



PRESS RELEASE

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ICC-PBM clinical recommendations published and ready to be implemented by clinicians

Brussels – 22 March 2019: the European Blood Alliance (EBA) together with a consortium¹ held on 24 and 25 April 2018 the first International Consensus Conference on Patient Blood Management (ICC PBM) in Frankfurt, Germany. The conclusions and recommendations from the conference have just been published in JAMA: [JAMA. 2019;321\(10\):983-997. doi:10.1001/jama.2019.0554](https://doi.org/10.1001/jama.2019.0554).

Patient Blood Management (PBM) aims to optimise the care of patients who might need a blood transfusion. Noting that evidence on transfusion thresholds is missing and there is a variety of guidelines on the subject matter, an international consortium led by EBA took the initiative for this conference. A total of 18.000 publications were screened and 142 studies were included based on 17 questions constructed by experts. Results were critically evaluated at the expert conference and discussed for different patient groups. Expert panels drafted recommendations, whenever evidence was available. Unanimously participants stressed the different level of studies suitable for evidence based analysis. The outcomes of the systematic reviews were presented to a panel and an audience of 200, consolidating the available knowledge on Red Blood Cell Transfusion Thresholds, Pre-Operative Anaemia and Implementation of PBM.

Major clinical recommendations included:

- the need to detect, characterise and manage (including the evidence for and against using erythropoiesis stimulating agents) preoperative anaemia in the context of elective surgery;
- concurrence with strong recommendations from high-quality studies for restrictive red blood cell transfusion thresholds;
- the importance of implementing formal PBM programmes; and
- the value of electronic decision support systems to optimise RBC transfusion.

The ICC-PBM concluded its work with evidence-based clinical recommendations summarised in the tables below:

¹ The consortium consisted of: American Association of Blood Banks (AABB), International Society of Blood Transfusion (ISBT), Deutsche Gesellschaft für Transfusionsmedizin und Immunhämatologie (DGTI), the French Transfusion Society (SFTS), Società Italiana di Medicina Transfusionale e Immunoematologia (SIMTI), with participation of Australian Red Cross Blood Service (ARCBS), Canadian Blood Services (CBS), International Collaboration for Transfusion Medicine Guidelines (ICTMG), International Society on Thrombosis and Haemostasis (ISTH), National Blood Authority (NBA), Australia and the Österreichische Gesellschaft für Blutgruppenserologie, Transfusionsmedizin Regenerative Medizin und Immunogenetik (ÖGBT).



Table 1, Clinical Recommendations: Preoperative Anemia

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Clinical Recommendation	Level of Evidence
CR1—Detection and management of preoperative anemia early enough before major elective surgery	Strong recommendation, low certainty in the evidence of effects
CR2—Use of iron supplementation to reduce red blood cell transfusion rate in adult preoperative patients with iron-deficient anemia undergoing elective surgery	Conditional recommendation, moderate certainty in the evidence of effects
CR3—Do not use erythropoiesis-stimulating agents routinely in general for adult preoperative patients with anemia undergoing elective surgery	Conditional recommendation, low certainty in the evidence of effects
CR4—Consider short-acting erythropoietins in addition to iron supplementation to reduce transfusion rates in adult preoperative patients with hemoglobin concentrations <13 g/dL undergoing elective major orthopedic surgery	Conditional recommendation, low certainty in the evidence of effects

Abbreviation: CR, clinical recommendation.

Table 1, source: Mueller MM, Van Remoortel H, Meybohm P, et al. Patient Blood Management: Recommendations From the 2018 Frankfurt Consensus Conference. JAMA. 2019;321(10):983–997. doi:10.1001/jama.2019.0554

Table 2, Clinical Recommendations: Red Blood Cell Transfusion Thresholds

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Clinical Recommendation	Level of Evidence
CR5—Restrictive RBC transfusion threshold (hemoglobin concentration <7 g/dL) in critically ill but clinically stable intensive care patients	Strong recommendation, moderate certainty in the evidence of effects
CR6—Restrictive RBC transfusion threshold (hemoglobin concentration <7.5 g/dL) in patients undergoing cardiac surgery	Strong recommendation, moderate certainty in the evidence of effects
CR7—Restrictive transfusion threshold (hemoglobin concentration <8 g/dL) in patients with hip fracture and cardiovascular disease or other risk factors	Conditional recommendation, moderate certainty in the evidence of effects
CR8—Restrictive transfusion threshold (hemoglobin concentration 7–8 g/dL) in hemodynamically stable patients with acute gastrointestinal bleeding	Conditional recommendation, low certainty in the evidence of effects

Abbreviations: CR, clinical recommendation; RBC, red blood cell.

Table 2, source: Mueller MM, Van Remoortel H, Meybohm P, et al. Patient Blood Management: Recommendations From the 2018 Frankfurt Consensus Conference. JAMA. 2019;321(10):983–997. doi:10.1001/jama.2019.0554

Table 3, Clinical Recommendations: Implementation of Patient Blood Management Programme

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Clinical Recommendation	Level of Evidence
CR9—Implementation of PBM programs to improve appropriate RBC utilization	Conditional recommendation, low certainty in the evidence of effects
CR10—Computerized or electronic decision support systems to improve appropriate RBC utilization	Conditional recommendation, low certainty in the evidence of effects

Abbreviations: CR, clinical recommendation; PBM, patient blood management; RBC, red blood cell.

Table 3, source: Mueller MM, Van Remoortel H, Meybohm P, et al. Patient Blood Management: Recommendations From the 2018 Frankfurt Consensus Conference. JAMA. 2019;321(10):983–997. doi:10.1001/jama.2019.0554

“This is a key achievement for EBA and co-sponsors as it succeeded to rally the international community in drafting consensus statements and recommendations, and to publish the findings in a highly-ranked peer-reviewed paper” said Professor Seifried, Blood Transfusion Centre of the German Red Cross, one of the co-authors.



The recommendations must now be taken up by transfusion specialists in collaboration with experts from the blood establishments and implemented at hospital level, for the benefit of patients.

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About EBA:

The European Blood Alliance (EBA) an association of not for profit Blood Establishments within the European Union or European Free Trade Association. Its mission is:

- *To contribute to the availability, quality, safety and cost-effectiveness of the blood and tissue supply for the citizens of Europe by developing and maintaining an efficient and strong collaboration amongst European blood, cells and tissue services;*
- *To increase public and professional awareness of voluntary and non-remunerated donation of blood and blood components as an indispensable therapeutic means to help patients;*
- *To assist European blood establishments to continuously improve their performance, based on scientific and ethical principles for the benefit of patients;*
- *To facilitate networking among European blood, cells and tissue services.*

The International Consensus Conference on Patient Blood Management (ICC-PBM) is a collaborative scientific activity of the American Association of Blood Banks ([AABB](#)), the International Society of Blood Transfusion ([ISBT](#)), the German Transfusion Society ([DGTI](#)), the French Society of Blood Transfusion ([SFTS](#)), the Società Italiana di Medicina Trasfusionale e Immunoematologia ([SIMTI](#)), the Centre of Evidence-Based Practice ([CEBaP](#)) and the European Blood Alliance ([EBA](#)).

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