



# Patient Blood Management

*Summary Information Paper*

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## What is Patient Blood Management?

Patient blood management (PBM) views a patient's own blood as a valuable and unique natural resource that should be conserved and managed appropriately. PBM is a multidisciplinary, multimodal and patient centred approach to optimising, conserving and managing the patient's own blood. It aims to identify patients at high risk of transfusion and provide a management plan aimed at reducing the need for blood transfusion and improving patient outcomes.

Patient blood management is built around three pillars:

- Anaemia management to optimise the red cell mass
- Minimise blood loss
- Tolerance of anaemia (appropriate transfusion decision and optimising the patient's physiological tolerance of anaemia).

These three pillars are applied in three integrated phases. (See diagram The Three Pillars of Multidisciplinary Multimodal Patient Blood Management). Although set out for surgical patients, similar principles apply to medical/ haematological patients with pre-, intra- and post-event phases.

## Anaemia management - evidence there is a problem

The impact of anaemia on the population is significant, yet anaemia still remains one of the most underdiagnosed, underrecognized and undertreated conditions. In the United States the third National Health and Nutrition Examination Survey (NHANES) 1988-1994 found that anaemia is most prevalent in children through age 16 (6-9%), in woman aged 17-49 (12%) and in the elderly (aged 65yrs and older, 10.6%). After age 50 years, anaemia prevalence rates increase rapidly, to greater than 20% at age  $\geq 85$  years (Guralnik 2004). The prevalence is anaemia in older persons has been found to be 17% overall, 12% in community studies, 47% in hospital studies (Gaskell 2008).

There are significant clinical and economic consequences related to anaemia. Anaemia in older people is associated with poorer outcomes such as higher mortality 57% vs. 39% over 12 years; anaemia and renal insufficiency both independent risk factors for mortality in Congestive Cardiac Failure and after Myocardial Infarction; increased risk of falls and impaired muscle strength; executive function impairment; hospital admission and longer length of stay. Healthcare costs of patients with anaemia can be twice the cost of non-anaemic patients with the same co-morbid conditions (Nissenson 2003).

Prevalence of pre-op anaemia: 18-46% in orthopaedics (Wu 2007, Shander 2004, BloodSafe 2009) and up to 70% in colorectal cancer (Munoz 2007, Beale 2005, Dunne 2002, BloodSafe 2009). In surgical patients anaemia is associated with poorer outcomes (Beattie 2009, Myers 2004, Wu 2007).

Many clinicians still treat iron deficiency anaemia with transfusion when the haemoglobin drops below a certain level and the patient becomes symptomatic with fatigue. BloodSafe audits (2006) demonstrated that in 25% of transfusion episodes patients had definite or probable iron deficiency anaemia (IDA). Gibson (2006) found that 30% of hospitalised patients with iron deficiency in Victoria received no iron therapy. The study concluded that current management is haphazard, with underutilization of IV iron and failure to initiate any regimen for iron repletion being common.

A community pharmacy "survey" (BloodSafe 2006) showed that 26-60% gave inappropriate advice when asked about oral iron therapy.

Providers of healthcare do not recognize the impact anaemia has in the health and survival of individuals, cognitive quality of life issues and the huge burden of cost due to underdiagnosed anaemia and thus remains a major public health issue.

# The Three Pillars of Multidisciplinary Multimodal Patient Blood Management

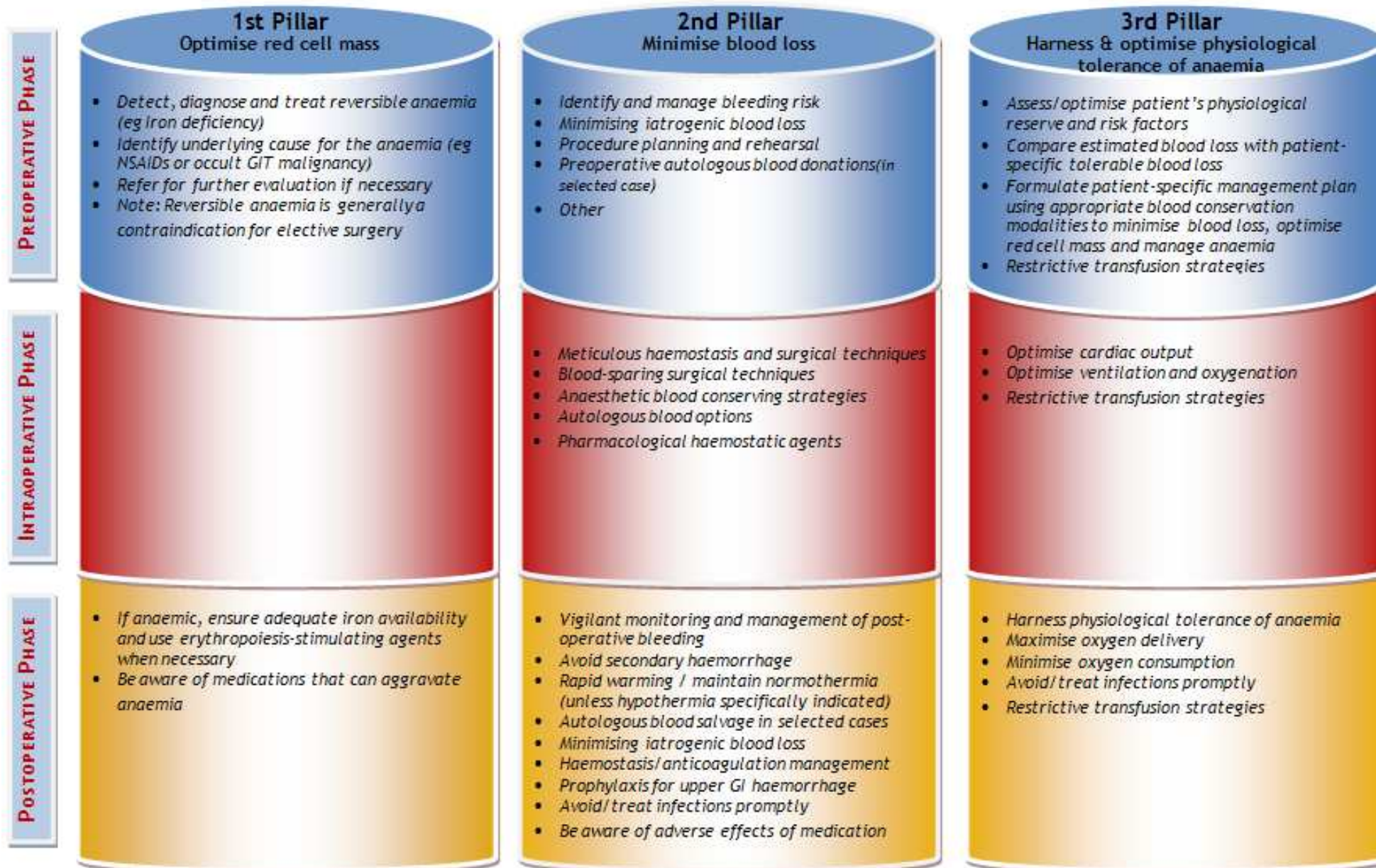


Figure courtesy of the Western Australian Patient Blood Management Program from a presentation given by Dr Simon Towler, Chief Medical Officer, WA Department of Health