

Patient Blood Management: A Patient Safety Requirement in Global Anaesthesiology

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The worldwide uptake of Patient Blood Management (PBM) has come to a pivotal moment. PBM is now considered an integral part of high-quality care and a core patient-safety standard by both the World Health Organization (WHO), multiple scientific communities and professional societies, and many national health systems.¹ As the scope of surgery expands and the weight of the perioperative risk becomes more recognisable, PBM emerges as one of the most effective, evidence-based and patient-centred approaches to managing and preserving our patient's own blood which can enhance perioperative safety, outcomes and sustainability.²

For anaesthesiologists, who are both medical experts in physiology, perioperative organs and systems' functional maintenance and optimisation, patient safety, and key-decision makers in critical situations, PBM application in the perioperative period represents an opportunity as well as an obligation. PBM integrates anaesthesiologists' expertise into a proactive framework focused on blood health, patient safety and improved outcomes, sets a new benchmark for perioperative excellence and helps to redefine the role of anaesthesiology in global health.

One of the main reasons for the eminent relevance of PBM for anaesthesiology and perioperative medicine is the enduring high burden of anaemia, one of the leading (yet often overlooked) risk factors in surgical patients. The elevated prevalence of preoperative anaemia, ranging from 30 to 40% among different surgical populations, even greater in lower and middle-income countries, was consistently documented in large multicultural cohort studies.^{3,4,5} Preoperative anaemia is associated with higher risk of morbidity, including postoperative infection and acute kidney injury, prolonged hospital stay, increased likelihood of transfusion and mortality. It proved to be a predictor of poor postoperative outcomes, independent of comorbidities, surgical complexity and even transfusion.⁶

However, allogeneic blood transfusion, which is the traditional reactive blood management of both anaemia,

coagulopathy and bleeding, carries well-recognised risks, while perioperative transfusion is associated with worse outcomes.⁷ Health system vulnerabilities in many regions of the world, such as shortages of blood components, limited laboratory and screening capacity, variability in cold-chain reliability, and weak haemovigilance infrastructures, may exacerbate the risks of transfusion.⁸ These realities emphasise the limitations of habitual transfusion-based approaches to blood management and support PBM as a strategic objective to increase quality, availability and safety of blood products.⁹

Nevertheless, PBM is essentially about patient safety, better outcome and patient empowerment in the medical decision. Studies performed in diverse surgical specialties show that PBM programmes reduce transfusion rates by 20–40%, lower complication rates and shorten length of stay, without increasing adverse events in the perioperative period.¹⁰ Core perioperative PBM interventions, such as timely diagnosis and treatment of iron deficiency anaemia, appropriate use of tranexamic acid across surgical disciplines, restrictive transfusion thresholds for all blood products, and viscoelastic-guided haemostatic therapy, proved beneficial in randomised controlled trials.^{11–16} Moreover, PBM may enhance health system efficiency and equity, and reduce costs, in line with medical ethical principles of justice, beneficence and nonmaleficence, which are even more relevant in low-resource settings with limited infrastructure and constrained treatment capacity.¹⁰

Anaesthesiologists, through their expertise in fluid management, blood conservation techniques and organ and system functional monitoring, maintenance and optimisation, are at the forefront of PBM implementation in surgical and critical settings, and uniquely positioned to lead it. They interpret patients' physiological changes minute by minute, perform pharmacologic and mechanical interventions, and coordinate team responses during haemorrhagic emergencies clearly and precisely. The key role of anaesthesiologists throughout the perioperative continuum from preoperative assessment and

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optimisation, all the way to intraoperative decision-making, postoperative monitoring and recovery, allow them to make a difference in outcome at all stages.

Over the past four years, the World Federation of Societies of Anaesthesiologists (WFSA) has spearheaded groundbreaking initiatives in the field of PBM, including outreach campaigns directed to WFSA Member Societies and other national and international bodies to secure their endorsement for a global PBM declaration, launched in Santa Cruz during the 2022 Congress of Latin American Anaesthesiologists, development of a perioperative PBM training course, delivery of statements on the importance of PBM implementation for health systems at WHO meetings, organisation of bi-monthly thematic webinars, publication of blog articles and news in the field, and endorsement of relevant guidelines.¹⁷ The WFSA programme of activities was purposefully named perioperative-PBM (p-PBM), to emphasise the integration of PBM principles along the surgical pathway.

Through structured education, constant mentorship and deliberate nurturing of PBM competencies, the WFSA p-PBM programme empowers local champions to adapt PBM to fit their country's specific situations and fosters collaboration within surgical teams as well as with haematologists, other specialists and health professionals, transfusion services and hospital managers, enabling a continuous, multiprofessional dialogue on blood health and patient safety. As such, p-PBM has developed out of a fringe position into a core topic within surgical planning, clinical governance and national strategy, reflecting a common global commitment to blood health, equity and ethical stewardship of allogeneic blood.

Globally, p-PBM is becoming a cornerstone of perioperative quality and an interconnecting route for ensuring patient safety, potentially saving billions of health care dollars which can be deployed when and where needed.^{1,18} By enhancing patient safety, PBM represents high-value of care and facilitates public health functions such as health protection, good health promotion and disease prevention.²

The articles in this Special Issue of Update in Anaesthesia present clinical perspectives, operational tools, and implementation strategies to assist anaesthesiology teams worldwide in advancing the p-PBM agenda, embedding PBM in daily practice, developing multidisciplinary collaboration and policies, advocating for institutional and governmental support and anchoring the culture of blood health and patient safety to surgical ecosystems. By adopting PBM, anaesthesiologists play a critical role in the promotion of safer, more equitable and sustainable emergency, critical and operative (ECO) care for all patients, regardless of their location and socio-economic background, and integrate the concept of continuum of ECO care in daily practice.

Perioperative PBM is a pledge of anaesthesiologists' commitment to provide the safest patient care possible, now and into the future.

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