TOWARDS EVIDENCE-BASED
PATIENT BLOOD MANAGEMENT
Patient Blood Management (PBM) aims to optimise the care of patients who might need a blood transfusion. The American Association of Blood Banks (AABB), the International Society of Blood Transfusion (ISBT), the Deutsche Gesellschaft für Transfusionsmedizin und Immunhämatologie (DGTI), the French Transfusion Society (SFTS), Società Italiana di Medicina Transfusionale e Immunemotologia (SIMTI) and the European Blood Alliance (EBA) are committed to advance PBM. These organisations, jointly with several partners will organise a two day consensus conference to present the available evidence on PBM and develop recommendations.

CONSENSUS CONFERENCE METHOD
For this conference the definition of Patient Blood Management (PBM) introduced by WHO is adopted: PBM is a patient-focused, evidence-based and systematic approach to optimize the management of patient and transfusion of blood products for quality and effective patient care. To focus all the available studies, the Scientific Committee, chaired by Prof. Erhard Seifried, formulated specific questions within three chosen topics of PBM:

I. Preoperative anaemia
II. Red Blood Cell (RBC) transfusion triggers
III. Implementation of PBM.

The Centre for Evidence-Based Practice from the Belgian Red Cross has carried out a systematic evidence-based review on the specific PICO (Population, Intervention, Comparison, Outcome) questions around these three topics. Based on search strategies in 4 different biomedical databases (Pubmed, Embase, Cochrane Library and Transfusion Evidence Library), the Centre for Evidence-Based Practice (CEBaP) screened approximately 18,000 titles and abstracts and included 142 studies within the 3 PBM topics of interest. The evidence-based conclusions and the quality of the evidence will be presented at the consensus conference meeting by the Scientific Committee. Based on the evidence and together with the input from the audience, multidisciplinary expert panels will develop recommendations by using a transparent evidence-to-decision framework (GRADE approach). The consensus statements with the supporting evidence will be published afterwards.

TIME, VENUE AND PARTICIPANTS
The Conference will take place on 24 and 25 April 2018 in the Maritim Hotel, Frankfurt, Germany. 250 key stakeholders and experts from the medical specialties and blood transfusion field are invited to participate.

Univ. Prof. Dr. med. Dr. h. c. Erhard Seifried
German Red Cross Blood Donor Service | Goethe-University Frankfurt am Main, Germany
President of the ICC-PBM2018 and Chair of the Scientific Committee
# Programme at a Glance

## First Day, 24 April

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<th>Time</th>
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<td>9.00</td>
<td>Registration and Coffee</td>
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<td>9.30</td>
<td><strong>Opening /Introduction of Chairs and Panellists</strong></td>
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<td><strong>Consensus Conference and Grade Approach</strong></td>
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<td>Coffee Break</td>
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<td>Three Parallel Sessions:</td>
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<tr>
<td>11.30</td>
<td>Definition and Diagnosis of Preoperative Anaemia</td>
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<td>Red Blood Cells Transfusion Triggers</td>
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<td>Implementation and Maintenance of PBM</td>
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<td>Three Parallel Sessions (continued)</td>
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## Second Day, 25 April

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EXPANDED PROGRAMME → FIRST DAY, 24 APRIL

9.00-9.30  REGISTRATION AND COFFEE

9.30-9.50  OPENING
Opening remarks by Prof. Erhard Seifried, President of the conference
Chairs of the day: Prof. Reinhard Burger | Prof. Jimmy Volmink

09.50-10.30  CONSENSUS CONFERENCE AND GRADE APPROACH
An explanation of the Conference format and of the GRADE-approach: the transparent evidence-to-recommendation framework.
  • Presenter: Dr. Hans Van Remoortel

10.30-11.00  COFFEE BREAK

11.00-13.00  THREE PARALLEL SESSIONS
The full list of PICO (Population, Intervention, Comparison, Outcome) questions is included from page 6 and further →

I. DEFINITION AND DIAGNOSIS OF PREOPERATIVE ANAEMIA
→ PICO’s 1-3
  • Chairs: Prof. Yves Ozier | Prof. Emmy de Buck
  • Presenter: Dr. Kathrine Frey
  • Presentation: Summary of systematic review
  • Recommendations

ROOM X

II. RED BLOOD CELLS TRANSFUSION TRIGGERS:
→ PICO’s 4-9, 14
  • Updated Cochrane review on RBC transfusion triggers, presenter: Prof. Jeffrey Carson
  • Chairs: Prof. Reinhard Burger | Prof. Jimmy Volmink
  • Presenting a summary of systematic review: Prof. Jerrold Levy and Prof. Cécile Aubron
  • Recommendations

ROOM Y

III. IMPLEMENTATION AND MAINTENANCE OF PBM
→ PICO’s 15-17
  • Chairs: Prof. Jonathan Waters | Dr. Dean Fergusson
  • Presenter: Prof. Mike Murphy
  • Presentation: Summary of systematic review
  • Recommendations

ROOM Z

ROOM X

ROOM Y

ROOM Z
FIRST DAY, 24 APRIL

13.00–14.00  LUNCH BREAK

14.00–16.00  THREE PARALLEL SESSIONS (CONTINUED)

I  TREATMENT OF PREOPERATIVE ANAEMIA
   → PICO 3
   • Presenter: Dr. Katerina Pavenski
   • Presentation: Summary of systematic review
   • Recommendations

II  RED BLOOD CELLS TRANSFUSION TRIGGERS:
   2. HAEMATOLOGY AND ONCOLOGY
      → PICO’s 10, 11
      • Presenter: Dr. Richard Gammon
      • Presentation: Summary of systematic review
      • Recommendations

   3. NEUROLOGY
      → PICO’s 12, 13
      • Presenter: Dr. Cynthia So-Osman
      • Presentation: Summary of systematic review
      • Recommendations

III  IMPLEMENTATION AND MAINTENANCE OF PBM
   → PICO’s 15–17
   • Presenter: Prof. Mike Murphy
   • Presentation: Summary of systematic review
   • Recommendations

16.00–17.00  CONSENSUS CONFERENCE RECEPTION
Participants are welcomed to the informal drinks reception.

17.00–19.30  CLOSED SESSIONS OF THE EXPERT PANELS
Panellists will retreat, consider the evidence and input from presentations and discussion to draft consensus statement for discussion on day 2.
EXPANDED PROGRAMME → SECOND DAY, 25 APRIL

8.30–9.30  CLOSED SESSIONS OF THE EXPERT PANELS

9.30–9.45  OPENING REMARKS
Chair of the conference explains the conduct and goals of the day
Chairs of the day: Prof. Reinhard Burger and Prof. Klaus Cichutek

9.45–11.00  SESSION: PRE-OPERATIVE ANAEMIA
Presentation of the draft consensus statements

11.00–11.30  COFFEE BREAK

11.30–12.45  SESSION: RED BLOOD CELLS TRANSFUSION TRIGGERS
Presentation of the draft consensus statements
Discussion on statements

12.45–13.45  LUNCH BREAK

13.45–15.00  SESSION: IMPLEMENTATION, MAINTENANCE OF PBM
Presentation of the draft consensus statements
Discussion on statements

15.00–16.00  CLOSING REMARKS
Conclusions by the chairs

17.00–19.00  CLOSED SESSIONS OF THE EXPERT PANELS

19.00  SPEAKERS/PANELIST DINNER
PREOPERATIVE ANAEMIA
Based on search strategies in 4 different biomedical databases (Pubmed, Embase, Cochrane Library and Transfusion Evidence Library), the Centre for Evidence-Based Practice (CEBaP) of the Belgian Red Cross screened approximately 1000 systematic reviews and included about 60 observational (link preoperative anaemia – adverse events) and experimental studies (ESA and/or iron therapy as treatment preoperative anemia).

PICO 1 — ADVERSE EVENTS
In elective surgery patients [population], is preoperative anaemia [intervention/risk factor] a risk factor for adverse clinical or economic outcomes [outcomes] compared to no preoperative anaemia [comparison]?

PICO 2 — DEFINITION
In elective surgery preoperative patients [Population], should Hb of 130 g/L (Index test) (versus [comparator test] [Comparator]) be used to diagnose anemia [Outcome]?

PICO 3 — MANAGEMENT
In elective surgery patients with preoperative anaemia [Population], is the use of red blood cell transfusion or iron supplementation and/or erythrocyte stimulating agents [Intervention] effective to improve clinical and economic outcomes [Outcomes] compared to no intervention/placebo/standard of care [Comparison]?

RBC TRANSFUSION TRIGGERS
Based on the Carson Cochrane review and search strategies in 4 different biomedical databases (Pubmed, Embase, Cochrane Library and Transfusion Evidence Library), the CEBaP screened around 13,000 observational and experimental studies and included about 40 randomized controlled trials.

PICO 4 — ADULT INTENSIVE CARE PATIENTS
In critically ill, but clinically stable adult intensive care patients [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

PICO 5 — ORTHOPAEDIC AND NON-CARDIAC SURGERY
In elderly high risk (cardiovascular) patients undergoing orthopaedic or non-cardiac surgery [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

PICO 6 — ACUTE GASTROINTESTINAL BLEEDING
In patients with an acute gastrointestinal bleeding [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

PICO 7 — CORONARY HEART DISEASE
In patients with symptomatic coronary heart disease [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

PICO 8 — SEPTIC SHOCK
In patients with septic shock (Population), is the use of a restrictive transfusion threshold (Intervention) effective to reduce mortality and improve other clinical outcomes (Outcomes) compared to a liberal transfusion threshold (Comparison)?

PICO 9 — CARDIAC SURGERY
In patients undergoing cardiac surgery [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?
**PICO 10 – ADULT HAEMATOLOGICAL PATIENTS**
In adult haematological patients [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

**PICO 11 – ADULT PATIENTS WITH SOLID TUMOURS**
In adult patients with solid tumours [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

**PICO 12 – ACUTE CENTRAL NERVOUS SYSTEM INJURY**
In patients with acute central nervous system (CNS) injury [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

**PICO 13 – CEREBRAL PERFUSION DISORDERS**
In patients with cerebral perfusion disorders [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

**PICO 14 – ACUTE BLEEDING**
In patients with acute bleeding [Population], is the use of a restrictive transfusion threshold [Intervention] effective to reduce mortality and improve other clinical outcomes [Outcomes] compared to a liberal transfusion threshold [Comparison]?

**PICO 15 – EFFECTIVENESS PBM IMPLEMENTATION**
Is a PBM program [intervention] effective to improve clinical and economic outcomes [outcomes] compared to no PBM program [comparison]?

**PICO 16 – PBM PROMOTIONAL TOOLS: BEHAVIOURAL INTERVENTIONS**
Is a specific behavioural intervention to promote the implementation of a PBM program [intervention] more effective to improve clinical and economic outcomes [outcomes] compared to no intervention or another decision support system/behavioural intervention [comparison]?

**PICO 17 – PBM PROMOTIONAL TOOLS: DECISION SUPPORT SYSTEMS**
Is a specific decision support system to promote the implementation of a PBM program [intervention] more effective to improve clinical and economic outcomes [outcomes] compared to no intervention or another decision support system/behavioural intervention [comparison]?

**PBM IMPLEMENTATION**
Based on 2 systematic reviews (Hibbs 2015 and Tinmouth 2005) and search strategies in 4 different biomedical databases (Pubmed, Embase, Cochrane Library and Transfusion Evidence Library), the CEBaP screened about 700 studies and included about 70 observational studies
This conference is co-sponsored by: AABB, ISBT, DGTI, SFTS, SIMTI and EBA

The American Association of Blood Banks (AABB) is the global leader in standards development, accreditation and implementation of quality systems in transfusion medicine and cellular therapies. AABB has an unwavering focus on donor and patient safety. AABB accomplish this by translating knowledge into solutions that shape the field of transfusion medicine and cellular therapies.

The International Society of Blood Transfusion (ISBT) is an international society where transfusion medicine professionals from across the globe come together and do the one thing they do best: share knowledge to improve the safety of blood transfusion worldwide. The ISBT believes that with the power of knowledge it can improve the safety of blood transfusion worldwide.

The Deutsche Gesellschaft für Transfusionsmedizin und Immunhämatologie (DGTI) is a non-profit organisation promoting transfusion medicine and the development of cooperation with specialist areas, particularly in the fields of science, research and public health. The DGTI serves as an international scientific ’umbrella company’ in the German-speaking world, has more than 1000 members. In addition to the annual scientific congress with an industrial fair, which presents current developments and research results in transfusion medicine and its border areas, current problems of individual sub-areas are addressed in eight sections. DGTI also supports various programs for the promotion of young professionals, scientific events and basic research.

The French Society of Blood Transfusion (SFTS) is a non-profit organization founded in 1938. SFTS promotes blood transfusion and hemobiology in the scientific, technological, ethical, medico-social and educational level. Its means of action are scientific meetings, national congresses, scientific and technical publications. The SFTS responds to requests from the public authorities or their representatives concerning medical or scientific developments having implications for daily practice. SFTS is committed to Continuing Professional Development and working with related organizations to develop and support programs for the various professions in the field.

Società Italiana di Medicina Trasfusionale e Immunematologia (SIMTI), the Italian Society of Transfusion Medicine and Immunohaematology was founded in 1954 with the aim to develop knowledge in the field of Transfusion Medicine and Immunohaematology in cooperation with other medical disciplines and supporting voluntary and non-remunerated blood donors and their associations. SIMTI founded the International Scientific Journal ‘Blood Transfusion’ and is also partner of Italian competent Authorities, namely the Ministry of Health and the National Blood Center, in improve the Italian Transfusional Network cooperating for national and international activities. SIMTI has quite 2,000 members ad affiliates (doctors, biologists, technicians and nurses) working in the Italian Transfusion Services.

The European Blood Alliance (EBA) is an association of non-profit Blood Establishments, with 26 members throughout the European Union and EFTA States. Its mission is to contribute to the safety, security and cost effectiveness of the blood and tissue and cell supply for the citizens of Europe by developing and maintaining an efficient and strong collaboration amongst European blood and tissue and cell services.

Evidence Based Review by
The Centre for Evidence-Based Practice (CEBaP). This is a non-profit global centre located in Belgium and supporting humanitarian activities, including those of the Belgian Red Cross, with scientific evidence. CEBaP was launched in 2009 and currently consists of 8 researchers. They provide a
scientific basis for a wide range of humanitarian activities, from blood supply to development programs or emergency relief. This is achieved by developing systematic reviews, which are overviews of evidence based on published scientific studies. In addition they develop evidence-based guidelines, in which also practice experience and preferences of the target group are taken into account. Where gaps in evidence are identified, CEBaP also conducts primary field studies.

WITH THE 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, Australia (NBA)
- Österreichische Gesellschaft für Blutgruppenserologie, Transfusionsmedizin Regenerative Medizin und Immun­genetik (ÖGBT)

PRESIDENT OF THE CONFERENCE AND CHAIR OF THE SCIENTIFIC COMMITTEE: PROF. DR. ERHARD SEIFRIED

Professor of internal medicine, haematology and transfusion medicine, is the chair of transfusion medicine and immunohaematology and director of the Institute of Transfusion Medicine at the Goethe University Hospital in Frankfurt am Main, Germany and Chief Medical Director of the Red Cross Blood Donor Services Baden-Wuerttemberg – Hessen, including its affiliates. He qualified in internal medicine at Ulm University Medical Center and specialized in haematology, oncology, transfusion medicine and haemostaseology. He worked at Gaubius Institute TNO Leiden, the Netherlands, for his Ph.D. He has served as president of the German Society of Transfusion Medicine (DGTI) and as the president of International Society for Blood Transfusion (ISBT). He was Vice-president of the European Blood Alliance (EBA) until 2017.

CHAIR: PROF. DR. REINHARD BURGER

President of the Robert Koch Institute (RKI) until 2015. The RKI is the German National Public Health Institute. Its goal is prevention, investigation and management of infectious diseases and also non-communicable diseases and health risks. He received his degrees in Microbiology and Immunology at the Inst. for Med. Microbiology, Univ. Mainz (Habilitation 1982), was Professor for Immunology at Univ. of Heidelberg and since 1989 Professor for Immunology at Free University Berlin. Until 2010 he was Head of the Dept. for Infectious Diseases of the RKI. From 1993 to 2015 he was Chairman of the National Advisory Committee Blood of the German MoH giving advice to the Federal and States Government to all aspects of infection safety and efficient use of blood products. He contributed to a substantial number of Publications, recommendations and guidelines in the field of infectious diseases, immunology and transfusion medicine, particularly the safety against infections through blood components.

CHAIR: PROF. DR. KLAUS CICHUTEK

Is the President of the Paul-Ehrlich-Institut. He is a biochemist and extra-ordinary Professor of Biochemistry at the Johann Wolfgang Goethe University of Frankfurt/Main, Germany. After finishing his Ph.D. in biochemistry at the Westfälische Wilhelms-University Münster, he was granted a fellowship at the University of California in Berkeley, U.S.A. where he worked in the Virus Laboratory as a postdoctoral scientist. Since 1988 Prof. Cichutek has been working at the Paul-Ehrlich-Institut as a scientist, and later as head of the ‘Molecular Biology’ Research Group. He became head of the Medical Biotechnology Division in 1994. In 1999 he took over as Deputy Director of the Paul-Ehrlich-Institut (PEI),
became Vice-President of PEI in 2001 and since December 2009 he has been the President of PEI. He has been member and chairman of many committees and advisory panels in the field of gene therapy, biological standardization and was co-chairman of the ‘Benchmarking of European Medicines Agencies’ Steering Group of the European ‘Heads of Medicines Agencies’ (HMA) until February 2014. Since March 2014, he has been chair of the HMA Management Group.

CHAIR: PROF. DR. EMMY DE BUCK
Prof. Dr. Emmy De Buck obtained her Master degree in Applied Sciences and a PhD in Medical Sciences at the KU Leuven (University of Leuven), Belgium. In 2009 she started her career at the Belgian Red Cross-Flanders where she was co-founder of the Centre for Evidence-Based Practice (CEBaP), which provides scientific support to diverse activities of the Red Cross; from blood supply to first aid. She is currently head of CEBaP where she is responsible for developing evidence-based guidelines (both national and international) and systematic reviews, all published in peer-reviewed journals. From 2016 onwards she is also appointed as Assistant Professor at the Faculty of Medicine of the KU Leuven, where she teaches Evidence-Based Practice and supports medical students in the development of systematic reviews.

CHAIR: PROF. DR. DEAN FERGUSSON
Dr. Fergusson is a Senior Scientist & Director, Clinical Epidemiology Program, at the Ottawa Hospital Research Institute. He is also a Full Professor, Departments of Medicine, Surgery, & the School of Epidemiology, Public Health and Preventive Medicine at the University of Ottawa. He holds the position of Endowed Chair, OHRI/uOttawa, Clinical Epidemiology Program. He received a PhD (Honours) in Epidemiology and Biostatistics from McGill University and a Masters of Health Administration from the University of Ottawa. Dr. Fergusson’s clinical research interests are mainly in the field of transfusion medicine with a focus on transfusion alternatives and the effectiveness of blood products. His research interests also extend to the methodology and ethics of clinical trials and systematic reviews. Dr. Fergusson is a principal investigator on a number of large, peer-reviewed clinical trials in transfusion medicine including ‘Blood Conservation Using Antifibrinolytics: Randomized Trial in High-Risk Cardiac Surgery (BART)’, Age of Red Blood Cells in Premature Infants (ARIPi), ‘Age of Blood Evaluation (ABLE)’. Dr. Fergusson has contributed over 400 articles, abstracts, and book chapters to the medical literature.

CHAIR: PROF. DR. YVES OZIER
Currently Professor of Anesthesiology and Critical Care Medicine at the Western Brittany University (Université de Bretagne Occidentale) and Head of the Division of Anesthesia, Critical Care and Emergency Medicine at the University Hospital of Brest, France. Between 2000-2011, he was appointed as a Professor of Anesthesiology and Critical Care Medicine at the University Paris-Descartes and Head of the Department of Anesthesia and Surgical Intensive Care of the Cochin University Hospital in Paris. His main research and teaching interests are in the field of perioperative transfusion medicine. He is a member of several scientific societies including NATA (Network for the Advancement of Patient Blood Management, Haemostasis and Thrombosis) and the French Society of Blood Transfusion. He has acted as expert in several guidelines including the NATA guidelines on the detection, evaluation, and management of preoperative anaemia in the elective orthopaedic surgical patient and the European guidelines on Management of major bleeding and coagulopathy following trauma.

CHAIR: PROF. DR. JIMMY VOLMINK
Professor of Clinical Epidemiology and Dean of the Faculty of Medicine and Health Sciences at Stellenbosch University, South Africa. He was the founding Director of Cochrane
CHAIRS OF THE SESSIONS

South Africa and also served as Director of Research and Analysis of the Global Health Council in Washington DC. After obtaining his BSc and MBChB degrees from the University of Cape Town and a DCH from the SA College of Medicine, he worked in hospitals in rural Swaziland and Cape Town. He was awarded a Harvard/South Africa Fellowship and obtained an MPH from Harvard University in 1988. In 1996, he obtained a DPhil in Epidemiology from the University of Oxford, after receiving the Nuffield Medical Research Fellowship. Special interests include evaluating effects of health care interventions, promoting evidence-based decision making, addressing health inequalities and fostering research capacity building. He is elected member of the Academy of Science of South Africa and elected Fellow of the Royal College of Physicians of Edinburgh. He was awarded a Recognition Award from the South African Medical Research Council for outstanding achievements in contributions to Evidence-Based Healthcare in Africa.

CHAIR: PROF DR. JONATHAN H. WATERS, M.D.
Professor in the Departments of Anesthesiology and Bioengineering at the University of Pittsburgh; Chief of the Division of Anesthesiology at Magee-Womens Hospital of the University of Pittsburgh Medical Center; Vice Chair for Clinical Research for the Department of Anesthesiology; and, a member of the McGowan Institute for Regenerative Medicine. In addition, he is Medical Director of the Patient Blood Management program of UPMC. He has over 140 peer-reviewed publications, five books on the topic of blood management and a book on neurologic disease in pregnancy. In addition to conducting research, he is currently serving as an Associate Editor for the journal, Transfusion. He is a past president of the Society for the Advancement of Blood Management (SABM). He served on the Board of Directors of the AABB between 2011 and 2015.
SPEAKERS OF THE CONFERENCE

**PROF. DR. CÉCILE AUBRON**

is a French intensivist. She works at the teaching hospital of Brest in Brittany (France). Her fields of interest and research are blood component transfusion and infectious diseases in intensive care. She spent a few years at the Australian and New Zealand Research Centre (Australia) where she worked on the potential impact of red blood cell storage duration on critically ill patients’ prognosis. She carries out several research projects on blood components transfusion in ICU, aiming to better understand transfusion related complications and to improve transfusion practice in critically ill patients. She represents the French Blood Transfusion Society (Société Française de Transfusion sanguine) at the ICC-PBM 2018.

**DR. JEFFREY CARSON**

Is the Provost, New Brunswick at Rutgers Biomedical Health Science since 2014. He has been a member of the Robert Wood Johnson Medical Faculty since 1987 where he served as Chief of the Division of General Internal Medicine until 2015. He currently is the Richard C. Reynolds, M.D. Chair in General Internal Medicine and Department of Medicine’s Vice Chair for Research.

Dr. Carson was a Fogarty Senior International Fellow at the University of Oxford, England from 1995–1996 where he received extensive training in clinical trials. Dr. Carson is a board-certified internist who practices office and hospital-based Internal Medicine. His expertise in clinical trials has been recognized by his appointment to Clinical Trials Review Committee at the National Heart, Lung and Blood Institutes where he served as Chair during his fifth year. He has served as a member and chair of multiple clinical trial Data Safety Monitoring Boards. The focus of Dr. Carson’s research is on determining the risk of anemia and indications for blood transfusion. His work has been published in the New England Journal of Medicine, Lancet, JAMA, and Annals of Internal Medicine.

**DR. KATHRINE P. FREY**

Dr. Frey is certified in Anatomic and Clinical Pathology and Transfusion Medicine and has been active in Patient Blood Management since 2008. Using an interdepartmental approach including change management, internally developed blood ordering and appropriateness of use informatics tools and focused process improvements, blood use has decreased 60% in her hospitals. An area of major interest is identification and mitigation of pre-operative anaemia which she considers a failure of process. Passionate about patient safety and high reliability industrial principles, she developed and oversees a virtual peri-operative surgical evaluation clinic that focuses on pre-operative anaemia management. Dr. Frey is honoured to serve on committees for both the Society for the Advancement of Blood Management and the American Association of Blood Banks.

**DR. RICHARD GAMMON**

Dr. Gammon is a subject matter expert in the area of patient blood management. His programs provide hospitals with current evidenced-based transfusion thresholds, management of the transfusion committee and emphasize the importance of appropriate transfusions. Dr. Gammon holds Board Certifications in Blood Banking and Transfusion Medicine as well as Clinical Pathology. He is a Medical Director for OneBlood and Transfusion Medicine Specialists and an Assistant Professor of Pathology for the University Of Central Florida College Of Medicine and a Clinical Associate Professor of Pathology at NOVA Southeastern University College of Allopathic Medicine. Dr. Gammon serves as an assessor, member of the CME Advisory Committee, bacterial contamination workgroup, European Blood Alliance Working Group and is the Blood Banks Transfusion Service Standards Program Unit’s incoming chair for AABB.
SPEAKERS OF THE CONFERENCE

PROF. JERROLD H LEVY, MD, FAHA, FCCM

Jerrold Levy obtained his medical degree from University of Miami, internship in internal medicine, and residency in Anesthesiology at Massachusetts General Hospital/Harvard Medical School. He completed fellowships in Respiratory ICU and Cardiac Anesthesiology. He previously was Professor and Deputy Research Chair at Emory University. His research interests include strategies to treat bleeding, anticoagulation and its reversal, clinical applications of recombinant and factor concentrates, therapeutic approaches to shock, and anaphylaxis. His current appointments include Executive Editor of Anesthesiology, Chair of the ISTH Subcommittee on Perioperative and Critical Care Thrombosis/Hemostasis, Cardiac Surgical Council of the American Heart Association, and consultant to the FDA’s Blood Products Advisory Committee. He has authored over 400 publications, including original research articles, reviews, and books.

PROF. DR. MIKE MURPHY

Works as a clinical specialist in haematology, leading the Oxford hospital transfusion services and managing patients with immune haematological disorders. He qualified 1973, and became a Senior Lecturer in Haematology in 1985. In 1996, he moved to Oxford where he became Professor of Blood Transfusion Medicine in 2004. His expertise is in hospital transfusion practice. With his team, they developed an ‘end-to-end’ electronic (paperless) transfusion process. This work has won several national awards, and is the subject of a Proven Case Study for the NHS Quality, Innovation, Prevention and Productivity (QIPP) initiative. Between 2001 to 2015 he was Secretary of the National Blood Transfusion Committee in England and was a co-founder of the NHS Blood & Transplant (NHSBT)/Medical Research Council Clinical Studies Unit and its Systematic Reviews Initiative for transfusion medicine and established the National Comparative Audit of Blood Transfusion programme in 2002 and chaired its Steering Group until 2015. He has served on numerous Advisory Boards and Committees, and was elected as a Member of the Royal College of Pathologists Council (2005-08). In December 2012, he was appointed as Chair for the NICE Guideline Development Group for Blood Transfusion. Between 2014 and 2018 he was elected Chair of the BEST Collaborative and is currently current President-elect of AABB. In 2015 he was awarded an Honorary Fellowship of the Faculty of Pathology of the Royal College of Physicians, Ireland.

DR. KATERINA PAVENSKI

Dr. Pavenski is Head of the Division of Transfusion Medicine, clinical haematologist and medical director of the Therapeutic Apheresis and Patient Blood Management at St. Michael’s Hospital, Toronto. She completed Doctor of Medicine degree, residencies in Internal Medicine and Adult Clinical Hematology at the University of Toronto and residency in Transfusion Medicine at the McMaster University, Hamilton. She is an associate professor in the Department of Pathobiology and Laboratory Medicine and cross-appointed to the Department of Medicine at the University of Toronto. Her research interests include clinical transfusion medicine, patient blood management, and therapeutic apheresis. She is the Chair of the Ontario Blood Advisory Committee and member of the National Advisory Committee on Blood and Blood Products. She is the Chair of the Topics Committee of the ICTMG (International Collaboration for Transfusion Medicine Guidelines) and the Chair of the Local Organizing Committee for the 35th International Congress of the ISBT (the International Society of Blood Transfusion).

DR. HANS VAN REMOORTEL

Hans Van Remoortel (PT, PhD) completed his PhD in Physiotherapy and Rehabilitation Sciences on the topic ‘physical activity and comorbidities in patients with COPD’ at the Catholic University of Leuven, Belgium (2009-2013). Since 2014, he is coordinating researcher of the Centre for Evidence-Based Practice (CEBaP, Belgian Red Cross).
CEBaP is involved in conducting systematic reviews, developing evidence-based guidelines and setting-up primary research studies to support pre-hospital care activities, going from humanitarian aid & development to blood supply. The main task of the CEBaP for the ICC-PBM 2018 was to coordinate and apply the evidence-based methodology (cfr. GRADE).

**DR. CYNTHIA SO-OSMAN**

Dr. So-Osman obtained her PhD in 2012 with a thesis on Patient Blood Management in Elective Orthopaedic Surgery. So-Osman currently is a consultant Transfusion Medicine/Staff member at Sanquin Blood Bank, Leiden and Consultant Haematologist at Groene Hart Hospital, Gouda, Netherlands. She is a Board member of the Dutch Association of Blood Transfusion and Chair of the ISBT Working Party on Clinical Transfusion. She is a Member of the Scientific Board EHA topic Transfusion Medicine, the Scientific Committee NATA and on the ICTMG Committee (guideline group).
SCIENTIFIC COMMITTEE

Pierre Albaladejo  Grenoble university hospital, France/ISTH 4)
Shubha Allard  NHS Blood & Transplant/ISBT
Cécile Aubron  Academic Hospital of Brest, France/SFTS 5)
Kari Aranko*  European Blood Alliance/EBA
Dana Devine  Canadian Blood Services/CBS
Craig French  Western Health, Melbourne Australia
Kathrine P. Frey  Fairview Health Services and Patient Readiness Institute, Minneapolis MN/AABB
Christian Gabriel  Ludwig Boltzmann Institute for clinical and experimental traumatology, Austria/DGTI 3)
Richard Gammon  One Blood, Orlando/AABB
Andreas Greinacher  Institut für Immunologie und Transfusionsmedizin Greifswald/ICTMG 2)
Marian van Kraaij  Sanquin, the Netherlands/EBA
Jerrold Levy  Duke University School of Medicine, North Carolina/ISTH 4)
Giancarlo Liubruno  Italian National Institute of Health/EBA
Patrick Meybohm*  University Clinics of the Johann Wolfgang Goethe University Frankfurt/Main
Markus Müller*  Institute for Transfusion Medicine and Immunohaematology Frankfurt/EBA
Mike Murphy  NHS Blood & Transplant and AABB/EBA
Hans van Remoortel  Centre for Evidence-Based Practice, Belgian Red Cross 6)
Ben Saxon  Australian Red Cross Blood Service/ARCBS
Erhard Seifried  German Red Cross Blood Transfusion Services/EBA
Nadine Shehata  Mount Sinai Hospital Toronto/ICTMG 2)
Claudio Velati  Società Italiana di Medicina Trasfusionale e Immunohaematologia
Erica Wood  Epidemiology and Preventive Medicine at Monash University/ISBT

RAPPORTEURS

Judith Chapman  International Society of Blood Transfusion
Dana Devine  Canadian Blood Services/CBS
Gilles Folléa  French Blood Transfusion Society
Patrick Meybohm*  University Clinics of the Johann Wolfgang Goethe University Frankfurt/Main
Pierre Tiberghien  French National Blood Service
Erica Wood  Epidemiology and Preventive Medicine at Monash University/ISBT

MULTI-DISCIPLINARY EXPERT PANEL

the Decision-Making Panel for each of the three parallel session. 7-15 individuals of diverse backgrounds to form each of the panels and write the final consensus conference statement.

Chairs of the plenary sessions: Prof. Reinhard Burger | Prof. Klaus Cichutek.

**Preoperative Anemia**
- Yves Ozier (*chair*) Brest University Hospital
- Emmy de Buck (*chair*) CEBaP, Belgium Red Cross
- Danielle Bischof Mt Sinai Hospital, Toronto
- Christian Gabriel Ludwig Boltzmann Institute for clinical and experimental traumatology, Austria
- Sigismond Lasocki University Hospital, Angers
- Manuel Muñoz Gomez University of Malaga
- Katerina Pavenski St. Michael’s Hospital, Toronto
- Thomas Schmitz-Rixen Goethe-University Hospital Frankfurt am Main
- Hubert Serve University of Frankfurt
- Amanda Thomson Australian Red Cross Blood Service
- Claudio Velati Società Italiana di Medicina Trasfusionale e Immunoematologia
- Agneta Wikman Karolinska University

**Red blood cell transfusion triggers**
- Reinhard Burger (*chair*) Robert Koch Institute (formerly)
- Jimmy Volmink (*chair*) Stellenbosch University
- Pierre Albaladejo Grenoble University Hospital, France
- Erik Beckers Maastricht University Medical Center
- Kaaron Benson Moffitt Cancer Center, Tampa

**Implementation of PBM**
- Jeffrey Carson Rutgers University, New Jersey
- Graham Donald Patient representative, UK
- Craig French Western Health, Melbourne Australia
- Nicole Juffermans University of Amsterdam
- Marian van Kraaij Sanquin, the Netherlands
- Dawn Maze University of Toronto
- Marek Mirski Johns Hopkins Medical Institutions
- Gavin Murphy British Heart foundation/University of Leicester
- Jean-Jacques Ries University hospital Basel
- Ben Saxon Australian Red Cross Blood Service
- Christof Sohn University of Heidelberg, Germany
- Tim Walsh University of Edinburgh

- Jonathan Waters (*chair*) University of Pittsburgh
- Dean Fergusson (*chair*) University of Ottawa
- Shubha Allard NHS Blood & Transplant
- Lauren Anthony Allina Health, Minneapolis
- Linley Bielby Australian Red Cross Blood Service
- Lise Estcourt NHS Blood & Transplant
- Mohamed El Missiry Patient Representative, Charité Hospital, Berlin
- Steven Frank Johns Hopkins Medical Institutions
- John Freedman St Michael’s Hospital, Toronto
- Catherine Humbrecht Établissement Français du Sang, Strasbourg
- Giancarlo Liumenbro Italian National Institute of Health
- Louise Sherliker NHS Blood & Transplant
VENUE
MARITIM HOTEL FRANKFURT
THEODOR-HEUSS-ALLEE 3
60486 FRANKFURT/MAIN
GERMANY

CONERENCE SECRETARIAT
EBA OFFICE
PHONE +31 20 512 3291
ICC-PBM@EUROPEANBLOODALLIANCE.EU
CONTACT PERSONS: KARI ARANKO,
WILLEM JN KRAMER

MCI AMSTERDAM
EVENT ORGANISER
PHONE: +31 20 575 42 20
EBA@MCI-GROUP.COM
CONTACT PERSON: SOPHIE HAMBURGER

PRACTICAL INFORMATION

REGISTRATIONS
Registrations for the Conference can be made via the secure booking site of Event Organiser MCI. The Conference cost is €200; this includes catering, drinks reception and access to the evidence summaries prior and during the conference.

The Conference Secretariat has negotiated a special rate for delegates for their stay at the Maritim Hotel in Frankfurt. In order to benefit from these rates, rooms have to be booked with the hotel directly via the dedicated HOTEL BOOKING LINK.

For more information, please check the ICC-PBM website at www.icc-PBM.eu.

You can register HERE
WELCOME TO FRANKFURT

Frankfurt is the largest city in the German state of Hesse and the fifth-largest city in Germany, with a population of 714,241 (2014) within its administrative boundaries. The urban area called Frankfurt Rhein-Main has a population of 2,221,910. The city is at the centre of the larger Frankfurt Rhine-Main Metropolitan Region which has a population of 5,500,000 and is Germany’s second-largest metropolitan region. This old imperial city on the River Main - hence its full name, Frankfurt am Main - is, by virtue of its central situation, the most important commercial and economic center on mainland Europe. Frankfurt is also a centre for commerce, culture, education, tourism and web traffic. Frankfurt is also home to many cultural and educational institutions including the Johann Wolfgang Goethe University and Frankfurt University of Applied Sciences, many museums (e.g. Städel, Naturmuseum Senckenberg, Schirn Kunsthalle Frankfurt, Goethe House), and two major botanical gardens, the Palmengarten, which is Germany’s largest, and the Botanical Garden of the Goethe University.

TRAVEL TO FRANKFURT

Frankfurt is situated at the heart of Europe in the centre of Germany. It has outstanding transport connections with an international airport, the major intercity rail station and the Frankfurt autobahn intersection. And it’s not just travelling to Frankfurt that’s so straightforward – thanks to their location in the city, the Maritim Hotel is also quick and easy to access. For instance. It is just a 10-minute walk from Frankfurt central station. The journey from the airport to the centre of town by car or public transport takes about 15 minutes.

FLYING TO FRANKFURT

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