SALA CONFERENZA AVIS RAGUSA
08-09 Marzo 2024

LA MEDICINA TRASFUSIONALE TRA EMOPATIE, EMOGLOBINOPATIE E BUON USO DEL SANGUE

SIMT Ragusa

Responsabile Scientifico dott. Francesco Bennardello

PROGRAMMA

Venerdì 08 marzo 2024
14:30-15:00 Saluti autorità e presentazione dell'evento formativo

PRIMA SESSIONE

Moderatori: *Renato Messina - Francesco Bennardello*
15:00-15:30 *Nunzio Marletta*- Il Patient Blood Management: una nuova opportunità
15:30-16:00 *Daniele Aprile* - La terapia trasfusionale: indicazioni mediche e chirurgiche
16:00-16:30 *Nuccio Zisa* - La sicurezza della trasfusione: come prevenire l'errore trasfusionale
16:30-17:00 Discussione
17:00-17:30 Pausa

SECONDA SESSIONE

Moderatori: *Nunzio Marletta - Santi Sciacca*
17:30-18:00 *Elisa Cannizzo* - Le anemie: fisiopatologia e classificazione
18:00-18:30 *Luisa Ferraro* - Il trattamento delle anemie e la somministrazione del ferro per via endovenosa
18:30-19:00 *Pietro Trovato* - La gestione clinica dei Testimoni di Geova: un approccio collaborativo
19:00-19:30 Discussione

Sabato 09 marzo 2024

TERZA SESSIONE

Moderatori: *Pietro Bonomo - Carmelo Fidone*
09:00-09:30 *Vincenzo Spadola* - L'eritroexchange nella terapia della drepanocitosi
09:30-10:00 *Carlo Rapisarda* - La gestione delle thalassemie: approccio multidisciplinare
10:00-10:30 *Francesco Bennardello* - La prevenzione della MEN da anticorpi anti Rh-D
10:30-11:00 Discussione
11:00-11:30 Pausa

QUARTA SESSIONE

Moderatori: *Sergio Cabibbo - Francesco Bennardello*
11:30-11:50 *Agostino Antolino* - Poliglobulia e policitemia
11:50-12:10 *Giovanna Oriella Manenti* - Le trombocitemie
12:10-12:30 *Giovanni Digiacomo* - Trombocitemia e policitemia: il ruolo del medico curante
12:30-12:50 *Massimo Poidomani* - Le coagulopatie: emorragia e trombofilia
12:50-13:10 *Giovanna Fretto* - La diagnostica di laboratorio delle coagulopatie
13:10-13:30 Discussione
13:30-14:00 Compilazione dei questionari di apprendimento e di gradimento

con il patrocinio di:

ASP RAGUSA
AZIENDA SANITARIA PROVINCIALE

SIMTI

con il contributo non condizionante di:

FRESENIUS KABI

NOVARTIS

INTERMEDICA SRL

Iscrizione gratuita al corso ONLINE su www.paroleimmagini.it
Provider n. 640 Evento n. 403807 Crediti n. 8
Provider ECM e Segreteria Organizzativa
Parole & Immagini
fiorella@paroleimmagini.it

E.C.M. Educazione Continua in Medicina
Programma Nazionale per la Formazione degli operatori della Sanità

PAROLE & IMMAGINI di Fiorella D'Agata

ACCREDIA

L'evento è rivolto a 100 partecipanti: Medici (tutte le discipline), Biologi, Tecnici Sanitari di Laboratori Biomedico, Infermieri.

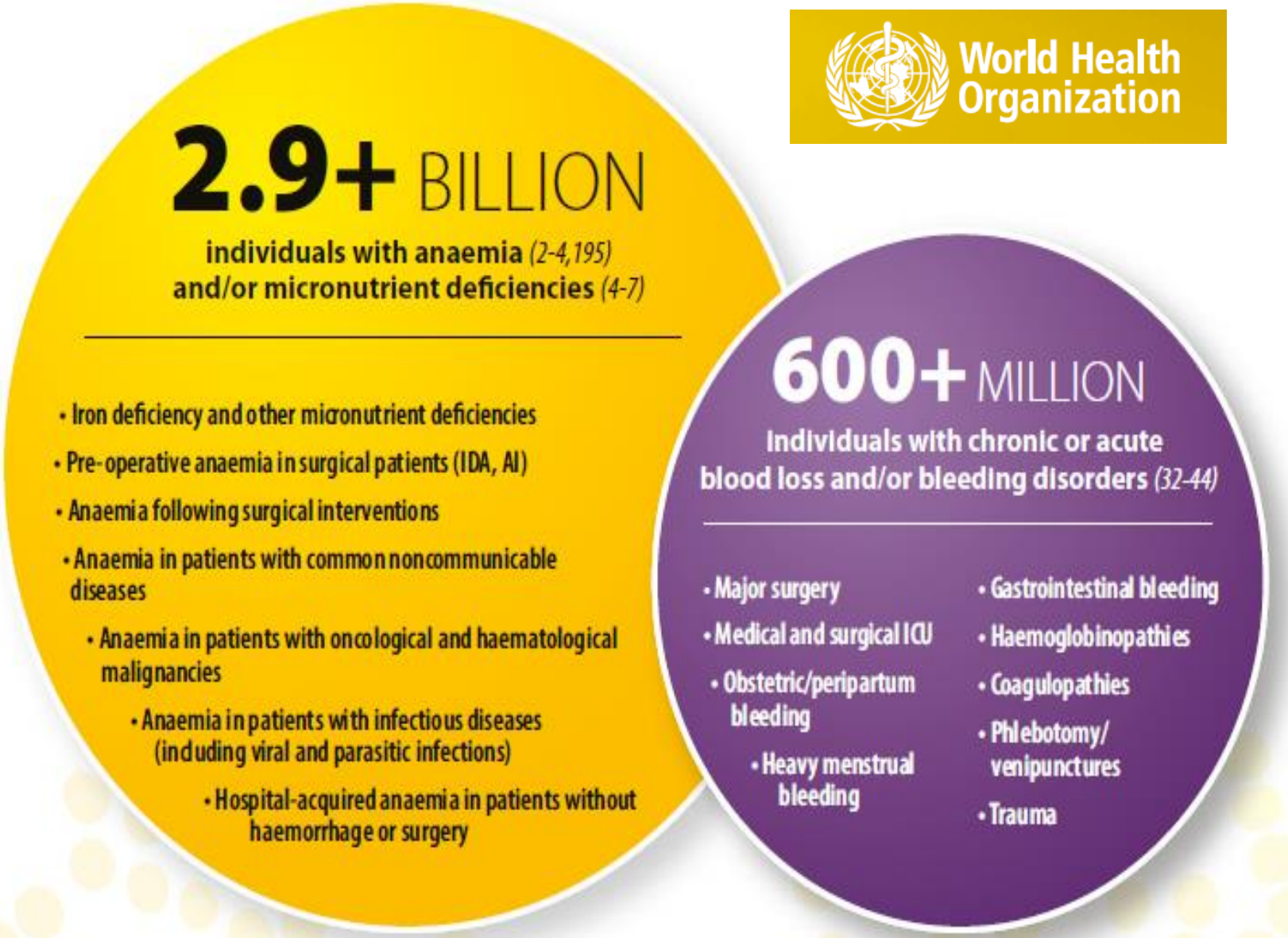
Il Patient Blood Management: una nuova opportunità

Dr. Nunzio Angelo Marletta
SIMT ASP di Caltanissetta

Il sottoscritto, in qualità di Relatore
dichiara che

nell’esercizio della Sua funzione e per l’evento in oggetto, NON È in alcun modo portatore di interessi commerciali propri o di terzi; e che gli eventuali rapporti avuti negli ultimi due anni con soggetti portatori di interessi commerciali non sono tali da permettere a tali soggetti di influenzare le mie funzioni al fine di trarne vantaggio.

Global prevalence of anaemia, blood loss and bleeding disorders and their etiologies



Systematic review

Meta-analysis of the association between preoperative anaemia and mortality after surgery

- **949'449 patients of 24 studies analyzed**
- **39% of patients were anemic (WHO definition)**
- **Anemia was associated with**
  - ⇨ Perioperative mortality ⬆ - OR 2.90 (2.30 – 3.68, p< 0.001)
  - ⇨ Acute kidney injury ⬆ - OR 3.75 (2.95 – 4.76, p< 0.001)
  - ⇨ Infections ⬆ - OR 1.93 (1.06 – 1.55, p< 0.01)
  - ⇨ Stroke in cardiac surgery ⬆ - OR 1.28 (1.17 – 3.18, p< 0.01)
  - ⇨ RBC transfusion ⬆ - OR 5.04 (4.12 – 6.17, p< 0.001)

Fowler A.J. et al. Br J Surg (2015) 102: 1314

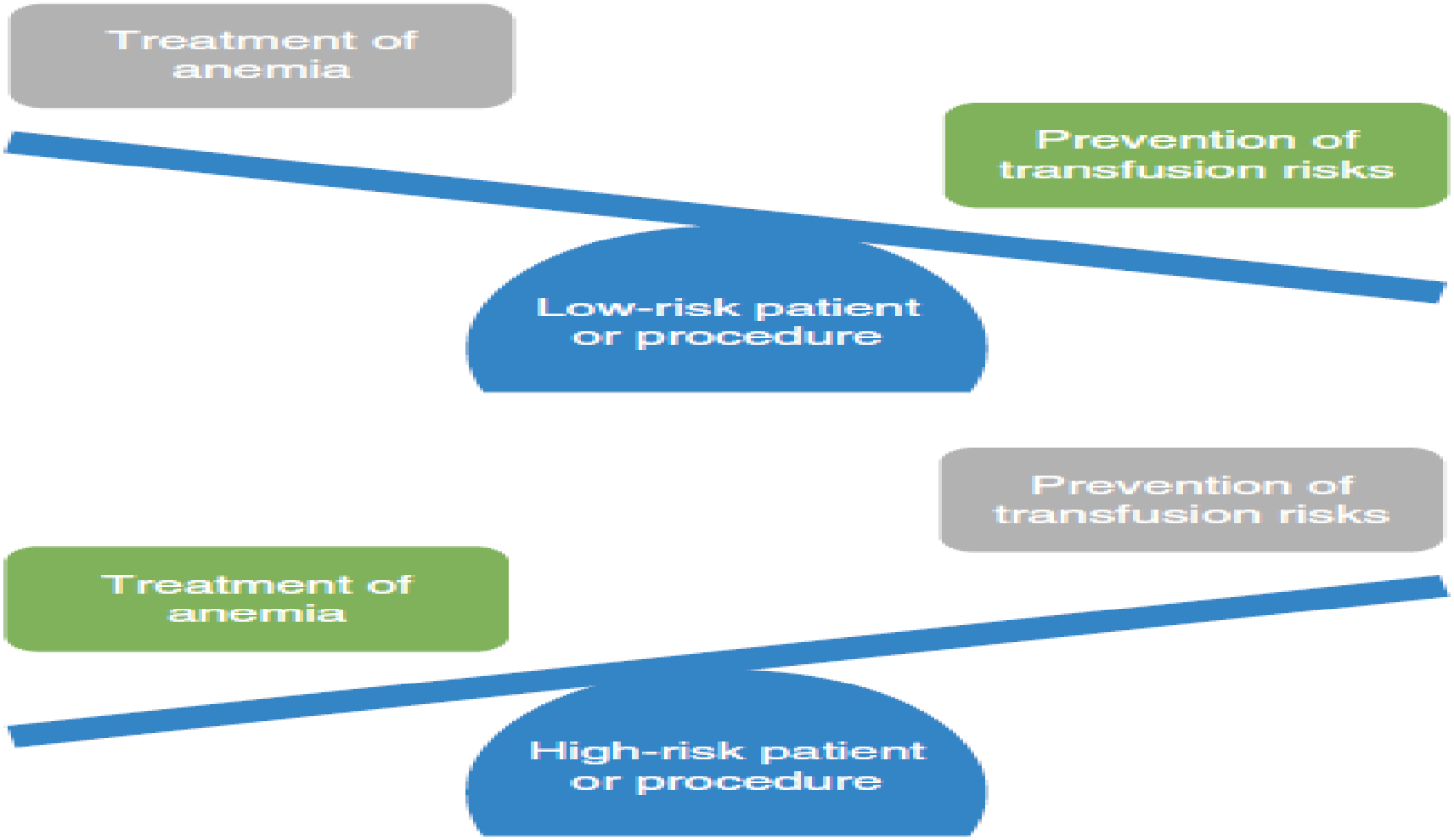
Does transfusion do what it is intended to do—improve outcome or prevent adverse outcomes?

- There are few if any articles that support transfusion actually improving patient outcomes.
- The majority of database papers show associations between transfusion utilization and with immunosuppression, increased infection, increased renal failure, multisystem organ failure, and death.

Spiess, B.D., Risks of transfusion: outcome focus. Transfusion, 2004. 44(12 Suppl): p. 4S-14S.

Studies reporting a dose-response increase in adverse outcomes associated with red blood cell transfusion			
Author/Year	**Population**	**Sample size**	**Dose-response increased adverse outcome**
Shaw 2014[19]	Cardiac surgery	3'516	Mortality
Horvarth 2013[20]	Cardiac surgery	5'158	Infection
Mikkola 2012[21]	Cardiac surgery	2'226	Stroke
Stone 2012[22]	Cardiac surgery	1'491	Mortality
Van Straten 2010[23]	Cardiac surgery	10'425	Mortality
Hajjar 2010[24]	Cardiac surgery	512	Morbidity & mortality
Karkouti 2009[25]	Cardiac surgery	3'460	Acute kidney injury
Scott 2008[26]	Cardiac surgery	1'746	Postoperative LOS
Murphy 2007[27]	Cardiac surgery	8'500	Infection & ischemic events
Kulier 2007[28]	Cardiac surgery	5'065	Cardiac and non-cardiac adverse events
Banbury 2006[29]	Cardiac surgery	15'592	Septicemia, bacteremia, superficial & deep sternal wound infection
Koch 2006[30]	Cardiac surgery	11'963	In-hospital mortality, renal failure, postoperative ventilatory support, postoperative infection, cardiac and neurologic morbidity, overall postoperative morbidity
Koch 2006[31]	Cardiac surgery	10'289	Long-term (10-years) survival
Koch 2006[32]	Cardiac surgery	7'321	Functional recovery
Rogers 2006[33]	Cardiac surgery	9'218	Infection
Chelemer 2002[34]	Cardiac surgery	533	Bacterial infection
Leal-Noval 2001[35]	Cardiac surgery	738	Infection, pneumonia

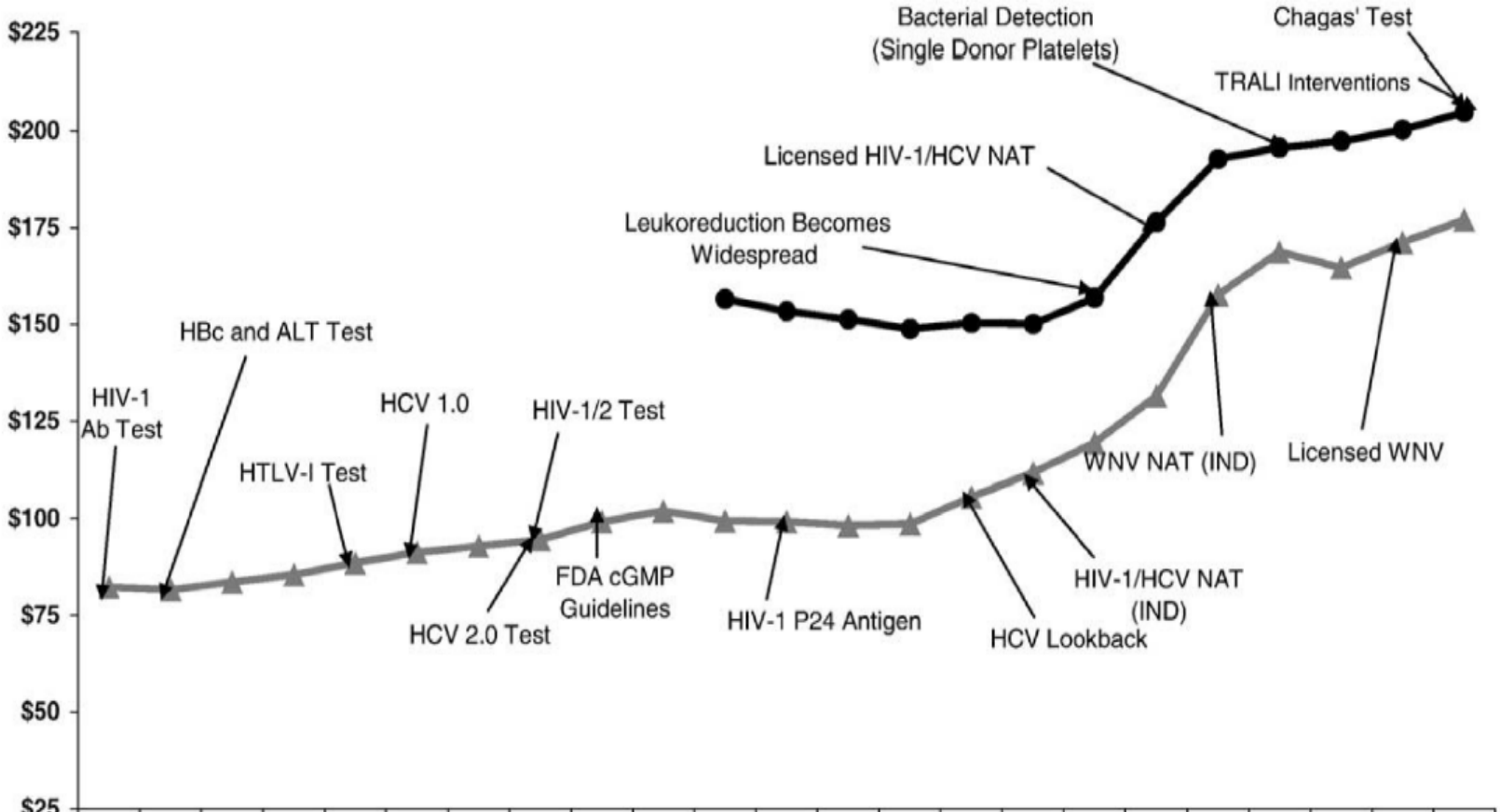
Adapted from Farmer SL, Hofmann A, Isbister J. Transfusion and Outcomes. Patient Blood Management 2rd Edition Thieme; Stuttgart, New York: 2015



La decisione di effettuare una trasfusione dipende dalle condizioni del paziente e dall'invasività della procedura. Nei pazienti relativamente sani e/o nelle procedure a basso rischio, l'equilibrio si orienta verso soglie restrittive per le trasfusioni (pannello superiore), mentre nei casi di pazienti ad alto rischio e/o procedure a rischio elevato, l'anemia viene trattata a rischio di complicanze legate alla trasfusione (pannello inferiore).

Cost-Effectiveness Analysis: What It Really Means for Transfusion Medicine Decision Making

Transfusion Medicine Reviews, Vol 23, No 1 (January), 2009: pp 1-12



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
RBCs	82	82	84	85	89	91	93	95	99	102	99	99	98	99	106	112	119	131	158	169	165	171	177
RBCs, LR											157	153	151	149	150	150	157	176	193	196	197	200	205

Fig 1. Average per unit red blood cell charge to hospitals by America's Blood Centers members in the last 20 years with the date of implementation of the additional safety measures indicated, adjusted to 2007 US dollars. The gray line represents nonleukoreduced red blood cells and the black line represents leukoreduced red blood cells. Permission to use granted by America's Blood Centers,

Valutazione dei costi trasfusionali in un approccio PBM-based

DA Umberto Paladini SIMT SANT'ANDREA ROMA

Blood is crucial for life. The "holy" equation of oxygen delivery (DO2) explains us that blood (in this term: hemoglobin) is one of the three main components of "vitality". So why should I stop myself of increasing the Hb, and maximise the DO2 in this way? …… a lot of things.

There are numerous "guidelines" and "recommendations" about the rules of blood transfusion. Almost none of them work well: The blood transfusion is still a matter of "instinct", even in developed countries. Now we have the "Patient Blood Management": What is its difference to other "guidelines"?

Maybe the clinician should make a calculation /estimation before "each and every" transfusion whether this would lead to an increase in oxygenation, instead of following the guidelines. But is this feasible?

Aryeh Shander is the Godfather of "Patient Blood Management"; and Can Ince is "the" researcher of tissue oxygenation.

Nüzhet Mert Şentürk
Editor

The Yin and Yang of Blood Transfusion

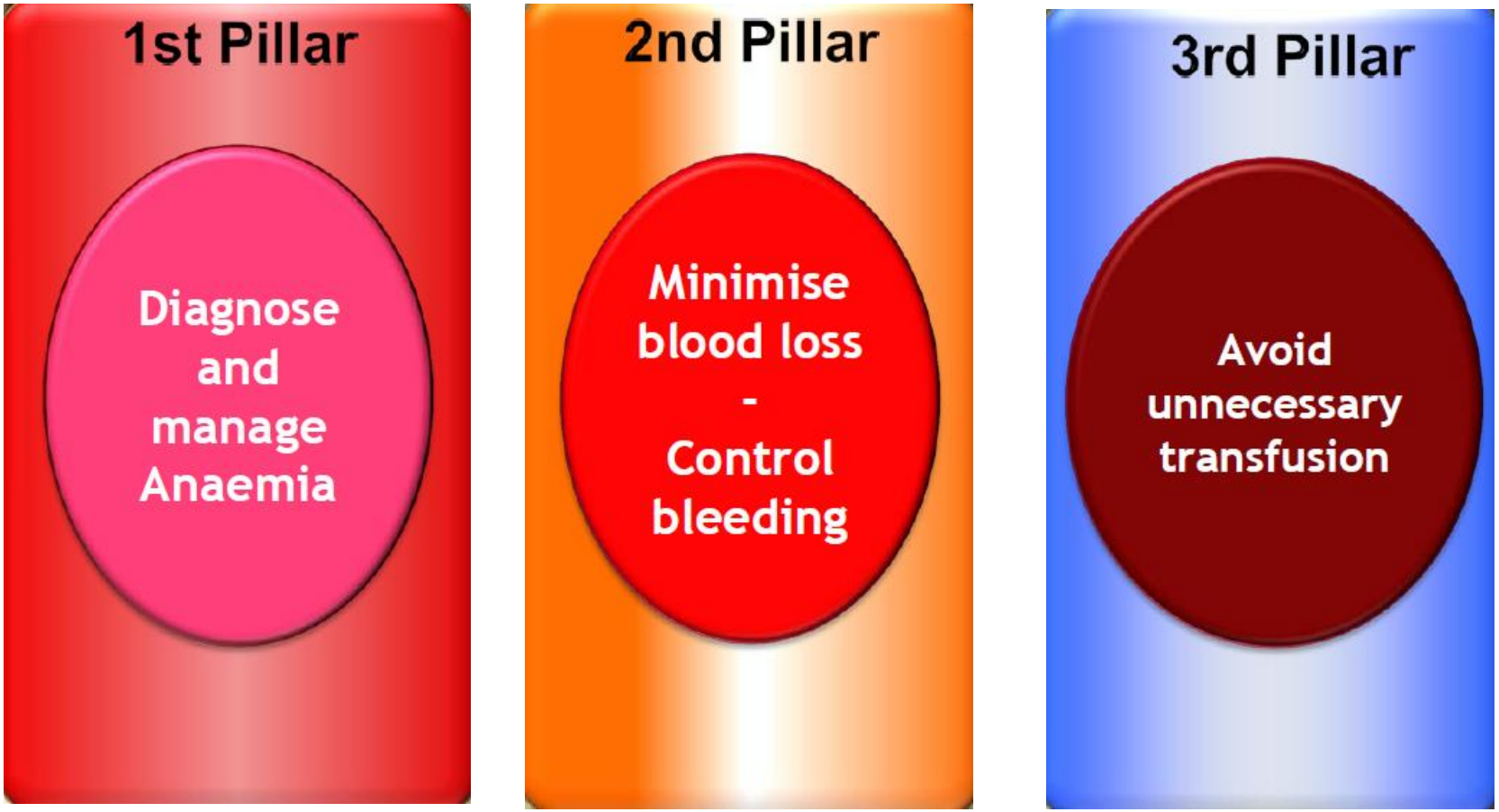
Aryeh Shander, Tamara Friedman

Department of Anesthesiology and Critical Care Medicine, Englewood Hospital and Medical Center, Team Health Research Institute, Englewood, NJ, USA

Few physicians will argue against the statement that blood transfusions carry certain risks. There is also little debate over the fact that they can benefit those with hemorrhage or non-functioning bone marrow. Most of the salient debate in the literature centers on the benefits/risk ratio of blood component therapy. Besieged with repeated studies on restrictive vs. liberal transfusion, the clinician is left with only one treatment modality for the patient. By centering on transfusion, other more effective or less risk-associated therapies are ignored. This is problematic, as transfusions may prove to be associated with risks higher than that posed by the anemia, especially if there is no clinical or physiological concern (1). The quest for safe and effective blood transfusions is the opposing debate, and that side of the argument has no place in the treatment of anemia in majority of hospitalized and non-hospitalized patients with anemia.

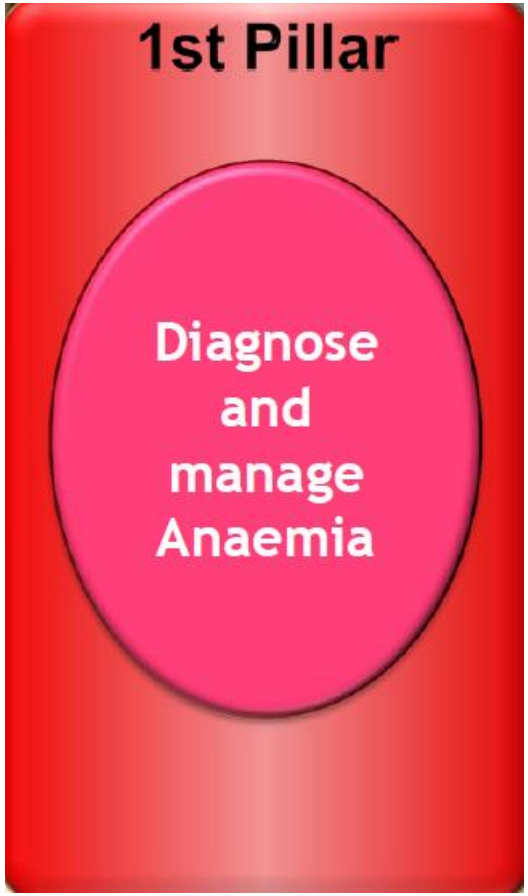
Perhaps, the problem is that the debate over transfusions is presented in such a dichotomous manner. In truth, both blood transfusions and anemia carry significant risks, and they are both associated with increased morbidity and mortality (2). Instead of quibbling over which risk is greater, physicians need to move toward finding the best solution for individual patients, as the symp-

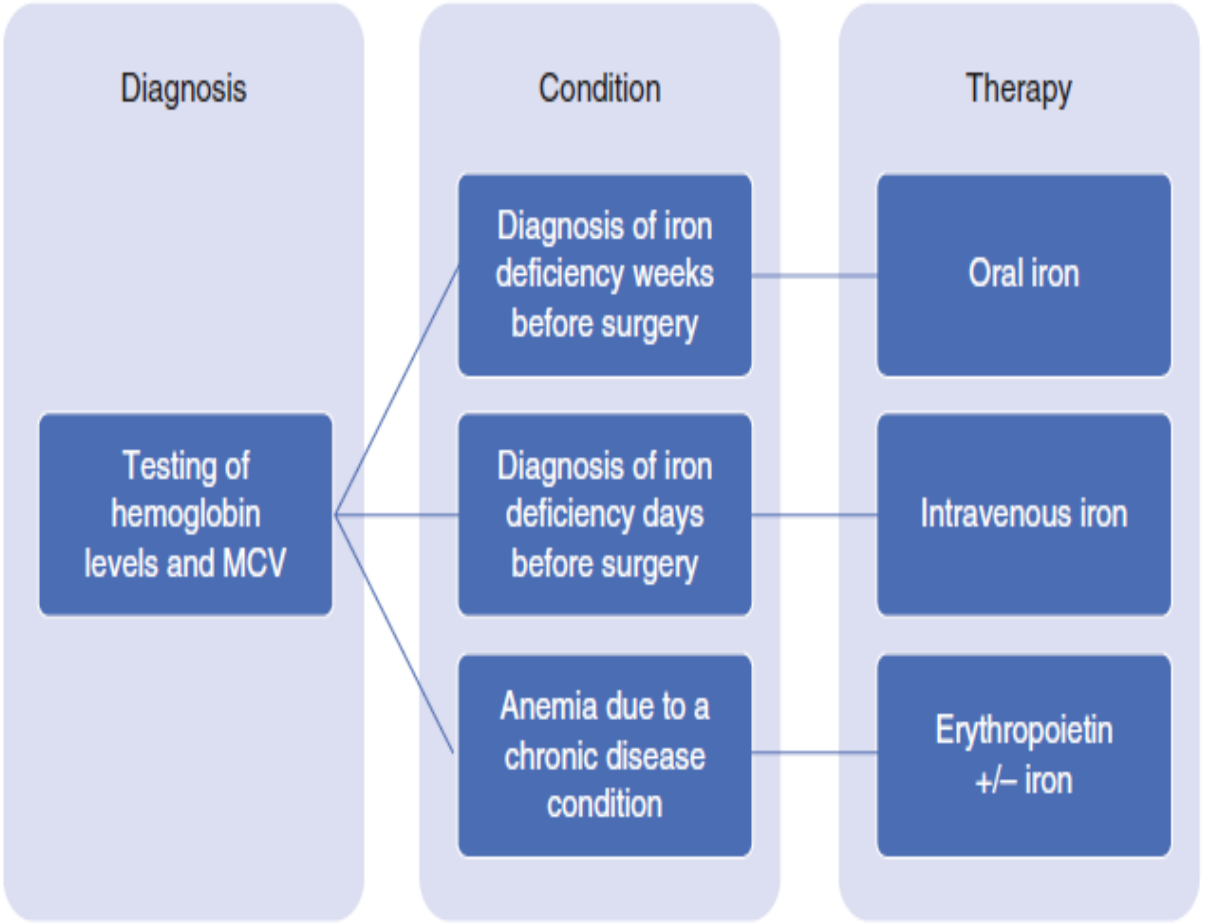
PATIENT BLOOD MANAGEMENT



Multidisciplinary team approach

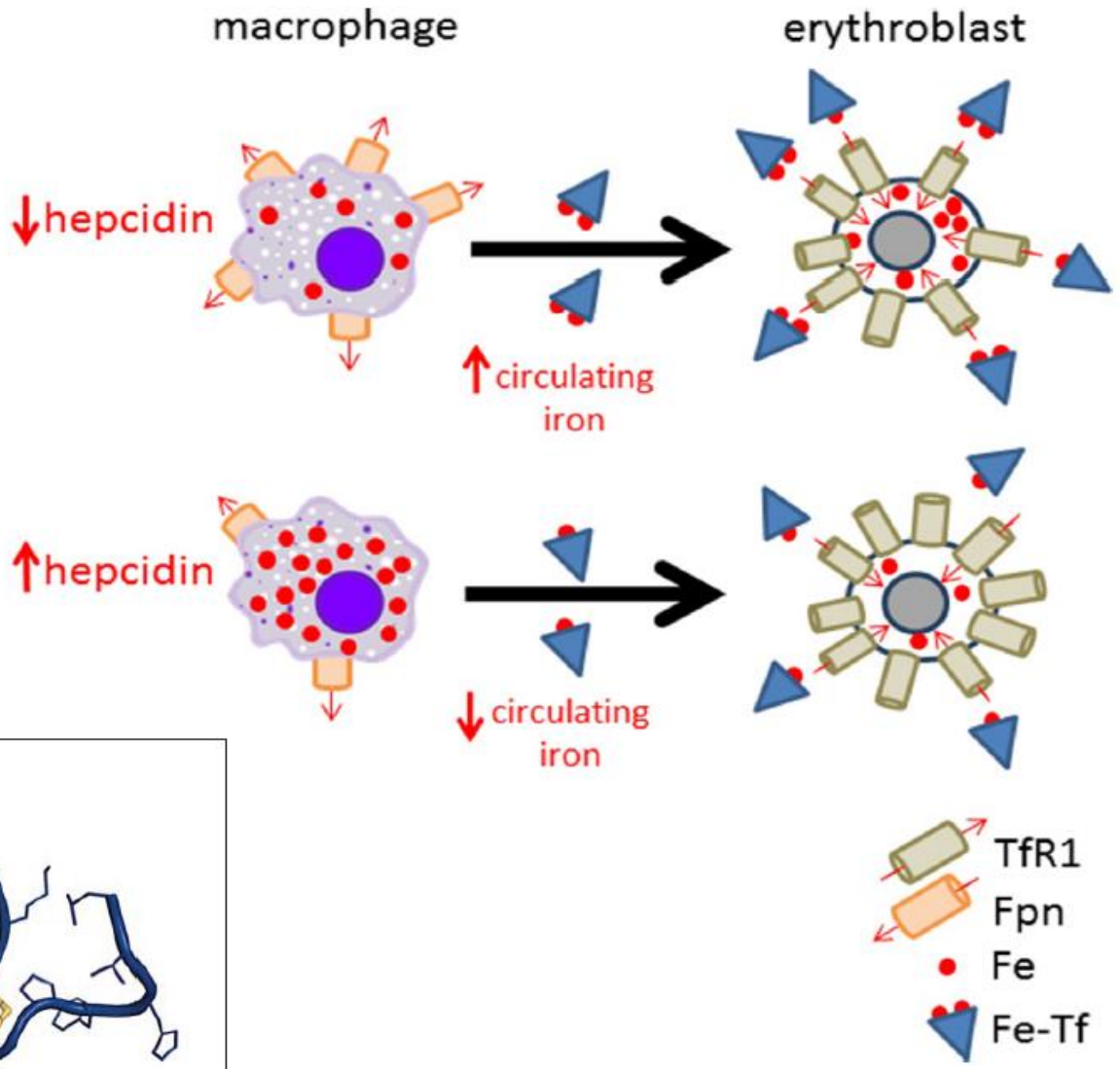
PATIENT BLOOD MANAGEMENT

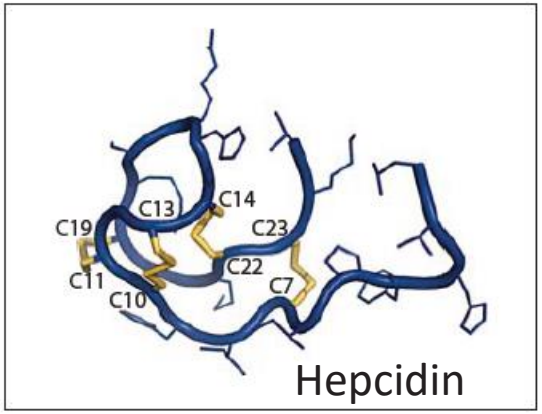




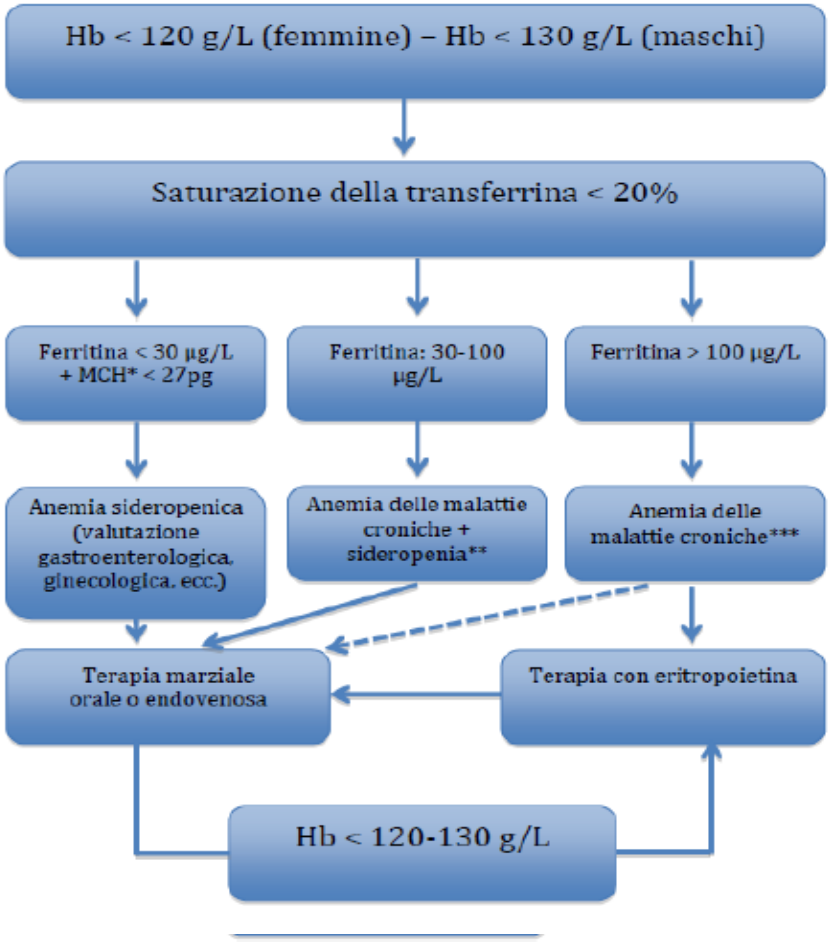
L. Kaufner and C. von Heymann

Hepcidin-ferroportin axis in health and disease





PBM: Algoritmo per la diagnosi di anemia sideropenica



Muñoz M, García-Erce JA, Cuenca J, et al; AWGE (Spanish Anaemia Working Group). *On the role of iron therapy for reducing allogeneic blood transfusion in orthopaedic surgery.* **Blood Transfus 2012; 10: 8-22.**

PBM:Classificazione degli interventi chirurgici in elezione in base al rischio emorragico.

Interventi con rischio emorragico clinicamente non importante

- interventi di odontoiatria
  - estrazioni di 1 o 3 denti
  - chirurgia paradontale
  - incisione di ascesso
  - posizionamento di impianto
- interventi di oculistica
  - cataratta o glaucoma
- endoscopia senza chirurgia
  - chirurgia superficiale
  - incisione di ascessi
  - piccole escissioni dermatologiche

Interventi a basso rischio emorragico

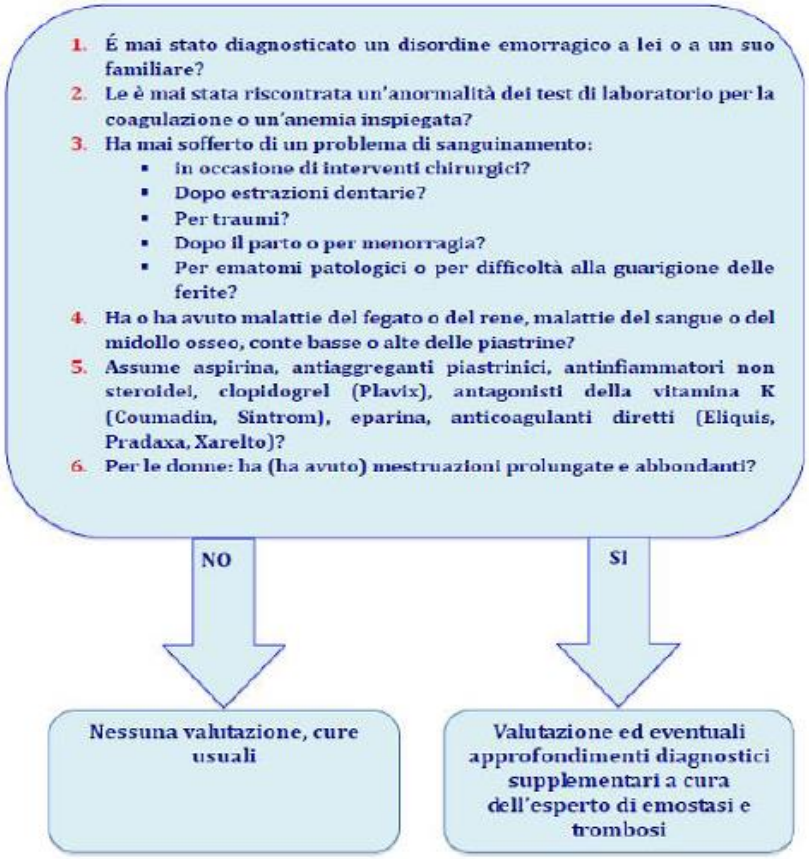
- endoscopia con biopsia
- biopsia della prostata o della vescica
- ablazione per tachicardia sopra-ventricolare (inclusa singola puntura trans-settale sinistra)

Interventi ad alto rischio emorragico

- ablazione complessa
- anestesia spinale o epidurale; puntura lombare
- chirurgia toracica
- chirurgia addominale
- **chirurgia ortopedica maggiore**
- biopsia epatica
- resezione transuretrale della prostata
- biopsia renale

Heidbuchel H, Verhamme P, Alings M, et al; European Heart Rhythm Association *Practical Guide on the use of new oral anticoagulants in patients with non-valvular atrial fibrillation.* **Europace 2013; 15: 625-51.**

PBM: Valutazione iniziale dei disordini emorragici



Liumbruno GM, Bennardello F, Lattanzio A, et al; Italian Society of Transfusion Medicine and Immunohaematology (SIMTI) Working Party. *Recommendations for the transfusion management of patients in the peri-operative period.* I.The pre-operative period. **Blood Transfus 2011; 9: 19-40.**

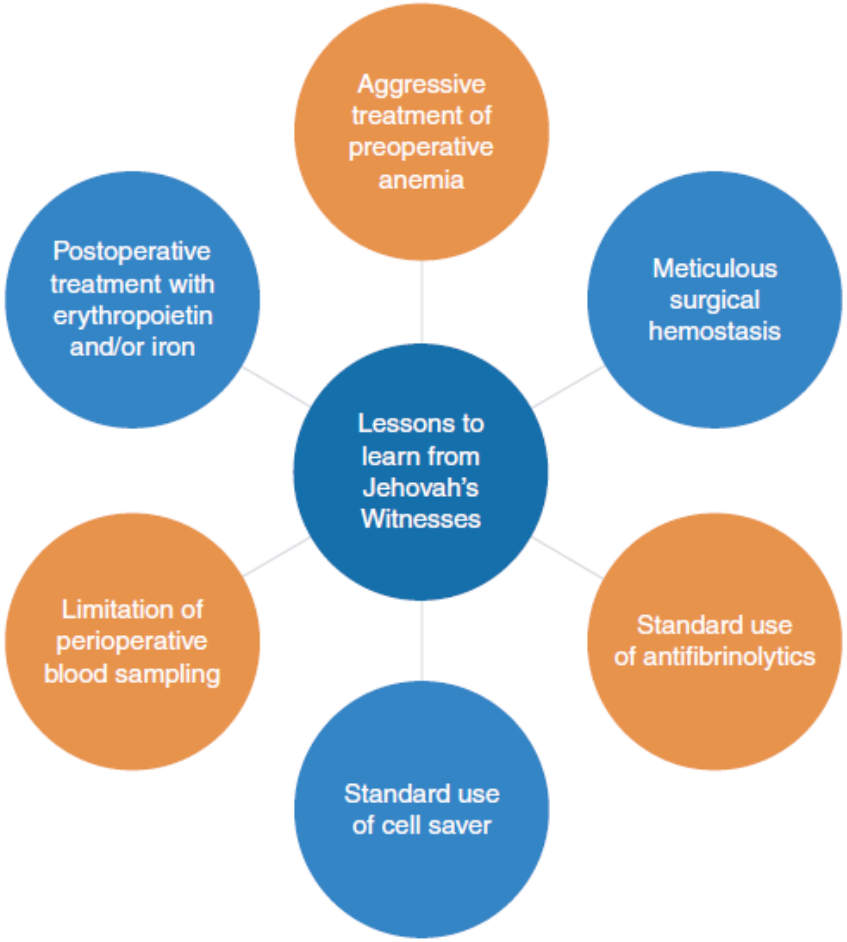
1° PILASTRO

- ANEMIA CLINIC (CONSULENZA PREOPERATORIA, CARTELLA CLINICA CONDIVISA, CONSULENZA CHIRURGICA PREOPERATORIA).

- DIAGNOSI E TRATTAMENTO ANEMIA PREOPERATORIA (PDTA)

- STUDIO DIATESI EMORRAGICA-TROMBOTICA

PATIENT BLOOD MANAGEMENT



Patient blood management using dedicated personnel in the operating room—you get what you pay for

Richard R. Gammon

OneBlood, Scientific, Medical, Technical Direction, Orlando, Florida, USA

Correspondence
Richard R. Gammon, OneBlood, Inc., 8669 Commodity Circle, Orlando, FL 32819, USA.
Email: richard.gammon@oneblood.org

Summary

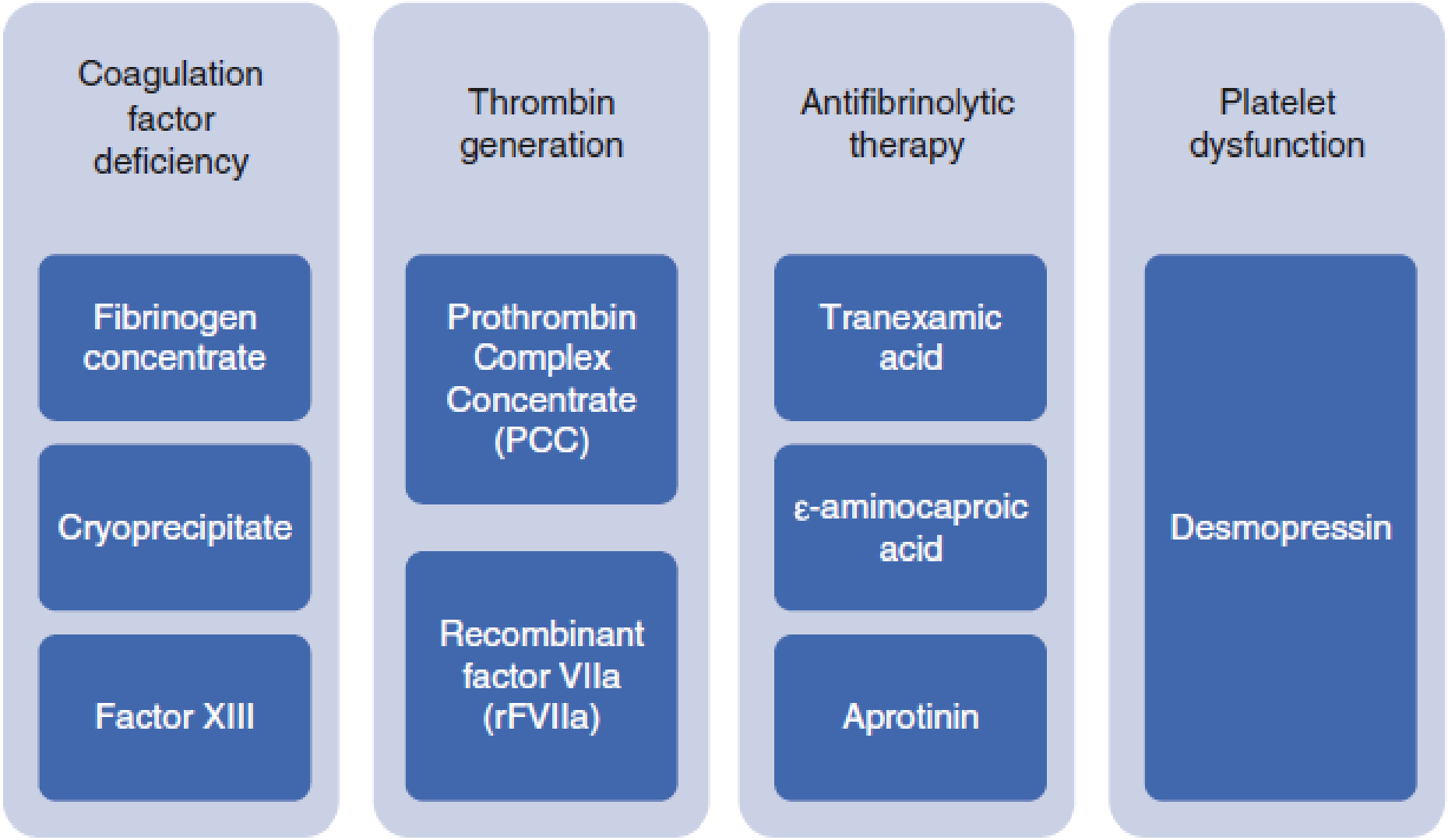
A patient blood management (PBM) strategy can be applied to the process of intraoperative cell salvage for re-infusion during surgery. Stoneham et al. describe an effective PBM strategy applied to abdominal aortic aneurysm repair and emphasise the importance of a qualified and experienced intraoperative cell salvage practitioner to improve the safety and effectiveness of the approach.

Commentary on: Stoneham et al. Intraoperative cell salvage using swab wash and serial thromboelastography in elective abdominal aortic aneurysm surgery involving massive blood loss. *Br J Haematol* 2022 (Online ahead of print). doi: 10.1111/bjh.18523.

KEYWORDS

antifibrinolytic therapy, patient blood management, thromboelastography

Procoagulant therapies



D. Bolliger and A. J. Spanjersberg

USO DEI POINT OF CARE

multiplate®

Comprehensive platelet diagnostics

ROTEM®

2° PILASTRO

- Costituzione di un gruppo dedicato formato da Tecnici/Infermieri perfusionisti

- Implementazione delle strategie di contenimento delle perdite perioperatorie (antifibrinolitici, colla di fibrina, ecc…)

- Monitoraggio emostatico-coagulativo (creazione di algoritmi decisionali terapeutici condivisi, uso dei POC)

PATIENT BLOOD MANAGEMENT

COMMENTARY

Are We Transfusing Too Much Blood?

George D. Lundberg, MD

January 30, 2023

George D. Lundberg, MD

Would you be surprised if I said that nearly half of all blood transfusions administered in hospitals in the United States between 2012 and 2018 were unnecessary?

This guidance is based on the National Blood Transfusion Committee (NBTC)

Indication Codes for Transfusion (January 2020)

The indications for transfusion provided below are taken from national guidelines for the use of blood components in adults (see references). Amalgamation into this summary document aims to act as a prompt for clinicians to facilitate appropriate use and to enable robust documentation of indications. Each indication has been assigned a number, to permit reproducible coding, when requesting blood or for documentation purposes. Specific details regarding the patient's diagnosis and any relevant procedures to be undertaken should also be provided at request either on a written request form, electronic blood order or by telephone when the request is urgent. These are current guidelines and may change depending on new evidence.

Red cell concentrates

Dose: in the absence of active bleeding, use the minimum number of units required to achieve a target Hb. Assume an increment of 10g/L per unit for an average adult.

R1. Acute bleeding

Acute blood loss with haemodynamic instability. After normovolaemia has been achieved/ maintained, frequent measurement of Hb (including by near patient testing) should be used to guide the use of red cell trans
suggested thresholds below

R2. Hb ≤ 70g/L stable patient

Acute anaemia. Consider an Hb threshold of 70
target Hb of 70-90g/L to guide red cell transfusi
are different recommendations (based on weak
from other organisations e.g. Association of Ana

R3. Hb ≤ 80g/L stable patient and acute coronary s

Use an Hb threshold of 80g/L and a target Hb of 80-100g/L

R4. Chronic transfusion dependent anaemia

Transfuse to maintain an Hb which prevents symptoms. Suggest an Hb threshold of 80g/L initially and adjust as required. Haemoglobinopathy patients require individualised Hb thresholds depending on age and diagnosis

R5. Radiotherapy maintain Hb ≥100g/L

There is some evidence for maintaining an Hb of 100g/L in patients receiving radiotherapy for cervical, and possibly other tumours

R6. Exchange transfusion

Fresh frozen plasma (FFP)

Dose: 15-20ml/kg body weight, often equivalent to 4 units in adults.

F1. Major haemorrhage

In the trauma setting transfuse empirically in a 1:1 ratio with red cells. Other settings give FFP in at least a 1 unit:2 unit ratio with red cells until results from coagulation monitoring are available. Once bleeding is controlled, further FFP should be
and APTT (keep PT/APTT ratio of
use of viscoelastic haemostatic

ng
without major haemorrhage. FFP required if coagulopathy.
f < 1.5, or local protocol range for near-patient viscoelastic

ocedure
Prophylactic use when coagulation results are abnormal e.g. disseminated intravascular coagulation and invasive procedure is planned

F4. Liver disease with PT Ratio/INR >2 and pre-procedure

FFP not usually required before invasive procedure if PT ratio/INR is <2 and if there is no significant risk of bleeding

F5. TTP/plasma exchange

F6. Replacement of single coagulation factor

This guidance is based on the National Blood Transfusion Committee (NBTC)

Indication Codes for Transfusion (January 2020)

The indications for transfusion provided below are taken from national guidelines for the use of blood components in adults (see references). Amalgamation into this summary document aims to act as a prompt for clinicians to facilitate appropriate use and to enable robust documentation of indications. Each indication has been assigned a number, to permit reproducible coding, when requesting blood or for documentation purposes. Specific details regarding the patient's diagnosis and any relevant procedures to be undertaken should also be provided at request either on a written request form, electronic blood order or by telephone when the request is urgent. These are current guidelines and may change depending on new evidence.

Prothrombin complex concentrate

Dose should be determined by the situation and INR. Local guidelines should be followed.

PCC1. **Emergency reversal of VKA for severe bleeding** or head injury with suspected intracerebral haemorrhage.

PCC2. **Emergency reversal of VKA pre emergency surgery**

Cryoprecipitate

Dose: 2 pooled units, equivalent to 10 individual units, will increase fibrinogen in an average-sized adult.
Cryoprecipitate should be used with FFP wherever there is a requirement for volume, except in the rare setting of isolated deficiency of fibrinogen.

C1. **Clinically significant bleeding and fibrinogen <1.5g/L (<2g/L in obstetric bleeding)**

C2. **Fibrinogen <1g/L and pre procedure, with a risk of bleeding**

C3. **Bleeding associated with thrombolytic therapy**

C4. **Inherited hypofibrinogenaemia, fibrinogen concentrate not available**

Platelet concentrates

Dose: for prophylaxis, do not routinely transfuse more than 1 adult therapeutic dose. Prior to invasive procedure or to treat bleeding, consider the size of the patient, previous increments, and the target count.

Prophylactic platelet transfusion

P1. **Plt <10 x 10^9/L reversible bone marrow failure**
Not indicated in chronic bone marrow failure if not on intensive treatment, and not bleeding

P2. **Plt 10 – 20 x 10^9/L sepsis/haemostatic abnormality or other additional risk factor for bleeding**

Prior to invasive procedure or surgery

P3. **To prevent bleeding associated with invasive procedures**

- **P3a Plt ≤20 x 10^9/L - central venous line**
- **P3b Plt ≤40 x 10^9/L - pre lumbar puncture/spinal anaesthesia**
- **P3c Plt ≤50 x 10^9/L - pre-percutaneous liver biopsy/major surgery**
- **P3d Plt ≤80 x 10^9/L - epidural anaesthesia**
- **P3e Plt ≤100 x 10^9/L - pre critical site surgery e.g. CNS/Eye**

Transfusion prior to bone marrow biopsy is not required

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

P4a **Plt <50 x 10^9/L - Major haemorrhage**

P4b **Empirically in a Major Haemorrhage Pack / Protocol**

P4c **Plt <100 x 10^9/L - Critical site bleeding e.g. CNS**

P4d **Plt <30 x 10^9/L - Clinically significant bleeding**

Specific clinical conditions

P5a **DIC pre procedure or if bleeding**

P5b **Primary Immune thrombocytopenia (emergency treatment pre-procedure/severe bleeding)**

Platelet dysfunction

P6a **Consider if critical bleeding on anti-platelet medication**

P6b **Inherited platelet disorders directed by specialist in haemostasis**

PATIENT BLOOD MANAGEMENT ITALIA

ONLY ONE

UNA TRASFUSIONE
UNA DECISIONE CLINICA
INDIPENDENTE

Anemia post-operatoria: monitoraggio

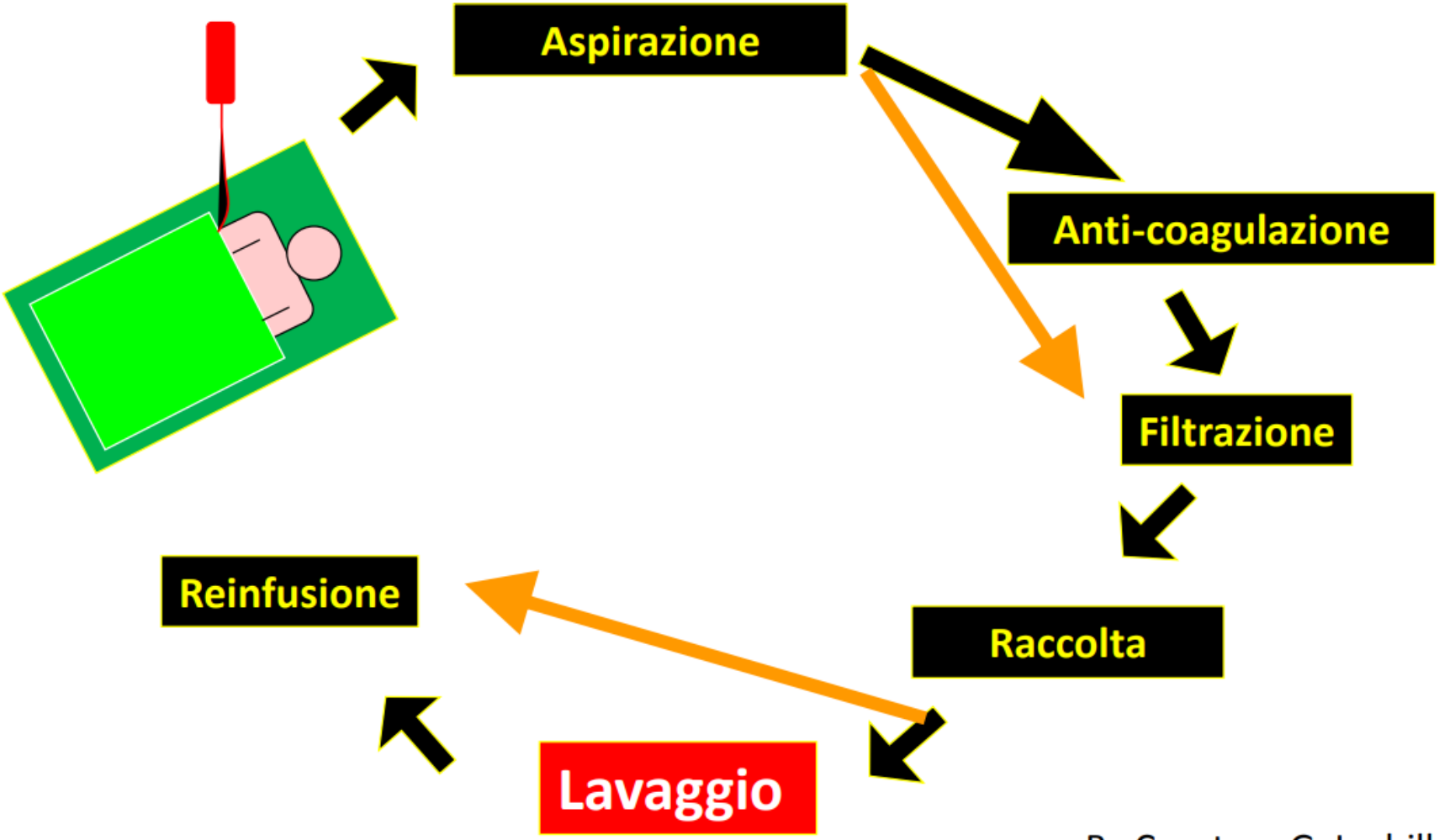
- La flessione dei valori di Hb viene tendenzialmente attribuita a due fattori
  1. Le perdite ematiche perioperatorie
  2. Un'inadeguata somministrazioni di liquidi

- Frequenti prelievi ematici per gli esami di laboratorio
- Sanguinamenti gastrointestinali legati allo stress
- Effetti avversi a farmaci somministrati

Cinnella G. et al. Position Paper **SIAARTI,** 2018

Recupero Perioperatorio

Intraoperatorio e/o Postoperatorio



By Courtesy G. Inghilleri

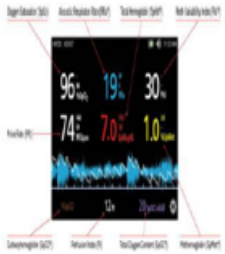
TERAPIA DI SUPPORTO CON FERRO

- FERROGLUCONATO
- FERROCARBOSSIMALTOSIO
- ERITROPOIETINA

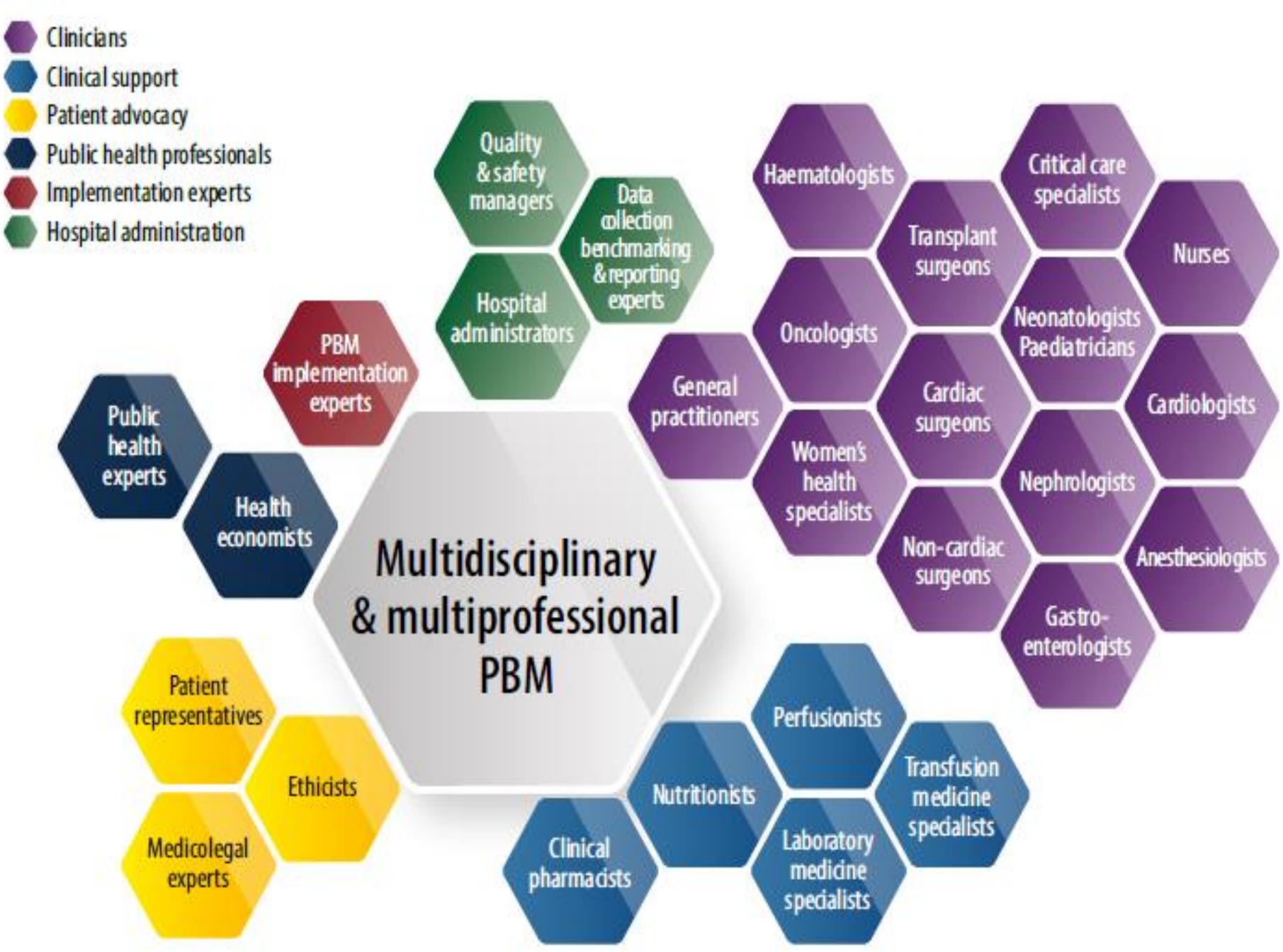
3° PILASTRO

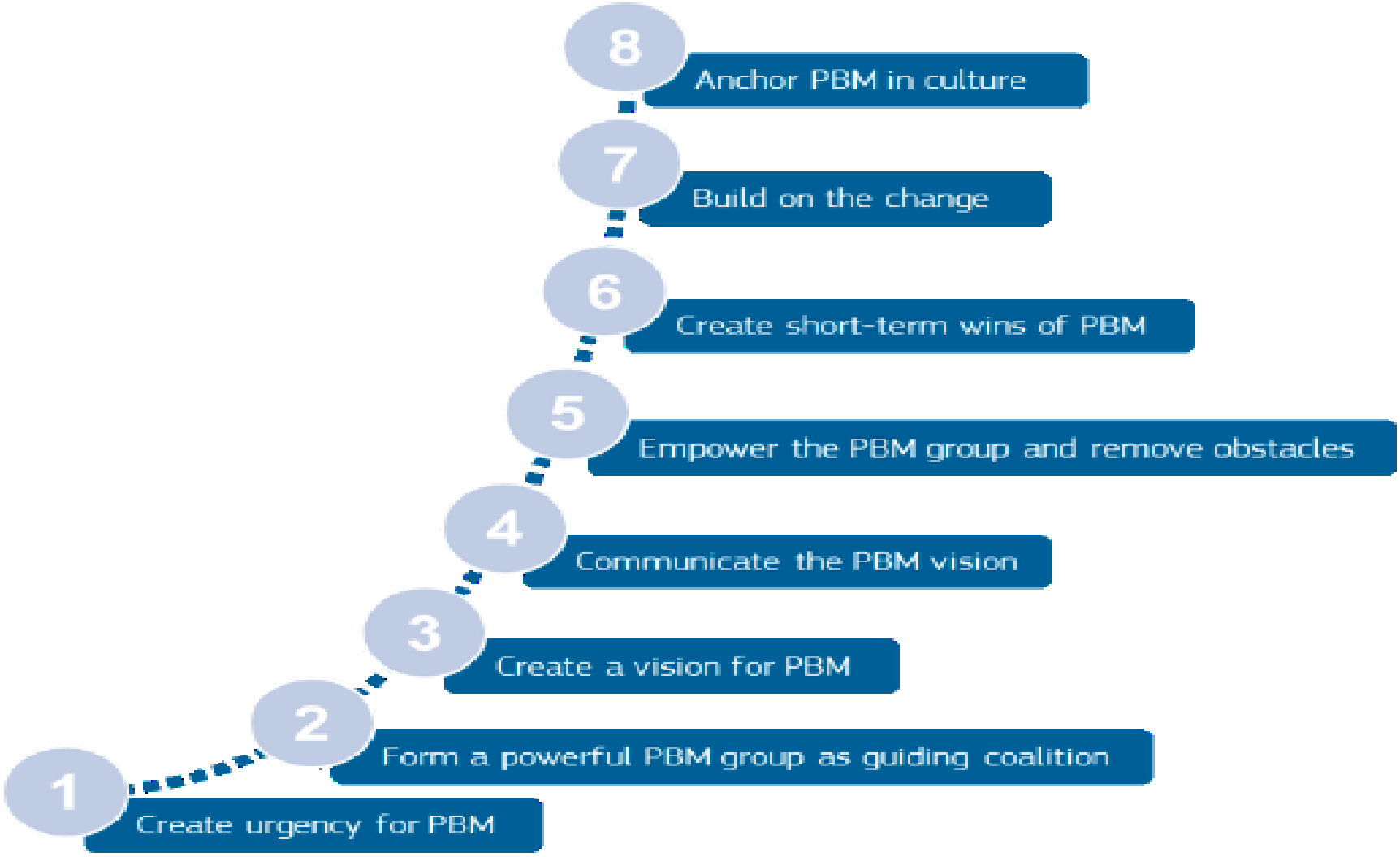
- ATTIVAZIONE E COORDINAMENTO DEL RECUPERO POST OPERATORIO

- PERCORSI TERAPEUTICI PER LA TERAPIA DI SUPPORTO (Ferrogluconato, Ferrocarbossimaltosio, eritropoietina)

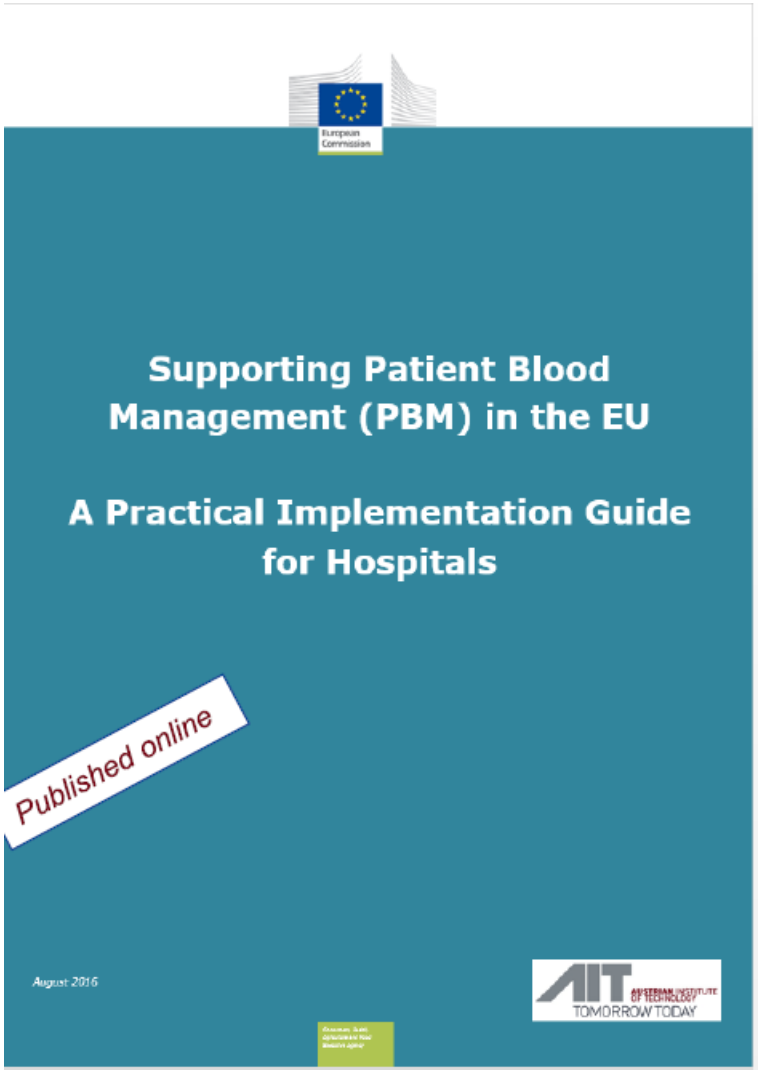


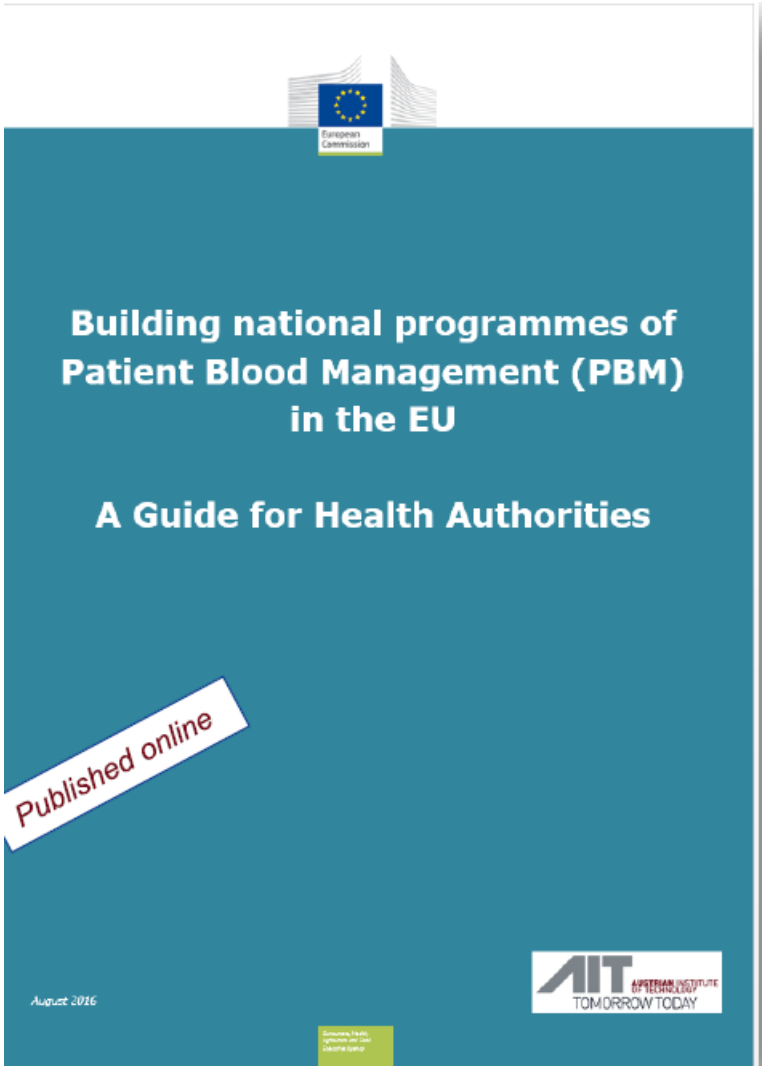
- MONITORAGGIO NON INVASIVO MULTIPARAMETRICO (fluidoterapia, parametri ossiforetici)


Clinicians
Clinical support
Patient advocacy
Public health professionals
Implementation experts
Hospital administration
Quality & safety managers
Data collection benchmarking & reporting experts
Hospital administrators
PBM implementation experts
Public health experts
Health economists
Haematologists
Critical care specialists
Transplant surgeons
Nurses
Oncologists
Neonatologists Paediatricians
General practitioners
Cardiac surgeons
Cardiologists
Women's health specialists
Nephrologists
Non-cardiac surgeons
Anesthesiologists
Gastro-enterologists
Multidisciplinary & multiprofessional PBM
Patient representatives
Ethicists
Medicolegal experts
Perfusionists
Nutritionists
Transfusion medicine specialists
Clinical pharmacists
Laboratory medicine specialists



MODELLO A 8 STEP DI KOTTER

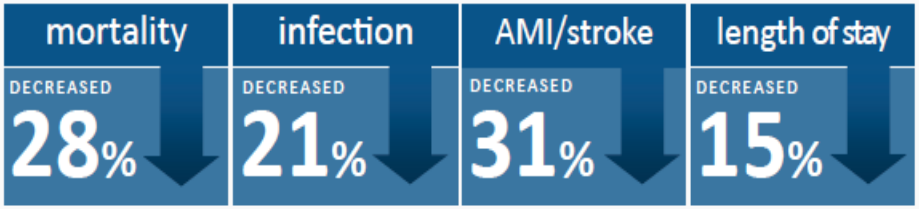

European Commission
Supporting Patient Blood Management (PBM) in the EU
A Practical Implementation Guide for Hospitals
Published online
August 2016
AIT AUSTRIAN INSTITUTE OF TECHNOLOGY
TOMORROW TODAY


European Commission
Building national programmes of Patient Blood Management (PBM) in the EU
A Guide for Health Authorities
Published online
August 2016
AIT AUSTRIAN INSTITUTE OF TECHNOLOGY
TOMORROW TODAY

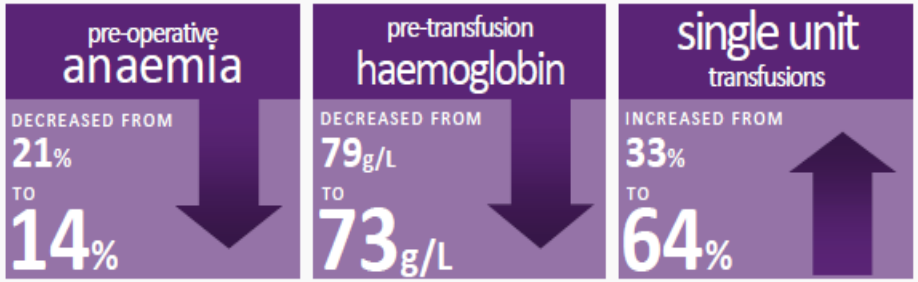
WESTERN AUSTRALIA
PATIENT BLOOD MANAGEMENT PROGRAM

The Western Australian Patient Blood Management Program recently published the world's largest study on patient blood management outcomes. The study included over 600,000 patients admitted to Western Australia's four major adult hospitals between July 2008 and June 2014. Over the six-year study period, the program was associated with:

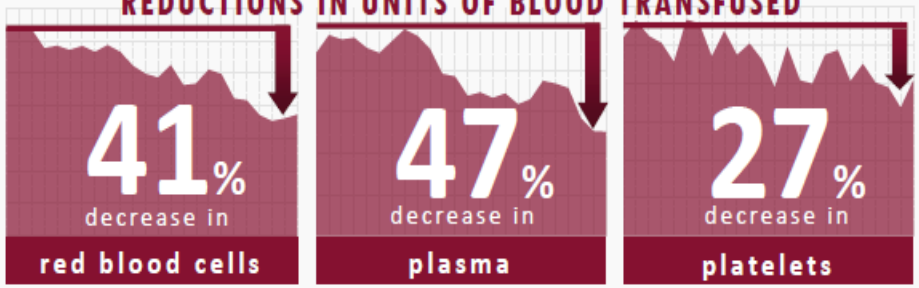
IMPROVED PATIENT OUTCOMES



IMPROVED KEY PROGRAM INDICATORS



REDUCTIONS IN UNITS OF BLOOD TRANSFUSED



PRODUCT COST SAVINGS

Over the six-year study period blood product cost savings were:

$18.5M

ACTIVITY BASED COST SAVINGS

...however with the hospital costs of administering a transfusion added, the gross savings are estimated to be between:

$80M – $100M

PBM GOVERNANCE