

Patient Blood Management



VS.



Dr. Petro-Lize Wessels
PBM Consultant SANBS
August 2018



Overview

- Definition
- 3 Predictors of negative clinical outcomes
- 3 Pillars of patient blood management
- What is my role?



...but first a reminder of 4 important facts..



Fact 1

Delivery of oxygen to the body depends on:

Arterial oxygen content X Cardiac output

Arterial oxygen content depends on:

Number of red cells x saturation of haemoglobin with oxygen

$$DO_2 = \% \text{ saturation } \times 1,39 \times \text{Hb} \times \text{Cardiac Output}$$



Fact 2

- Anaemia is the enemy
- **Global burden of disease study in 2015** (Lancet, October 2016):
 - 2.36 Billion people was affected by anaemia.
 - The prevalence of iron-deficiency anaemia was **1.46 billion.**



Fact 3

- Randomized controlled trials showed red cell transfusions to be associated with **increased morbidity and mortality** – dose-dependant.
- Increased morbidity = increased costs and lower quality of life



Fact 4

- Active donor panel in South Africa < 400 000.
- Require 1% of a population to be blood donors to sustain supply.
- Patients die before they can receive blood/ receive enough blood.



What is Patient Blood Management?



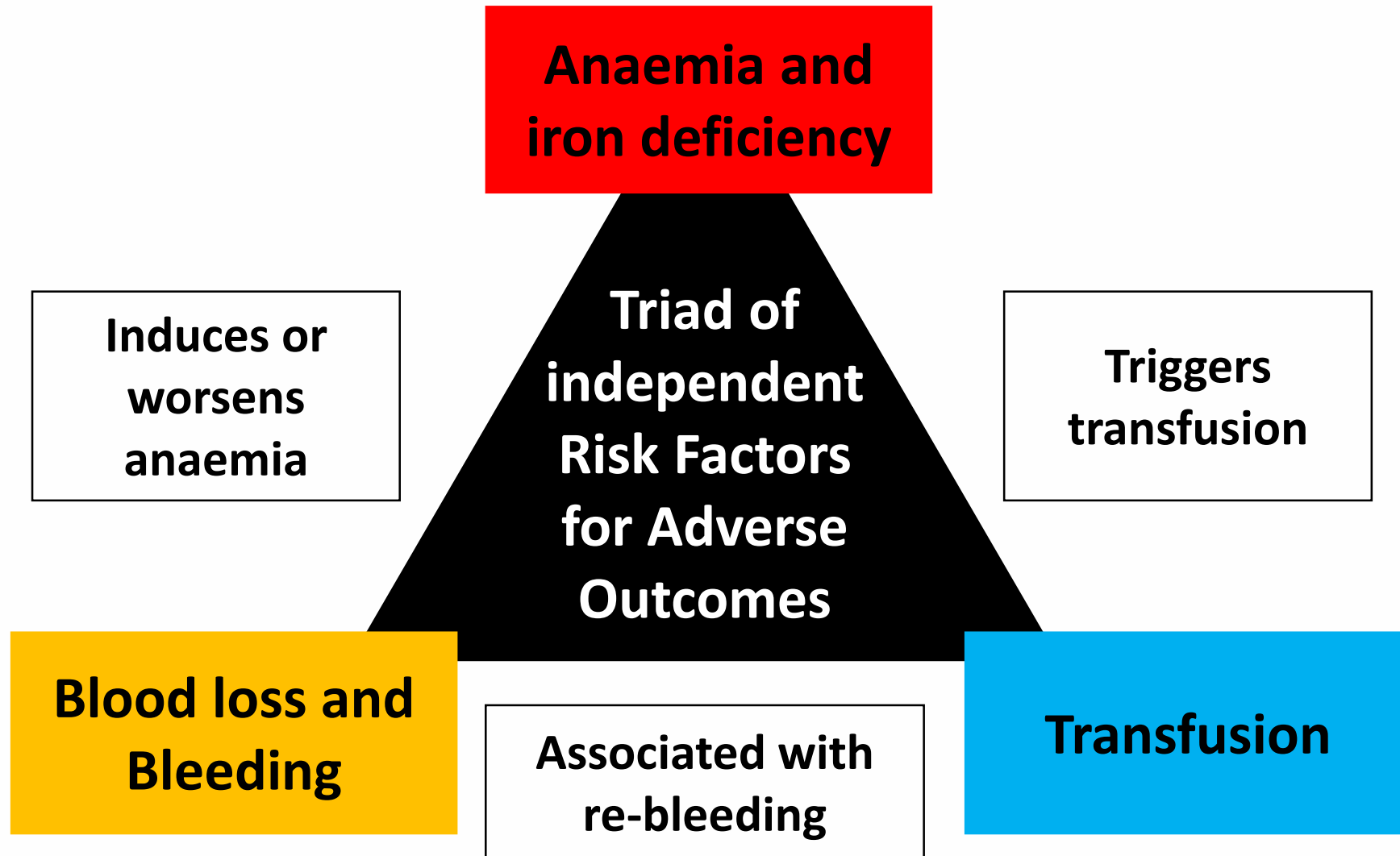
- “PBM is an **evidence-based, multi-disciplinary** approach to **optimizing the care** of patients who may need transfusions.
- Covers all aspects of **patient evaluation** and **clinical management** surrounding the **transfusion decision-making** process.
- This includes: Application of **appropriate indications, minimizing blood loss** and **optimizing the patient’s red blood cell mass.**”

- AABB



3 Predictors of negative clinical outcomes

(slide adapted from Prof. Axel Hoffman)



3 Pillars of PBM to address 3 Risk factors



**Anaemia and
iron deficiency**

**Optimise
patient's own
red cell mass**

**Blood loss and
Bleeding**

**Minimize blood
loss and
bleeding**

Transfusion

**Harness and
optimise
physiological
reserves**

Patient Blood Management

**Optimize
Erythropoiesis**

**Minimize Blood
Loss**

**Optimize
physiological
reserves**

**Pre-
Operative**

**Intra-
Operative**

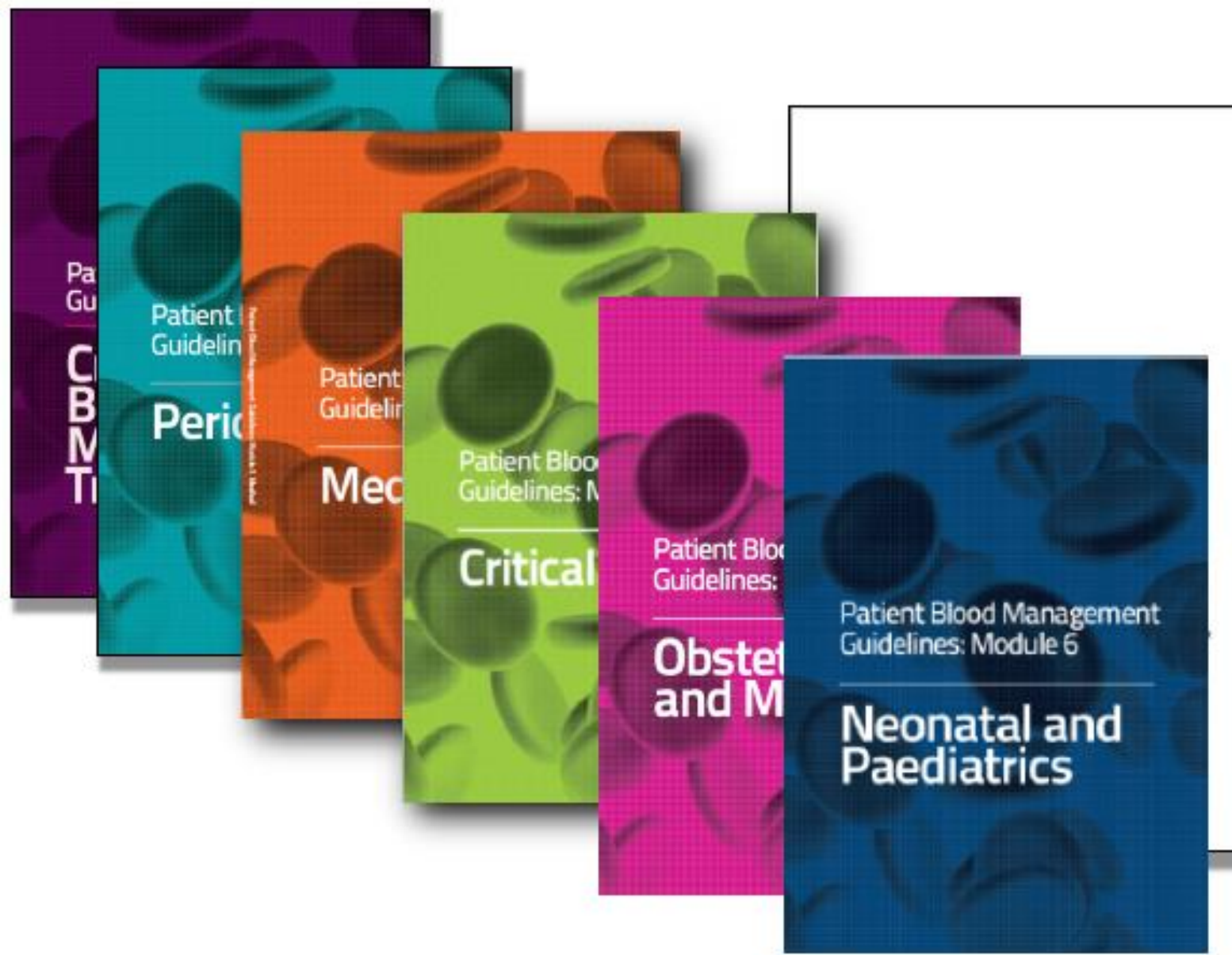
**Post-
Operative**

**National
Provincial
Facility**

**Societies
DOH
Private
SANBS
NHLS**

**Co-ordinated
Monitored**







Optimize erythropoiesis

Minimize blood loss

Harness & Optimize physiological reserves

**P
R
E**

- Identify anaemia and aetiology.
- Treat anaemia.
- ? Autologous donation.
- Consider iron or ESA.
- Refer if needed.

- Identify bleeding risks (drugs, history) & manage
- Review medication.
- Minimize sampling.
- Plan & discuss procedure.

- Estimated blood loss vs. “tolerable” blood loss.
- Optimize physiological reserves.
- Develop a patient specific management plan.

**I
N
T
R
A**

- Do not schedule elective surgery unless pre-operative anaemia has been corrected. (Surgeon and anaesthetist roles).

- Meticulous haemostasis
- Anaesthesia techniques.
- ANH / Cell salvage
- Fibrin glue.
- Patient positioning.
- Pharmacological Rx.

- Optimize cardiac output.
- Optimize ventilation and oxygenation.
- Follow evidence-based transfusion triggers.

**P
O
S
T**

- Manage nutritional anaemia (iron, folate).
- Know your drugs interactions!
- Consider ESA.

- Manage bleeding early.
- Maintain normothermia
- Maintain normovolemia
- Blood salvage (drains)
- Minimize sampling.
- Haemostatic drugs.
- Adverse drug effects.
- Avoid hypertension.

- Adequate oxygenation.
- Minimize O₂ consumption.
- Treat infections promptly.
- Evidence-based transfusion triggers.
- Tolerate normovolemic anaemia.





Donor Blood Management

Users: Clinically appropriate use,
BLUCs

SANBS: Services,
Education,
Data

Use donor blood
data to monitor
PBM program

Patient Blood Management

Users: Anaemia management,
Skills,
PBMCs

Patient rights groups: Public info
SANBS: Education, Advisory,
Monitoring,
?Accreditation,
? Cell salvage



Take home message

- Multi-disciplinary
- Diagnose anaemia – primary healthcare level is crucial.
- Treat anaemia – adequately.
- Minimise blood loss – in all ways possible.
- Optimize your patient's physiological reserves.
- Monitor, monitor, monitor!
- Transition from Hospital transfusion committees/ guidelines to **Patient blood management committees/ guidelines** a.s.a.p.





Thank You



SANBS
South African National Blood Service

