

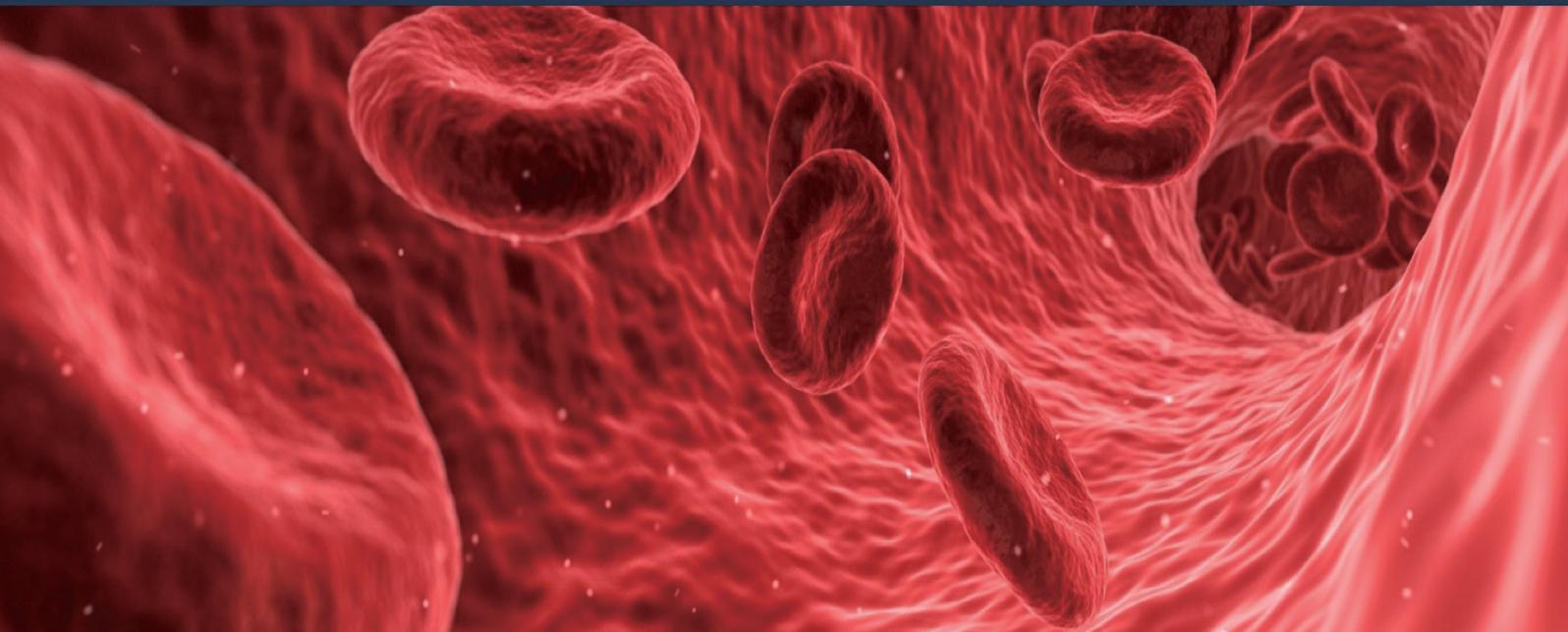


ASPBM

*MYPBM-3RD ASPBM  
JOINT SYMPOSIUM*

*2017*

# Patient Blood Management -The Paradigm Shift



# MyPBM-3rd ASPBM Joint Symposium 2017

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## MyPBM-3rd ASPBM Joint Symposium Organising Chair Address

Dear Colleagues and Friends,

I would like to extend a very warm welcome to all of you attending the MyPBM-3<sup>rd</sup> ASPBM Joint Symposium. This meeting is a joint effort by National Heart Institute (IJN), together with medical specialists from Ministry of Health (MOH) as well as Asian Society for Patient Blood Management (ASPBM) and Korean Research Society of Transfusion Alternatives (KRSTA).

Patient Blood Management (PBM) is a multidisciplinary, evidence-based approach to improve perioperative care. The concept is based on three pillars that target modifiable risk factors for adverse outcome: 1) Preoperative screening, diagnosis and treatment of anaemia, 2) Minimising blood loss, and 3) Manage anaemia. Anaemia is common among hospital patients. Optimising and preserving red cell mass before, during and after surgery can be achieved by a number of measures that can be implemented in every hospital. These measures have high potential to improve patient outcome and to reduce costs both for allogeneic blood transfusions and for the treatment of the associated complications. Blood and its products are actually very expensive to process. However, this expensive cost is not apparent in Malaysia as the running cost of National Blood Bank is heavily subsidised by the government.

This Symposium aims to bring together interested medical specialists from various disciplines including haematologists, anaesthetists, physicians, surgeons and public health experts on a common platform to discuss how best to optimise patients' own blood, thus reducing exposure to allogeneic blood transfusion. We have both local and internationally-recognised clinicians with great interest in practice of PBM. There will be a specific focus on various techniques to decrease blood usage and improve patient outcome.

The first PBM symposium in Malaysia was held in this auditorium in the year 2012. However, the take up of PBM was rather limited. Now, with more experience and better support from fellow MOH colleagues as well as the team of experts from ASPBM, I believe that this symposium is a much better meeting - with more experts and covering a much wider scope. I believe this is the leading meeting of its kind in Asia Pacific. I do hope our list of experts will be able to convince you that PBM is the right way for our patient care. The main objective of PBM is to optimise patient outcome.

Due to the current demographical development, the offer of available blood products is most likely to decrease in the future whilst advances in modern medicine increase blood product demands, thus causing its scarcity. Therefore, it is our duty towards society, patients and donors to use blood products wisely and only when absolutely necessary. PBM is our strategy to face this challenge.

On behalf of the organising committee, I would like to once again welcome all of you to Kuala Lumpur and I look forward to your active participation in our discussion. I hope for this meeting to be both an educational as well as a social experience.

Dr Pau Kiew Kong



## MyPBM-3rd ASPBM Joint Symposium ASPBM Chair Address

Dear Colleagues,

It is my honor and pleasure to have this opportunity to invite all of you to MyPBM -3<sup>rd</sup> ASPBM joint symposium organized by the committee of MyPBM. Before introducing ASPBM, I would like to express my sincere appreciation to the chair of this convention, Dr Pau and other committee members of MyPBM, who willingly taking every endeavor to make this convention successful.

Patient blood management (PBM) is a proactive, patient-centered, and multidisciplinary approach to manage anemia, optimize hemostasis, and minimize allogeneic blood transfusion. The World Health Organization has officially been urging member states to implement patient blood management since 2010 (by adopting resolution WHA63.12) on behalf of coping lots of medical and socioeconomic problems caused by blood transfusion such as medical complications, blood shortage and the running cost of blood banks almost in all the countries.

To manage these problems, we established Asian Society of Patient Blood Management (ASPBM) at 2014 KRSTA symposium in Seoul to take the role of NATA in Europe and of SABM in North America. Our society is a non-profit multi-professional society that defines its mission to improve patient health outcomes by applying up-to-date knowledge of bloodless medicine and the idea of PBM to their daily practices and to spread and share the idea with both physicians and health professionals of Asia-Pacific countries.

ASPBM is aligned with the Korean Research Society of Transfusion Alternatives (KRSTA) and other Asian society like MyPBM to achieve our goals. KRSTA has held joint symposium with NATA at Seoul in 2013, and ASPBM have collaborated with Peking Union Medical College Hospital and staffs affiliated with the Chinese Society of Anesthesiologists (CSA) at Peking in 2015.

We hope many more physicians and health professionals from Asia-Pacific countries to involve as active members of our society to propagate the idea of PBM. We expect that MyPBM may take lead in this regard with passion so that they would contribute very much for the scientific advancement of ASPBM,

Finally, I believe that this convention, MyPBM-3<sup>rd</sup> ASPBM joint symposium would be a significant legacy in the history of our society by improving the scientific level and quality of PBM in Asia-Pacific region. So, I expect that this international convention could be an enjoyable platform for all the participants by sharing experiences and by socializing and interacting with colleagues and friends from other countries. Once again, I would like to give you a very warm welcome and ask you to join us at this international symposium being held in the beautiful city, Kuala Lumpur.

Sincerely yours,

Lee Kyu Yeol, MD PhD  
President of ASPBM



| Time      | Lecture            | Topic / Speaker   | Remarks  |
|-----------|--------------------|---|--|
| 0730-0800 |                    | Registration  |  |
| 0800-0810 |                    | Address from organising chair   | Dr Pau Kiew Kong   |
| 0810-0820 |                    | Address from ASPBM Chair  | Prof. Dr Lee Kyu Yeol  |
| 0820-0830 |                    | Opening ceremony  | Dato Dr Hj Azman bin Hj Abu Bakar<br>(Director of Medical Development<br>Division, Ministry of Health, Malaysia)                     |
|           | <b>Session I</b>   | <b>Understanding PBM the Kipling's Way</b>  | <b>(Moderator- Dr Pau Kiew Kong)</b>   |
| 0830-0915 | 1                  | Understanding PBM & the key drivers propelling the paradigm shift                   | Prof. Dr Aryeh Shander, USA.<br>(Consultant Anaesthesiologist & Critical Care Medicine)  |
| 0915-0955 | 2                  | A Programmatic Approach to PBM - reducing transfusion and improving patient outcome | Prof. Dr Alhossain A. Khalafallah, Australia<br>(Consultant Haematologist)   |
| 0955-1025 | 3                  | Health economics of PBM – how economical is this?                                   | Prof. Dr Sharifa Ezat Wan Puteh,<br>Malaysia<br>(Public Health Consultant)   |
| 1025-1040 |                    | Q&A   |  |
| 1040-1100 |                    | Morning Tea Break   |  |
|           | <b>Session II</b>  | <b>PBM in Practice – surgical discipline</b>  | <b>(Moderator- Dr Jameela Sathar)</b>  |
| 1100-1125 | 4                  | PBM in Obstetrics and Gynaecology   | Prof. Dr Lee Jeong Jae, Korea (Maternal Fetal Medicine Consultant)   |
| 1125-1150 | 5                  | PBM in Cardiac surgery  | Dr Pau Kiew Kong, Malaysia<br>(Consultant Cardiothoracic Surgeon)  |
| 1150-1215 | 6                  | PBM in Gastrointestinal surgery   | Prof. Dr Choi Dong Ho, Korea<br>(Consultant Hepatobiliary Surgeon)   |
| 1215-1240 | 7                  | PBM in Orthopedics  | Prof. Dr Park Jong Hoon, Korea<br>(Consultant Orthopaedic Oncology Surgeon)  |
| 1240-1300 |                    | Q&A   |  |
| 1300-1400 |                    | Lunch & Networking  |  |
|           | <b>Session III</b> | <b>PBM in Practice – medical discipline</b>   | <b>(Moderator-Dr Carol Lim)</b>  |
| 1400-1425 | 8                  | Managing anemia appropriately - lesson for all                                      | Dr Ananthi Krishnamoorthy, Malaysia<br>(Rehabilitation Medicine Registrar)<br>Dr Jameela Sathar, Malaysia (Consultant Haematologist) |
| 1425-1450 | 9                  | PBM in Intensive Care   | Dr Lee Jong Hyeon, Korean<br>(Consultant Cardiac Anaesthesiologist)  |
| 1450-1515 | 10                 | PBM in Paediatrics  | Dr Zulaiha Muda, Malaysia (Consultant Paediatric Haematology Oncologist)   |
| 1515-1530 |                    | Q&A   |  |
| 1530-1550 |                    | Afternoon Tea Break   |  |
|           | <b>Session IV</b>  | <b>Championing PBM – embracing the challenge, overcoming roadblocks</b>             | <b>(Moderator-Dr Ananthi)</b>  |
| 1550-1610 | 11                 | Survey results (questionnaires)   | Dr Jameela Sathar, Malaysia (Consultant Haematologist)   |
| 1610-1645 | 12                 | Roadblocks to PBM and Stepping stones needed (Forum)                                | All speakers   |
| 1645-1700 |                    | Closing remarks/Photo session   |  |



## MyPBM-3rd ASPBM Joint Symposium 2017

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**Session I** *2017*

Understanding PBM - the Kipling's Way

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## Joint Symposium on PBM

### “Understanding Patient Blood Management and the key drivers propelling the paradigm shift”

Aryeh Shander

The pace of progress in the field of medicine has been staggering with new frontiers being reached and newer horizons being opened every day. Thanks to the advancement in technologies such as genomics and proteomics, we are gaining a far better understanding of the pathophysiological basis of the diseases, with the development of many safer, more effective, targeted therapies within grasp. The discipline of transfusion medicine is no exception. Rooted in the heart of medicine in the last two centuries, it too has gained in both knowledge and safety. The relationship between humans and blood has often been emotional and mixed with myths throughout the history of many cultures and civilizations.

Defined by the Society for the Advancement of (patient) Blood Management (SABM), PBM is “the timely application of evidence-based medical and surgical concepts designed to maintain hemoglobin concentration, optimize hemostasis and minimize blood loss in an effort to improve patient outcome”. According to this definition, improving the clinical outcome of the patients is the primary goal and concern and all other issues and considerations – including the usage of allogeneic transfusions – are secondary.<sup>1</sup>

Five drivers have been identified to shift the paradigm from current conventional transfusion practice to PBM: (a) the growing gap between supply and demand for blood products, (b) the escalating cost of transfusion, (c) product safety issues, (d) adverse transfusion outcomes, and (e) the questionable efficacy of transfusions.

The demand for RBC transfusions in most developed countries has reached an all-time high. The projected

population dynamics coupled with current transfusion practice will mean the demand for blood products will continue to grow at a faster pace than in past years

Cost analyses in Europe and the U.S. have shown that the cost of blood transfusion is several-fold times the acquisition cost for RBC units. A full cost assessment of transfusion includes product procurement and in-house logistics, multiple lab tests and services, pretransfusion examinations, administration and monitoring of transfusions, and the cost of treating transfusion reactions. For example, in the two U.S. hospitals assessed, the total cost per RBC unit transfused was \$726 and \$1,183, making the cost 3.2 to 4.8 times their acquisition cost.

Blood supply remains vulnerable to a long list of infectious agents including viral, bacterial, protozoal, helminthic, spirochetal, rickettsial, and prion pathogens. Furthermore, it is likely that unidentified pathogens exist in the blood pool.

Perhaps the greatest current concern with transfusion is its association with adverse patient outcomes. How significant then is the overall risk of transfusion? The available body of evidence shows that the unintended consequences of transfusion are far greater than generally assumed. Consequences such as acute lung injury or transfusion-related acute lung injury are currently referred to as the leading causes of transfusion-related death and morbidity in the U.S. and the U.K.; other issues suspected to be related to storage age of blood have been raised but are still debated

The last of the five drivers shifting the paradigm

toward PBM is the question of transfusion efficacy. Does transfusion do what it is intended to do—improve outcomes or prevent adverse outcomes? Level I evidence to support this is scant.<sup>2</sup>

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## A Programmatic Approach to PBM – Reducing blood transfusion and improving patient outcome

Clinical Professor Alhossain A. Khalafallah, MD, FRACP

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Allogeneic packed red blood cells (PRBC) transfusion is associated with significant increases in morbidity and mortality postoperatively. In addition, there is a worldwide shortage of blood supplies with substantial costs to the manufacturer and health systems. Moreover, there is a significant correlation between reduction of PRBC consumption and improvements of outcomes in surgical patients' discharge mortality, 30-day readmission rates and length of hospital stay.

Utilization of oral iron in restoring normal erythropoiesis postoperatively, has several limitations including frequent gastro-intestinal side effects, delayed effect and poor treatment adherence. In addition, in the postoperative period oral medication is not always possible and oral iron treatment has been found to be largely inefficacious especially during associated inflammatory process. In contrast, intravenous iron has recently been shown to be highly efficacious in treating iron deficiency, speed-up Hb recovery and improve clinical outcomes.

It is challenging to diagnose iron deficiency anaemia (IDA) postoperatively due to the inherent high ferritin levels. An international expert group, recently, concluded that iron deficiency would be defined in inflammatory situations when transferrin saturation (TSAT) < 20% and to use TSAT in patients with a ferritin above 100 ng/ml.

In the concept of Patient Blood Management (PBM), treatment of preoperative anaemia and isolated iron deficiency are crucial measures in minimizing exposure of patients to allogeneic blood products and to improve outcome.

A novel approach of postoperative-IDA after major non-cardiac surgery (orthopaedic, gynaecological, urogenital, abdominal) was proposed by randomising the patients between a single infusion of 1g of ferric carboxymaltose (FCM) and standard care.

The group who received intervention with FCM showed faster Hb and ferritin improvement (both  $p < 0.0001$ ) at 4 weeks after intervention.

In addition, there was a reduction in transfused blood units (from 6% to 1%  $p = 0.035$ ), a decreased rate of infection in the FCM group (from 14% to 2%,  $p = 0.010$ ) and a reduction of the length of hospital stay (LOS) from 11.6 to 7.8 days ( $p = 0.049$ ) in the FCM group versus the standard care group.

Detection and early treatment of preoperative anaemia and iron deficiency is an accepted logistical challenge and as a consequence, some patients may undergo surgery without addressing the IDA. Therefore, an additional focus on early detection and treatment of postoperative iron deficiency anaemia is a novel and complementary measure within the concept of PBM allowing the surgeon and treating physician to target the patients who bled significantly during surgery.

In summary, there are enough data to support integration of IV iron in the management of postoperative anaemia as a part of PBM program, especially in patients with ID and significant blood loss. Update of guidelines to offer the benefits of available new IV iron therapy with the aim to improve both patient and surgical procedure outcomes is warranted.

**Key Words:** PBM, IDA, IV iron, Ferric Carboxymaltose, Blood transfusion, Outcome.

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## Health Economics of PBM-How Economical Is This?

Sharifa Ezat Wan Puteh, MD, MPH, PhD

UKMMC

Blood transfusion and blood-related products have been known to be an essential element in not only prolonging life but also betterment of life. Hence, there are a plethora of blood and its related management, and a new one, better known as Patient Blood Management (PBM), which is of medical importance. Relating this to dollars and cents is of utmost importance in the resource-challenged healthcare we face now. The input of economic costs and the outcomes such as life years saved, quality-adjusted life years and other natural units are scrutinised to denote its cost effectiveness. Benefits

of interventions such as monetary saved and benefits reaped are now routinely calculated as part of a novice health technology assessment outcome. It is hoped that these technical outputs will be routinely assessed and benchmarked, and made precise in relating to the value-based medicine of the future.

**Keywords:** Patient Blood Management, Savings, Non-monetary value, Cost Effectiveness, Resource Challenged



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**Session II** 2017

PBM in Practice - Surgical Discipline

Patient Blood Management  
-The Paradigm Shift

## Patient Blood Management in Obstetrics and Gynecology

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According to the WHO, patient blood management (PBM) is a ‘patient-focused, evidence based and systematic approach for optimizing the management of patients and transfusion of blood products to ensure high quality and effective patient care’<sup>1</sup>. In 2010 the World Health Assembly Resolution WHA63.12 endorsed PBM specifically referring to the three-pillar concept “bearing in mind that patient blood management means that before surgery every reasonable measure should be taken to optimize the patient’s own blood volume, to minimize the patient’s blood loss and to harness and optimize the patient- specific physiological tolerance of anemia”<sup>2,3</sup>. The main concept of PBM is composed as the 3-pillar 9-field matrix of perioperative patient blood management<sup>4</sup>.

During pregnancy almost 30% of women in Asia have anemia and which lead to public health problem and main cause of transfusion in pregnancy. Many women in reproductive age lose a lot of blood during menstruation or through their uterus due to abnormal uterine bleeding. Those two groups are usually having chronic iron deficiency anemia. The women in reproductive or perimenopausal period are relatively young and healthy compared to other elderly patients. If the patients don’t have any other chronic diseases, heart diseases or infectious diseases, their red blood cell producing function is normal. It means, the patients are relatively tolerant to severe iron deficiency anemia. We can correct iron deficiency anemia with oral or parenteral iron supply during pregnancy, before or after surgical treatment without blood transfusion. The women in pregnancy and during reproductive age are good candidates of PBM, especially preoperative period.

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## PBM in Cardiac Surgery

Dr Pau Kiew Kong, MBBS, FRCS

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Cardiac surgery is a big user of blood from blood bank. In our heart institute, we used 13,745 units of blood in last year (2016). This figure has been rising over for the last few years. In USA, cardiac operations consume as much as 10% to 15% of the nation’s blood supply and evidence suggests that this fraction is increasing. The Society of Thoracic Surgeons Adult Cardiac Surgery Database suggests that 50% of patients undergoing cardiac procedures receive blood transfusion. Complex cardiac operations like redo procedures require blood transfusion with much greater frequency.

Severe anaemia may result in decrease in oxygen delivery, which may lead to organ ischaemia. However, many literatures suggested that there is an increased mortality, postoperative morbidity, and cost after red blood cell transfusion in patients having cardiac surgery. However, in a recent study, a restrictive transfusion threshold after cardiac surgery was not superior to a liberal threshold with respect to morbidity or health care costs. Coronary artery bypass surgery (CABG) is the commonest adult cardiac surgery and our hospital statistic had showed significant variation in blood usage for CABG among cardiac surgeons.

The PBM for cardiac surgery can be summaries as below:

1) **First pillar**, Preoperative screening, diagnosis and treatment of anaemia. This may not be possible in urgent cardiac surgery. However, in semi-urgent cardiac surgery, use of intravenous (i.v.) iron and erythropoietin (EPO) can improve the anaemia over a few days. In elective cardiac surgery, it is easy to implement PBM.

2) **Second pillar**, the reduction in perioperative blood loss. Surgeon should be more careful with surgical haemostasis and awareness of the value of avoiding transfusion. The consistent use of antifibrinolytic agents (e.g. tranexamic acid), a reduction in the size of the bypass circuit with customization for smaller patients, by moving the circuit closer to the patients to reduce the length and therefore volume of the bypass circuit and retrograde autologous priming. A perioperative transfusion algorithm should be used to guide administration of fresh frozen plasma and platelets. Goal-directed component therapy based on thromboelastographic monitoring (TEG) can reduce unnecessary transfusion of platelets and plasma. Unexpected postoperative blood loss from the chest tube in the absence of significant changes in the TEG, patient should return to the operating room early for exploration. A reduction in perioperative laboratory testing and phlebotomy blood loss.

3) **Third pillar**, harnessing and optimizing patient specific physiologic reserve of anaemia (including restrictive Hb transfusion triggers). Postoperative use of i.v. iron may have resulted in better tolerance of anaemia before a measurable increase in postoperative haemoglobin.

In conclusion, PBM has a major role in cardiac surgery. We had done heart surgery with PBM concept in small baby and complex heart condition without the need of blood transfusion. We had also drawn out guidelines to help our clinician to better manage our anaemic patients.

## Patient blood management in gastrointestinal surgery

**Choi Dong Ho MD, PhD**

Department of Surgery, Hanyang University

Transfusion in the gastrointestinal surgery is a very important aspect in the treatment of patients. Transfusion therapy, which has been performed in medical practice for the past several decades, has relieved many patients from illness and death. However, blood is not absolutely safe, despite the stringent standards for blood donor screening, blood collection and management. Recently, the complications of blood transfusion have been well known. As a result, transfusion has been avoided for practical reasons. So, national and international attentions have been paid to patient blood management. I think patient blood management could be thought of as an important issue in health care and should be implemented in a wide range. Particularly in Korea, despite the gradual increase in blood donation, it is thought that reducing blood transfusion is not only due to personal preference but also due to the blood supply-demand problem caused by an increase in the elderly population as an important national issue.

We have tried to reduce blood transfusion in various ways during the last 15 years in the field of gastrointestinal surgery; First, a dedicated nurse is informed about the patient's condition by listening to the patient's general problems. If the patient has been taking anticoagulant medication, she advises to stop taking the drugs with reducing the venous blood collecting volume required for diagnosis before surgery. If the patient suffers from anemia, effort to increase hemoglobin level with erythropoietin and intravenous iron treatment is done for every patient. Cell saver and/or acute normovolemic hemodilution are used during operation with sincere efforts to minimize the blood loss during operation, such as using hemostatic devices, finishing the operation as early as possible. Postoperative supports for minimizing blood loss and increasing hemoglobin level are essentially done for the surgically ill patients.

Effective patient blood management can be achieved with team approach. Not only medical personnel but also paramedical members of the society should be interested in patient blood management.

## PBM in Orthopedic Surgery

**Park Jong Hoon MD, PhD**

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Blood transfusion can be life-saving practice in some special situations, for instance in major trauma cases with life-threatening bleeding and severe anaemia. But, current evidence shows that allogenic blood transfusion is a strong independent predictor of adverse outcomes, prolonged hospitalization and higher medical cost. Additionally, inter- and intra-institutional transfusion variability is significant.

Perioperative blood transfusions are common in total hip and knee arthroplasty because of preoperative anaemia and perioperative blood loss. Preoperative anaemia and postoperative blood transfusion is recognized as an independent risk factor of adverse outcomes. In contrast to the advances in the knowledge about blood science, the efforts for reducing blood transfusion reach standstill in practice.

PBM(patient blood management) is defined as the timely application of evidence-based medical and surgical concepts aimed at achieving better patient

outcomes by relying on a patients's own blood rather than on donor blood. After orthopaedic surgeons have recognized that adverse surgical outcomes, such as peri-prosthetic infection, might be related with perioperative blood transfusion, patient blood management has become a new challenge in orthopaedic surgery.

Medical professionals and health officials in Korea have identified the urgent need of implementing PBM as a new standard of medical care to significantly reduce adverse outcomes and healthcare cost. Through a multidisciplinary collaboration with well-known national and international experts in the field of PBM, the state of Korea has now the opportunity to become the first country in Asia to implement PBM across its entire health system and to take on the leadership role in this field for the entire region. For the successful implementation of patient blood management (PBM) in Korea, we assessed the current blood management of orthopaedic surgery in Korea and reviewed the practice with my experiences.



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**Session III** 2017

PBM in Practice - Medical Discipline

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## Managing Anaemia Appropriately- Lesson for All

Ananthi Krishnamoorthy, MD  
Jameela Sathar, MD, FRCPath

Anaemia is an epidemic. It is largely under-recognised, frequently tolerated as harmless, and often mismanaged. This is the triad brewing disaster to the patient, the healthcare team and the healthcare system. In view of its prevalence and as it encompasses all areas of medicine, there is no doubt that anaemia should be a concern for all healthcare professionals. It is crucial for all to learn to manage it appropriately in order to improve patient outcome.

The management of anaemia entails properly detecting it, determining the causes and effects, preventing its worsening and correcting it. In this context, the application of the 3 pillars of patient blood management (PBM) will be an effective way of tackling this condition. The focus of the management of anaemia is on the 1st pillar of PBM.

The first pillar of PBM is optimising erythropoiesis, which involves the detection, investigations and treatment of anaemia. As any degree of anaemia increases morbidity and mortality, it is crucial to suspect anaemia in the patient population, namely those with comorbidities, those hospitalised and those critically ill. From a practical standpoint, the preoperative setting can be a productive setting to focus detection and management of anaemia. In the case of preoperative setting, detecting anaemia up to 4 weeks prior to surgery affords opportunity to correct anaemia in time. The use of intravenous (IV) iron is beneficial to correct iron deficiency anaemia (IDA) in a rapid and safe manner. In patients with anaemia of chronic illness (ACI with resulting functional iron deficiency (FID), subcutaneous (S/C) erythropoietin (EPO) acts as an accelerator with IV Iron as the fuel.

The algorithm for anaemia treatment will be presented during the symposium.

The second pillar of PBM targets blood conservation, hence minimising blood loss and prevents worsening of anaemia by using point of care testing, reducing unnecessary phlebotomy and optimising coagulation. The third pillar targets harnessing tolerance of anaemia, thus assisting the body's reserve to be optimised while "buying time" during erythropoiesis, and reducing unnecessary exposure to allogeneic blood transfusion (ABT) that is detrimental.

The simplicity of these principles seems unbelievable, yet they prove effective once practised. However, the benefits conferred by the proper management of anaemia using PBM principles, will be elusive as long as we healthcare professionals do not take the step to actually practise what we have learnt.

The pitfalls of current anaemia management and successes using PBM for anaemia will be illustrated with cases presented at the symposium.

### References

1. Anemia Prevention and Management Program Implementation Guide, 2015. - Jenkins, Shander; Society of Hospital Medicine (SHM) & Society for the Advancement of Blood Management (SABM)
2. Emerging Evidence on Anemia. - Auerbach, Gross, Shander; Society for the Advancement of Blood Management (SABM)

## Patient Blood Management in Intensive Care Unit

Lee Jong Hyeon  
Anesthesiologist, Sejong General Hospital South Korea

Therapeutic principles of patient blood management, such as minimizing blood loss, maximizing oxygen delivery, and improving the red blood cell count, allows critical care medical personnel to conserve blood, anticipate and prepare for potential bleeding problems, and intervene before complications occur.

Medical professionals historically regarded blood transfusion as an integral component of major surgery or critical illness. A growing appreciation for the risks involved in transfusing donated blood, as well as the refusal of some patients to accept transfusion because of personal or religious beliefs, encouraged researchers and clinicians to develop techniques and strategies that allow transfusion-free surgery and medical care, that is, bloodless treatment.

Reducing or eliminating blood transfusion in critically ill patients, however, has its own risks, making outstanding medical care more important than ever before. Blood conservation requires careful planning, proactive strategies to prevent or rapidly address complications, and vigilant monitoring of patients, all of which hinge upon the knowledge and skills of the critical

care team. To this end, critical care providers must know the rationale behind blood management in the intensive care unit (ICU), the issues associated with blood transfusion, and the principles of blood conservation. They must also have a thorough knowledge of the pathophysiology of anemia (which is often the cause of transfusion), including strategies for preventing this abnormality.

Critical care personnel play a crucial role in reducing the need for blood transfusions in ICU patients undergoing bloodless treatment. Vigilant monitoring can improve the hemodynamic and oxygen status of these patients. Medical professionals can actively use techniques that reduce sources of chronic blood loss, increase oxygen delivery, and decrease oxygen consumption.

Careful observation and assessment of ICU patients who request bloodless care can reap rewards for both patients and medical staff. An integrated program delivered by a knowledgeable interdisciplinary team addresses the patients' physical, psychological, and spiritual needs.

## **PBM in Paediatrics**

**Dr Zulaiha Muda, M.Med**

Consultant Paediatric Haematology Oncologist

Red blood cell transfusions are a common life-saving intervention for neonates and children with anaemia, but transfusion decisions, indications, doses, techniques, relative risks and benefits differ from those of adults. Hence, transfusion therapy of neonate and paediatric patients require special considerations. For example, in some instances, specific paediatric population are at risk for transfusion-associated volume overload or metabolic complications, and so specialised approaches are needed to prevent these complications.

Additionally, the immaturity of a neonate's immune system reduces the risk of alloimmunization to transfused red blood cell(RBC) antigen, but can simultaneously increase other risk such as transfusion-associated graft-versus-host disease. Paediatric patients with congenital RBC disorders that require chronic transfusion therapy are at increased risk of iron toxicity and alloimmunization to RBC antigens and foreign plasma proteins.

Transfusion complications have an added importance in paediatric populations since transfused paediatric patients have longer post-transfusion survival compared to transfused adult patients and therefore, are at increased susceptibility to long term consequences of transfusion (i.e, viral infection, immune modulation and iron overload).

Although PBM programs are well recognised and appreciated in the adult setting, they are quite far from standard-of-care in the paediatric patient population. This lecture will illustrate cases of transfusion issues in neonates and paediatrics and will highlight the related key-elements necessary for a successful paediatric PBM program.



## MyPBM-3rd ASPBM Joint Symposium 2017

Patient Blood Management  
The Paradigm Shift

*MYPBM-3RD ASPBM  
JOINT SYMPOSIUM*

**Session IV** 2017

Championing PBM - Embracing the Challenge,  
Overcoming Roadblocks

Patient Blood Management  
-The Paradigm Shift

## Survey on Patient Blood Management

Jameela Sathar, FRCPath

On the 15<sup>th</sup> February 2017, a survey on Patient Blood management was carried out through the mobile messaging platform, WhatsApp. It went viral, and by the second day more than 500 doctors in Malaysia had participated in the survey.

The questionnaire/survey was divided into 4 sections:

- A. Your work area
- B. About Patient Blood Management
- C. Alternatives to Transfusion
- D. Barriers to Patient Blood Management

The survey ended on 16<sup>th</sup> March 2017. The total number of doctors surveyed were 1231. Completed responses totalled 887. Partially completed responses were 344.

The results of the survey will be presented during the MyPBM-3<sup>rd</sup> ASPBM Joint Symposium which will be held on the 12<sup>th</sup> August 2017.

## Organising Committee

MyPBM-3rd ASPBM Joint Symposium 2017

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**HOSPITAL INFORMATION SERVICES  
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Welcome to the ASPBM, Asia-Pacific Society for Patient Blood Management.

#### Our Purpose

- Minimize complications of blood and blood products
- Manage inadequate blood supply
- Protect patients' rights to refrain from the use of allogeneic blood on medical or religious grounds

Since World War I, modern day medical standards have centered on 'allogeneic transfusion.' Blood is a liquid organ and as such transfusion therapy is in effect an organ transplant. However, the effects or adverse response to transfusion has not been clearly documented, as compared with numerous studies on other transplantation.

In addition, up until recent years, a hemoglobin level below 10g/dl was the trigger indicating the need for transfusion. This level was first suggested by Adams and Lundy's obstetrics and gynecology study some 65 years ago. Despite significant developments in the medical community, many doctors still depend upon this age old study. The age of the study suggests that insufficient research has been done to confirm this transfusion trigger.

It has been reported that 66% of clinically implemented transfusions are unnecessary. Although the allogeneic transfusion is the simplest option to increase hemoglobin count, it may have many side effects, and at times can be fatal.

More advanced blood screening has been used to secure safe transfusion, as strict donor qualifications have been applied. However, since the trend in society where people no longer care for others is becoming more prevalent, it is becoming difficult to supply blood nationwide. Also many reports of the side effects of blood transfusion cause patients to avoid blood transfusion as much as possible.

Therefore this Society is established to research various clinical strategies to reduce the use of allogeneic transfusion to a minimum or completely replace it, if possible, to establish a standard of care for the alternatives to blood transfusions according to the society's current needs and to promote standard of care to achieve better results for patients.

It's time to introduce a new paradigm for the 21st century medical community.

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