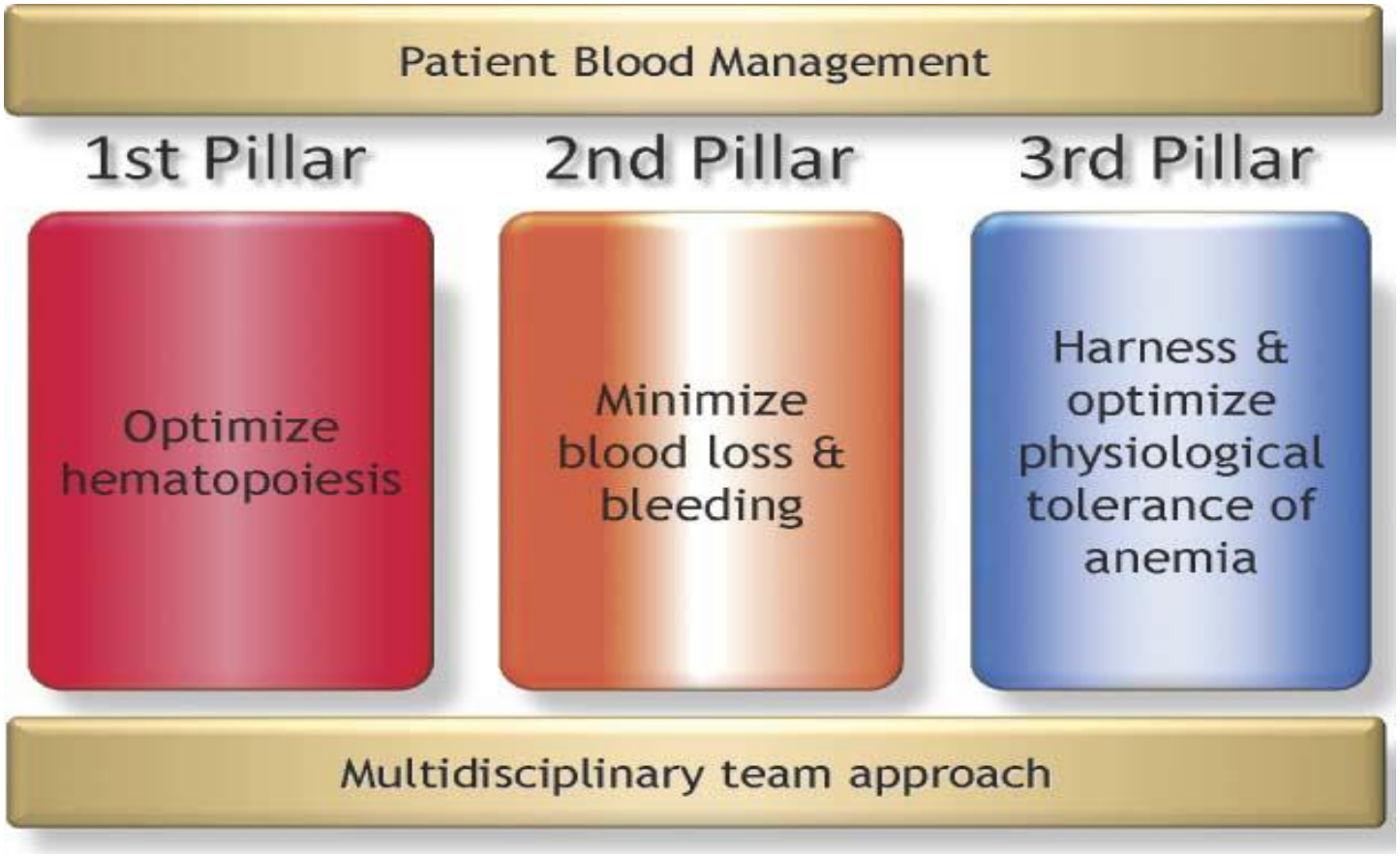
Patient Blood Management
1st Pillar
2nd Pillar
3rd Pillar
Optimize hematopoiesis
Minimize blood loss & bleeding
Harness & optimize physiological tolerance of anemia
Multidisciplinary team approach

ROYAL FREE HOSPITAL

PROTOCOL—VASCULAR PATIENT BLOOD MANAGEMENT

Patient details:
Name.....
MRN.....
DOB.....
Consultant.....

☐ Elective ☐ Emergency

Preoperative (Tick all that apply)

HB: ⇨ [ ]

- ☐ Is the patient anaemic? (Male <130g/l, Female <120g/l):
- ☐ Has anaemia been investigated? (Iron studies/B12/Folate)
- ☐ If Iron deficient, has this been treated? (IV iron Cosmofer 20mg/kg)
- ☐ Is the patient on anticoagulants and has appropriateness been reviewed
- ☐ Is the patient on antiplatelet agents and has appropriateness been reviewed
- ☐ Transfuse one unit if Hb <70g/L, with a Hb target of 70—90g/L after transfusion OR <80g/L in unstable IHD with a Hb target of 80 -100g/L after transfusion.
- ☐ Single Unit Transfusion Policy (recheck Hb after each unit)

Intraoperative (Tick all that apply)

- ☐ Tranexamic Acid (1g)
- ☐ Cell salvage
- ☐ Swab Washing
- ☐ Single Unit Transfusion Policy (check Hb after each unit unless active haemorrhage)
- ☐ Point of care testing:
  - ☐ ACT
  - ☐ TEG

Postoperative (Tick all that apply)

- ☐ Restrictive blood samples (no 'routine' samples)
- ☐ Transfuse one unit if Hb <70g/L, with a Hb target of 70—90g/L after transfusion OR <80g/L in unstable IHD with a Hb target of 80 -100g/L after transfusion.
- ☐ Single Unit Transfusion Policy (recheck Hb after each unit)
- ☐ If Iron deficient, has this been treated? (IV iron Cosmofer 20mg/kg)
- ☐ Use of IV iron where appropriate in patients likely to be in hospital > 1 week

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Before and after PBM strategy

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Year	2012 n =295 (15.0%)	2013 n = 418 (21.2%)	2014 n = 449 (22.8%)	2015 n = 400 (20.3%)	2016 n = 407 (20.7%)	P-value
Anaemia						
Preoperative	162 (54.9%)	219 (52.4%)	218 (48.6%)	214 (53.5%)	203 (49.9%)	0.388
Operations with blood components transfusion						
Red Blood Cell	88 (29.8%)	108 (25.8%)	105 (23.4%	86 (21.5%)	67 (16.5%)	0.000
Units of blood components transfused						
Red Blood Cell	1.85 ± 4.66	1.17 ± 3.23	1.14 ± 3.22	0.80 ± 2.29	0.83 ± 3.58	0.001
Transfusion trigger, Hb $g.l^{-1}$						
Postoperative (n = 329)	76.3 ± 10.1	78.8 ± 8.9	73.9 ± 8.7	74.0 ± 9.4	71.8 ± 8.8	0.000

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The components of PBM

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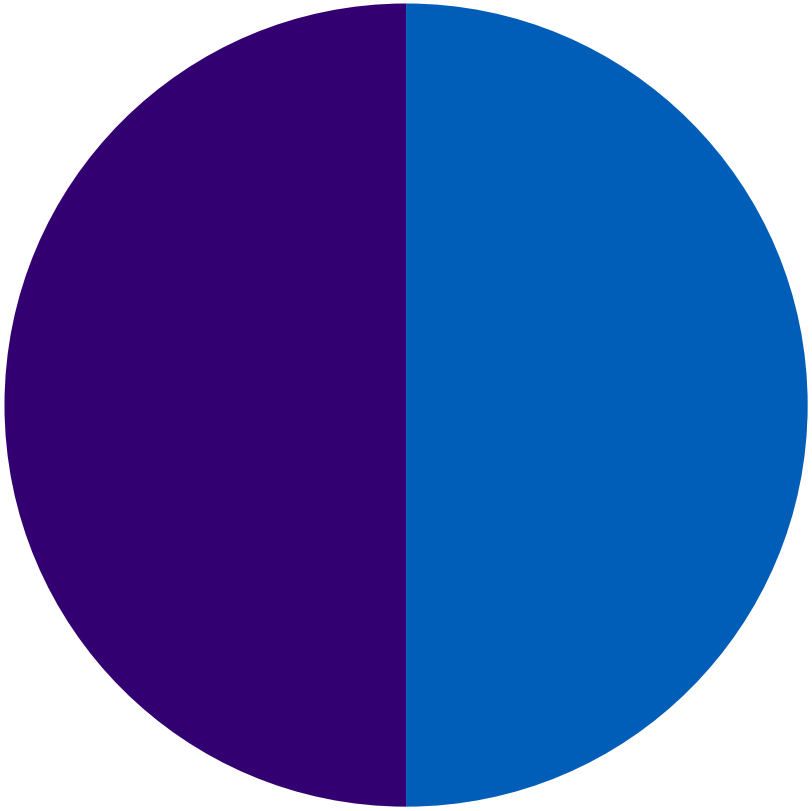
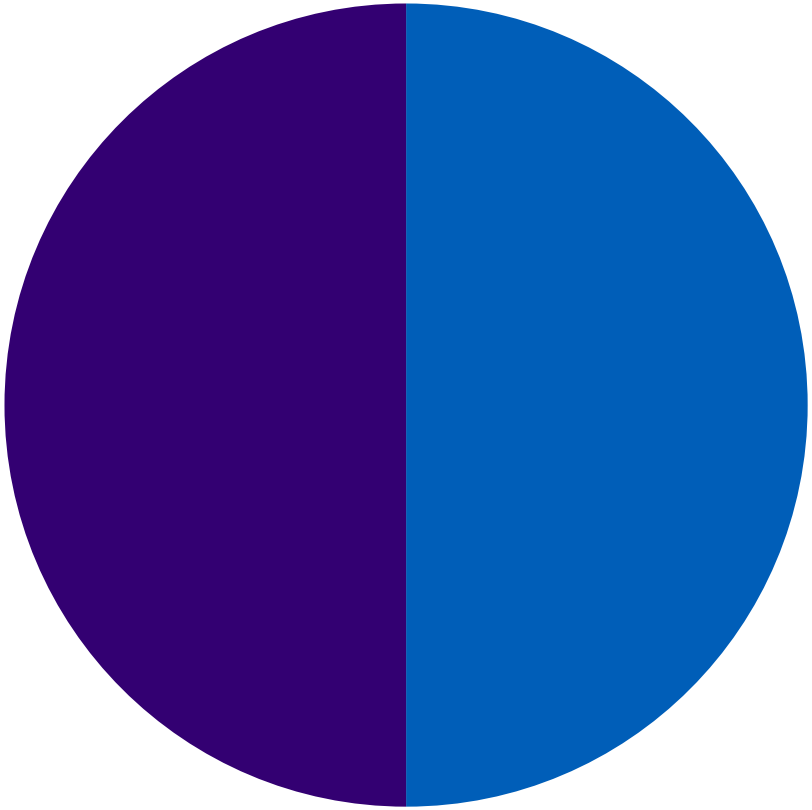
anaemia
əˈniːmɪə/

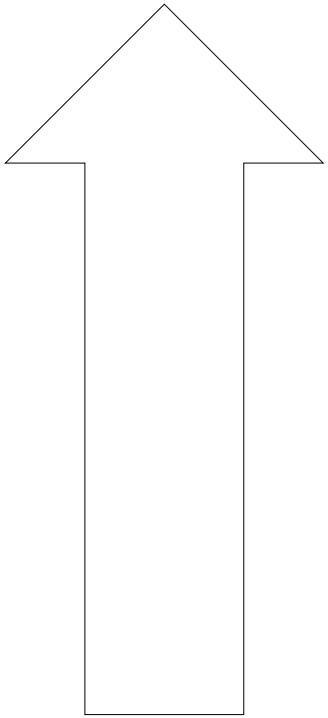
noun

noun: **anaemia**; noun: **anemia**
a condition in which there is a deficiency of red cells or of haemoglobin in the blood, resulting in pallor and weariness





RISK



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Open Access Protocol

BMJ Open

The UK Cardiac and Vascular Surgery Interventional Anaemia Response (CAVIAR) Study: protocol for an observational cohort study to determine the impact and effect of preoperative anaemia management in cardiac and vascular surgical patients

Marisa Chau,[1] Toby Richards,[1] Caroline Evans,[2] Anna Butcher,[1] Timothy Collier,[3] Andrew Klein[4]

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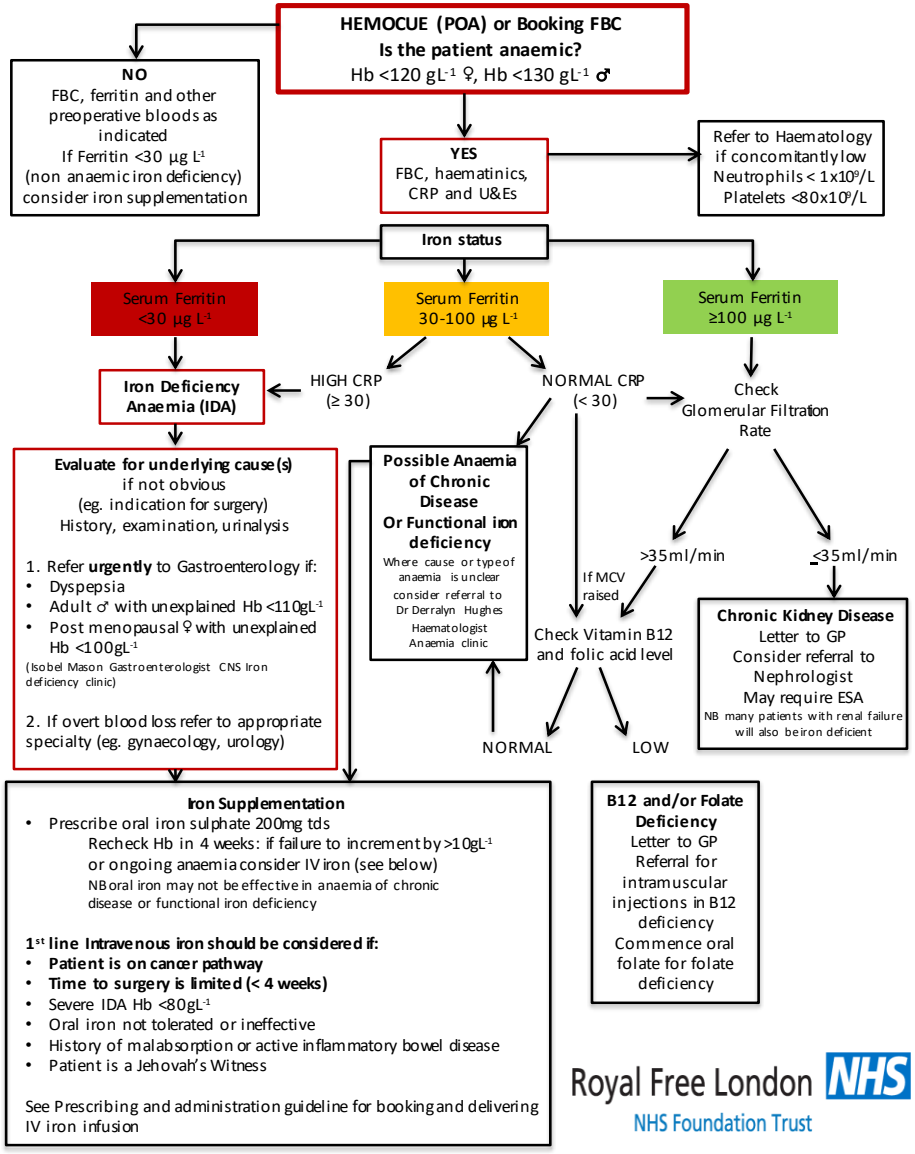
Pre-Operative Anaemia Optimisation Pathway



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Restrictive transfusion

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The NEW ENGLAND JOURNAL of MEDICINE

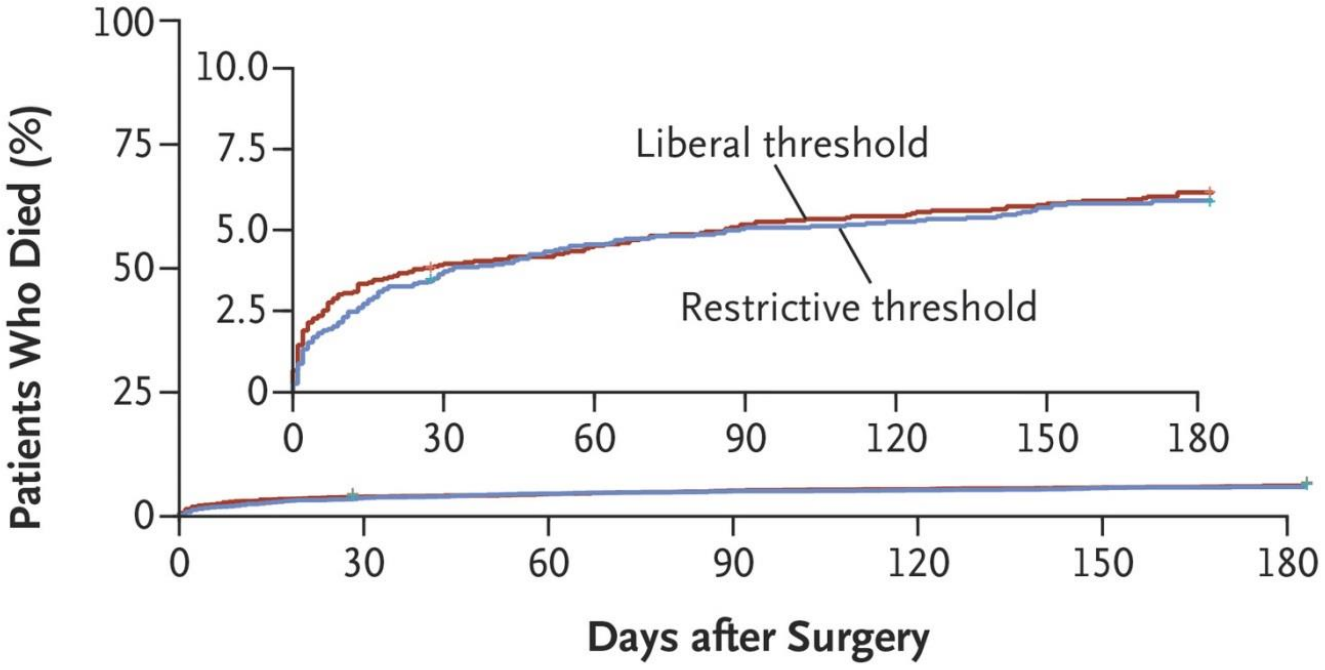
ORIGINAL ARTICLE

Six-Month Outcomes after Restrictive or Liberal Transfusion for Cardiac Surgery

C.D. Mazer, R.P. Whitlock, D.A. Fergusson, E. Belley-Cote, K. Connolly, B. Khanykin, A.J. Gregory, É. de Médicis, F.M. Carrier, S. McGuinness, P.J. Young, K. Byrne, J.C. Villar, A. Royse, H.P. Grocott, M.D. Seeberger, C. Mehta, F. Lellouche, G.M.T. Hare, T.W. Painter, S. Fremes, S. Syed, S.M. Bagshaw, N.-C. Hwang, C. Royse, J. Hall, D. Dai, N. Mistry, K. Thorpe, S. Verma, P. Jüni, and N. Shehata, for the TRICS Investigators and Perioperative Anesthesia Clinical Trials Group*

This article was published on August 26, 2018, at NEJM.org.

DOI: 10.1056/NEJMoa1808561



No. at Risk

Liberal threshold	2429	2222	2209	2193	2187	2179	2170
Restrictive threshold	2427	2202	2181	2170	2165	2155	2150

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Single unit transfusion

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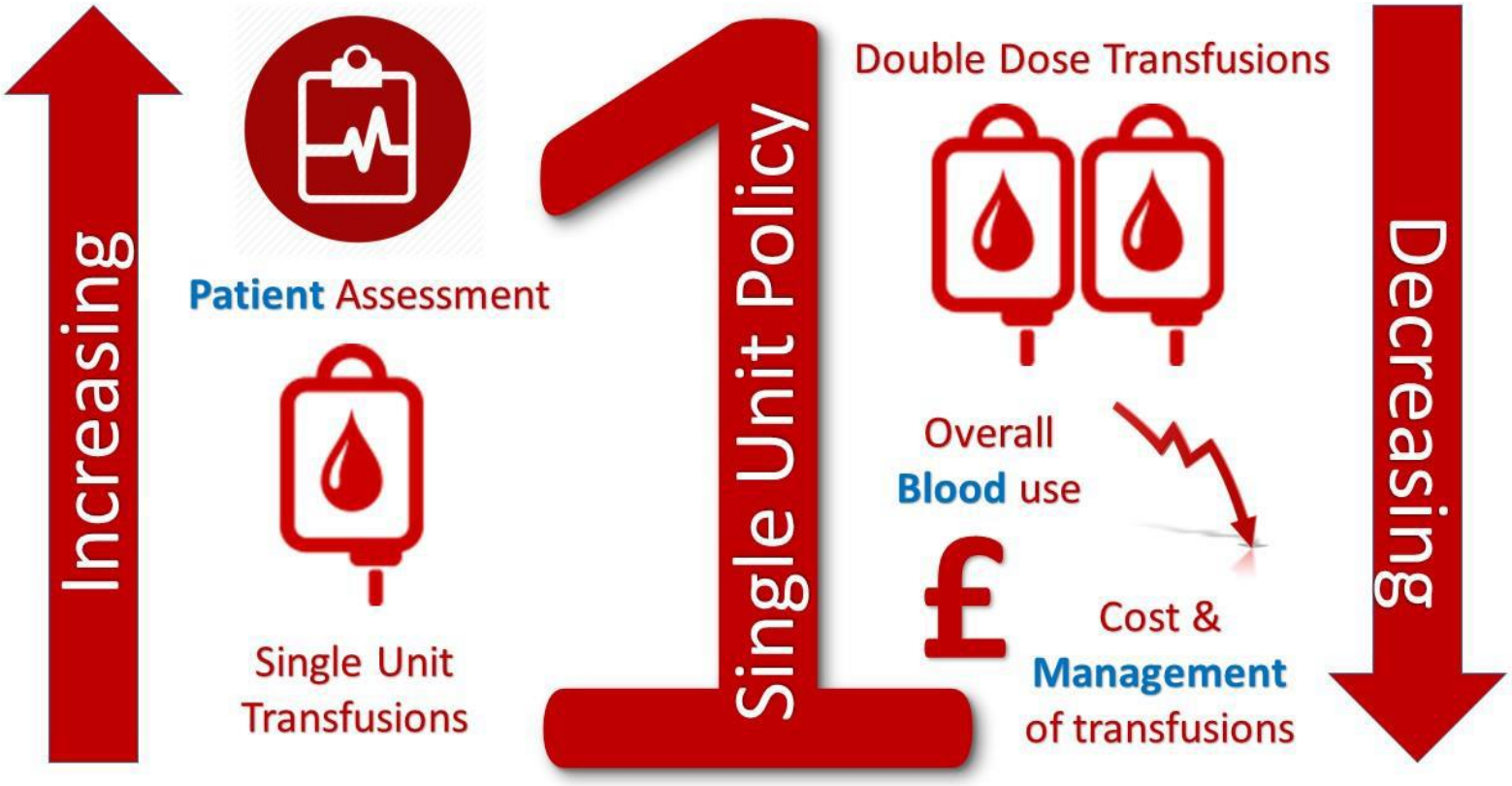
Single unit transfusion



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Tranexamic acid

NICE guideline

EJA

Eur J Anaesthesiol 2017; **34**:332–395

GUIDELINES

Management of severe perioperative bleeding: guidelines from the European Society of Anaesthesiology

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Cell salvage

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Anaesthesia 2018, 73, 1141-1150 doi:10.1111/anae.14331

Guidelines

Association of Anaesthetists guidelines: cell salvage for peri-operative blood conservation 2018

A. A. Klein,[1] C. R. Bailey,[2] A. J. Charlton,[3] E. Evans,[4] M. Guckian-Fisher,[5] R. McCrossan,[6] A. F. Nimmo,[7] S. Payne,[8] K. Shreeve,[9] J. Smith[10] and F. Torella[11]

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Point of care

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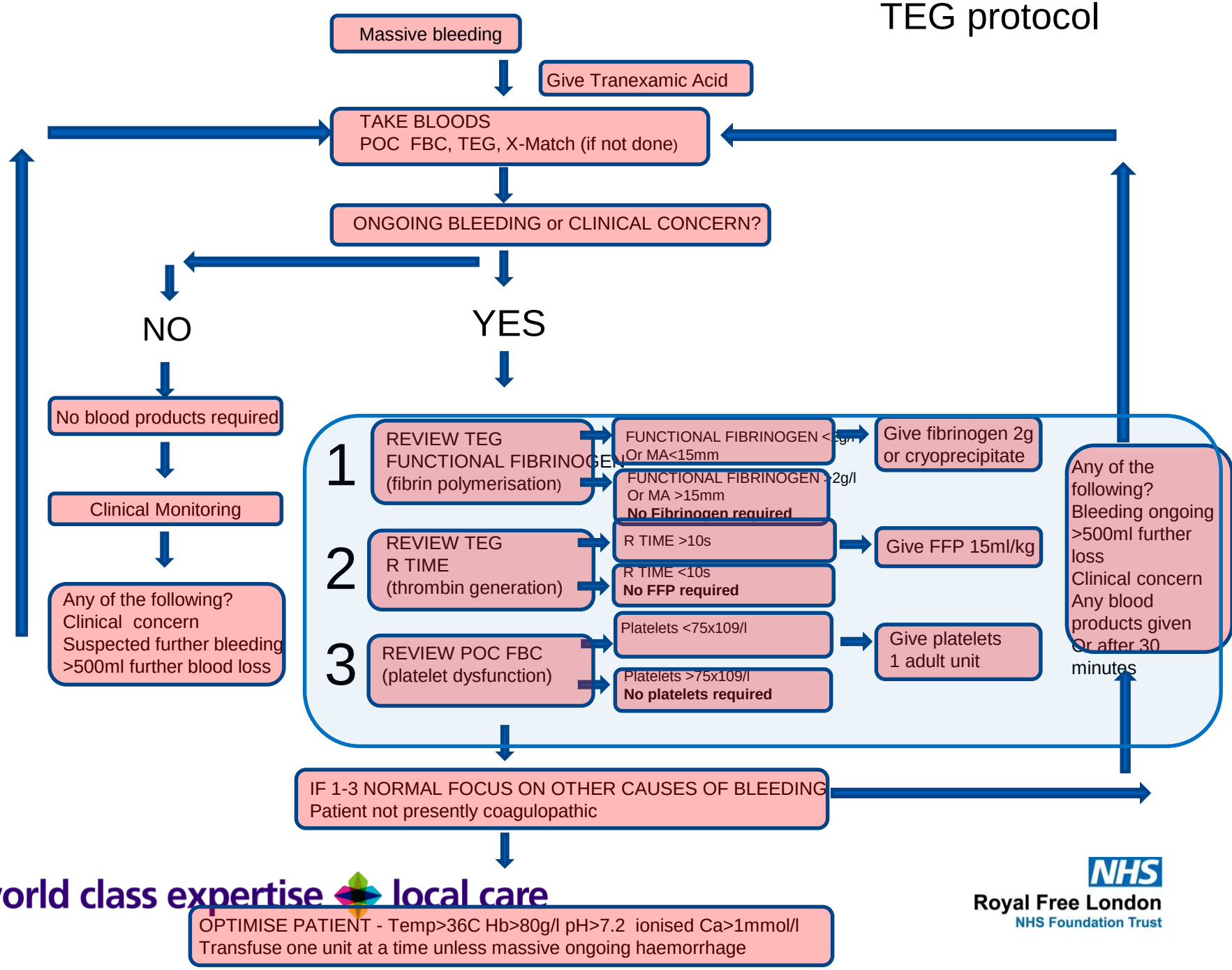
Haemoscope
37.0
POWER
MOTOR
Thrombelastograph®
Analyzer
EJECT
LOAD
TEST
EJECT
LOAD
TEST


TEG 6s

TEG protocol



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Factor 14 (surgeon)