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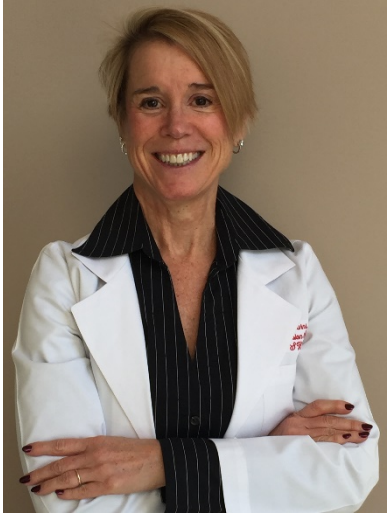


ANNUAL MEETING EDITION

December 2021

NEWSLETTER

Letter from the President – Carolyn Burns, MD



A warm welcome to all as I am honored to serve as the SABM President for the next two years. The year end newsletter issue is always exciting as each year it is published after the Annual Meeting; it features an array of outstanding educational sessions, important

highlights, awards, and accolades. Although this year the meeting was virtual again, it did not disappoint! There was no limit to the quality content nor to the ever-expanding collaboration. We saw greater than 450 attendees with representation from over 20 countries around the globe. My heartfelt thanks to everyone involved, those in front or behind the scenes, to our faculty, colleagues, sponsors, and support teams.

Once away from being totally immersed and “plugged in” via my laptop, tablet or iPhone (sometimes all 3, at once, yikes!), I took time to reflect on our meeting, reviewing my notes, and considering the myriad of lessons learned. Interestingly, there were specific words and themes that stood out, resonating with me across many of the sessions and workshops. Some of the ideas have been mentioned in prior years, at an annual meeting or even in side-bar conversations we all have with one another time and again. However, this year I felt these concepts grew in scope, solidifying somehow, adding to the urgency of the need for PBM for all patients.

By way of example, there is a concept many of us include in our educational presentations or conversations we have, particularly with those new to the PBM field. This is the idea that transfusion of blood represents a liquid transplant. In spite of our best efforts to “match” blood from donor to recipient, there remain the attendant untoward effects of transfusion-related immune modulation, and this coupled with robust literature review confirms the subsequent increased morbidity and mortality associated with transfusion. We deliver this message, perhaps in hope of a colleague’s personal epiphany, if you will, to encourage them to see PBM initiatives as an evidence-based, safer and more effective approach to delivery of high-quality care.

I must say, this year’s Annual Meeting faculty took this to another plane altogether. Words such as “blood health” were repeated in numerous sessions; simple, yet more broad-sweeping words to reflect the importance of this aspect of patient care to which we should attend. A patient’s incapacity for effective hematopoiesis should be viewed as failure of their blood as a fluid organ. Thus, this demands attention to thorough assessment, proper diagnosis(es), and appropriate individualized treatment(s) to improve blood health.

The construct of blood health, blood as an organ, can then be integrated into the previous notion of blood as a liquid transplant. This is where it goes to the next level: specifically, we consider transplant or replacement of a solid organ in the presence of overt failure as a last resort, only after attempting a host of other interventions to maintain or recover that organ. Why, then, is replacement/transplant of the body’s fluid organ considered the *first* resort in the current culture? Our respect for the patient’s own blood, which nurtures and feeds all the other organs, is thus implicit. To paraphrase and combine these thoughts from many key contributors at the meeting, it becomes glaringly apparent that disease of the hematopoietic organ system, i.e. blood health, cannot be ignored and should be an integral part of patient-centered/patient-engaged care.

This is the message I heard loud and clear. It is our duty and responsibility to soldier on in our efforts to build and sustain PBM as the vehicle toward sustaining blood health. Across the globe we are demanding it and our patients deserve nothing less.

While the world around us collapsed in so many ways during the COVID-19 pandemic, the need for PBM has become even more urgent. SABM continues to expand its efforts, pushing the agenda for PBM as the standard of care. The spirit of SABM is strong and will continue to grow alongside our many international PBM partners.

In closing, it is a true honor to serve as SABM President and I look forward to meeting more of you and learning from you as we continue our journey together. Thank you all for your continued efforts.

Sincerely,

Carolyn Burns, MD

**SABM NEWSLETTER
DECEMBER 2021
ISSUE**

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**SABM 2021 Newsletter
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ANESTHESIA & ANALGESIA

Consider submitting your future manuscripts in PBM for peer review and publication in this new section. The success of this endeavor will depend on the provision of material to make it lively and attractive to our colleagues and other professionals in the field.

Members Invited to Submit Papers [CLICK HERE](#)

Looking For Newsletter Content

SABM members want to know:

- Do you have an interesting case study?
- News about your blood management program?
- News about a new program at your institution?
- Have an article about some of the latest technology?
- Submitted an article to a journal for publication?

Deadline for the Spring 2022 issue is February 15, 2022.

Don't wait! Send your articles today to the Newsletter Editorial team at info@sabm.org

Call for Member Accomplishments

If you have been given an award, received recognition, or have been recently published, we would like to publish it in the next issue of the SABM newsletter.

Please send an e-mail with the details to info@sabm.org. Be sure to include your full name and details regarding the award, the recognition you received, or the publication citation.

Call for Interesting Case Studies

Authors: Can be submitted by any discipline (MD's, RN's, technologists, perfusionists, students)

Description/Format/components:

- Patient history and diagnosis
- Problem statement
- Relevant laboratory results or tests
- Medical management
- Follow up
- Brief discussion of the disease/problem/condition with up-to-date literature
- Provide 3-4 multiple choice questions
- Answers to questions to be provided on SABM website 2-3 weeks after publication
- Tables/Figures/images are welcome
- 5-10 annotated references

Call for Book Reviewers!

The newsletter editorial team is looking for members to review books. You can choose to review a book that you already have, or volunteer to review a book of SABM's choice. If you have a book that you would like to submit a review for, or to be considered as a book reviewer, you can send an email to info@sabm.org with your request for consideration.



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HAEMONETICS[®]

SABM BREAKING NEWS



In the past four decades, increased awareness of the inherent risks of transfusion has resulted in major initiatives to mitigate those risks through improvements in blood component safety.

Yet, globally, there is still a gap in awareness and implementation of PBM as an overall framework to address the risks of iron deficiency, anaemia, blood loss and coagulopathy. This policy brief focuses on the urgent need to close that gap and the steps needed to achieve that goal.

This policy brief aims to:

- **Create awareness** about the enormous, but greatly under-appreciated global disease burden of iron deficiency, anaemia, blood loss and bleeding disorders
- **Create a sense** of urgency for health care entities to implement PBM
- **Announce the upcoming World Health Organization (WHO) initiative** to develop PBM Implementation Guidelines that will serve as a framework for health care leaders of all Member States
- **Alert health ministries**, social security services, health departments and policy-makers about this global initiative

and call on them to prepare for and foster the rapid dissemination and implementation of PBM in their jurisdiction

- **Coordinate these efforts** with existing initiatives pertaining to improved patient-centred care, patient safety and quality of care
- **Act as an accelerant for change** by educating the readers about what PBM is and is not, why PBM implementation is critical

There is an unmet need to manage and preserve the patients' own blood

Find out how PBM can be integrated into health care

Call to action

All Member States should act quickly through their ministry or department of health to adopt their national PBM policy, install the necessary governance, and reallocate resources to improve the population health status and individual patient outcomes while reducing overall health care expenditures.

Read the entire document [here](#) or click on the image above



Annual Meeting Update – PBM Rocks!

We hope you were able to attend the SABM 2021 *PBM Rocks!* Virtual annual meeting and that you found it to be educational, inspiring and dare we say, even fun!

We are happy to report that our attendees hailed from at least twenty-six different countries; PBM is truly becoming the international standard of care.

The program opened with a splash on Wednesday evening with our “Over the Ice Breaker,” a fun interactive social hour providing insight into the making of a quintessential Kentucky, USA beverage, bourbon, although non-bourbon drinkers were also encouraged to attend. Rebecca Rock, RN, SABM Treasurer, and her husband Terry shared the stage with SABM’s incoming President, Carolyn Burns, MD, and her husband Frank. Wednesday evening was the pandemic version of a welcome reception for conference participants. We learned about bourbon and one another; a lovely start to the annual meeting.

The wide-ranging topics and speakers spanned both the globe and the breadth of PBM. Attendees heard expert advice on everything from instituting PBM in large health systems to the nuances of caring for our most vulnerable pediatric patients. Speakers shared experiences from Europe, Asia, Africa, and Australia, as well as both North and South America.

Our keynote speaker, Yuyun Maryuningsih, PhD, from the World Health Organization, shared information on a newly developed PBM guidance document which recommends PBM implementation as an important patient care initiative in all its member states. A brief video from John “Gucci” Foley, former lead pilot of the Blue Angels, reminded those of us in healthcare of the intrinsic value of teamwork and an appreciative spirit. Glad to be here!

SABM President Sherri Ozawa, RN, presented this year’s President’s Award to Axel Hofmann, ME, and the Kathleen J. Sazama Award went to Bruce Spiess, MD.

We also want to give a special thanks to Eugene Morriello and friends, who got together to record music for this year’s *PBM Rocks!* Annual meeting.

The meeting ended with the passing of the President’s gavel from Sherri Ozawa, RN, to Carolyn Burns, MD. Thank you both for your hard work and support of SABM!

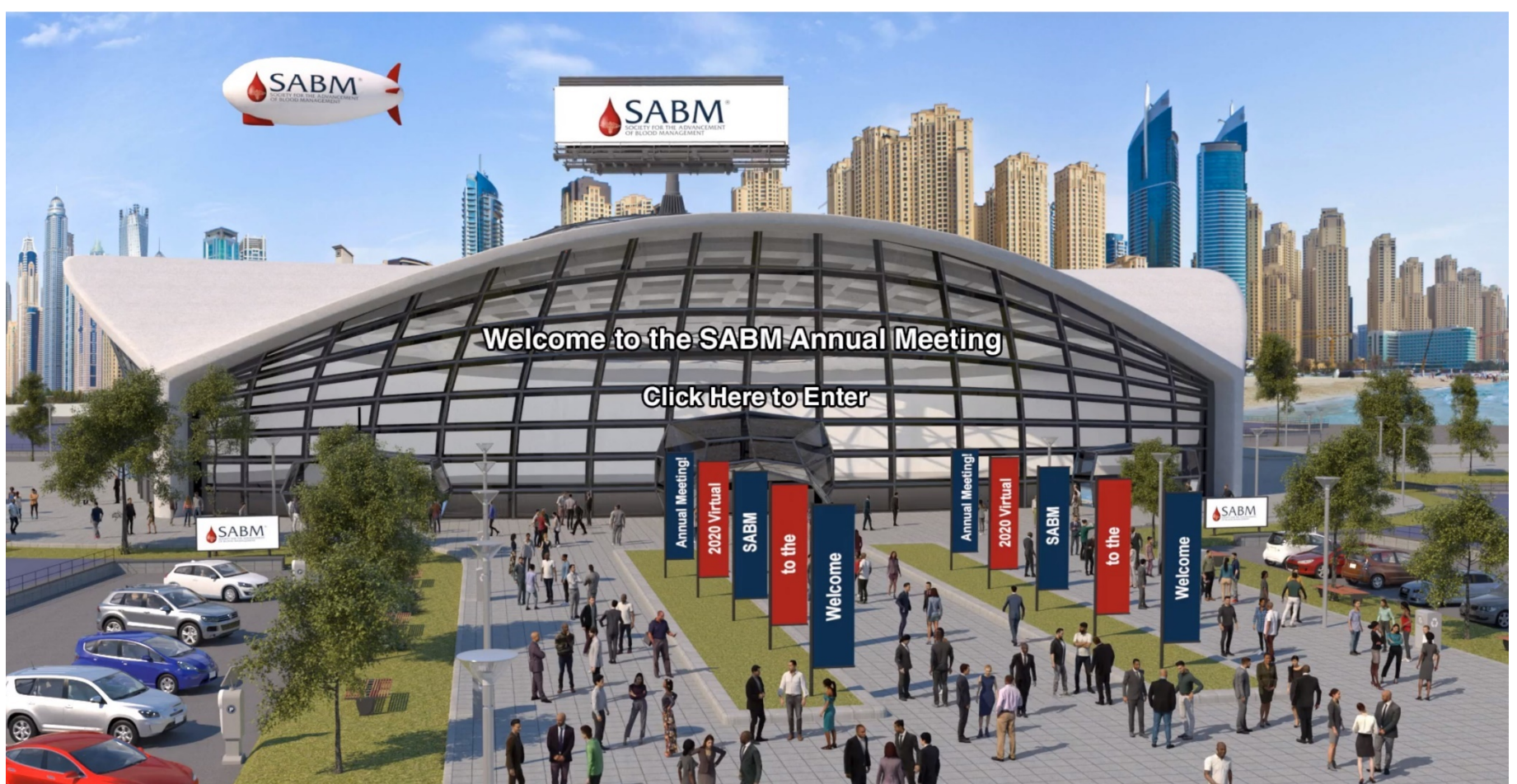
The 2021 program will remain available online to registered attendees for approximately 90 days, so take advantage of the availability of the sessions you missed, as well as the ones you want to hear again.

Special thanks to the volunteers on the 2021 Annual Meeting Planning Committee:

Carolyn Burns, MD
Patricia Ford, MD
Loretta Humes, RN
Margit Kaufman, MD
Yulia Lin, MD
Sherri Ozawa, RN
Prakash Patel, MD
NurJehan Quraishy, MD
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Erin Suydam, MD
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Jessica Varisco
Sarah Walbolt, RN

Planning Committee Co-Chairs

Micah Prochaska, MD
Rita Schwab, CPMSM



President's Address – Sherri Ozawa, RN

When SABM held its first annual meeting 20 years ago, our thought leaders were just starting to write about something that didn't yet have a name. We struggled in word and strategy with the concept of patient-centeredness as opposed to being focused on a product, drug, or device. We also battled with the growing misconception that blood management happened in the blood bank or a donor center, when it actually took place in medicine and surgery with patients.

For clinicians and the public, transfusion has inappropriately held a default position in the treatment of anemia and bleeding. While transfusion is a temporary supportive therapy that may be an option for patients that do not respond to other therapies, it does not address underlying problems. PBM is a group of approaches and cannot be compared with transfusion, which is a single strategy.

Since patients and their decisions are just as significant as any clinical intervention, a patient-centered definition had to emphasize an evidence-based bundle of care that focused on preserving a patient's own blood. True, PBM involves treating anemia, coagulopathy and hemorrhage, but the question remains, what are we *really* trying to treat?

In PBM, we refer to blood as the body's liquid organ. We now know that this organ system is a combination of the multi-cellular and complex tissue that flows from vasculature and its interaction with its endothelium. Like other organs, this system can suffer injury and derangements that are multifactorial. As we consider managing anemia and coagulation, we are actually discussing a disease process called blood failure.

When approaching the failure of an organ system, we consider it at the cellular and anatomic level and then at the pathological and symptomatic level. Just like all other organ systems, the failure can be multifactorial, cellular, caused by intrinsic or extrinsic factors, chronic or acute injury. The therapy may be long-term, short-term, variable, and connected to etiology that ultimately leads back to blood failure.

This new concept is supported in a number of publications, and we appropriately sought to redefine PBM; it is not the same as transfusion safety or transfusion medicine. It is not limited to critically ill or hospitalized patients, nor is it applicable only to patients who might need a transfusion.

The new definition: Patient Blood Management is a patient-centered, systematic, evidence-based approach to improve patient outcomes by managing and preserving a patient's own blood while promoting patient safety and empowerment.

Public Version: Patient Blood Management is a patient-centered, organized approach in which the entire health care team coordinates efforts to improve results by managing and preserving a patient's own blood.

We are honored that our partners and numerous international organizations have joined us in creating this definition. This information has been accepted for publication in the upcoming issue of *Anesthesia & Analgesia* on the topic of PBM.

Contributor: Leilani Rangel

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Annual Meeting Awards



SABM President's Award presented to Prof. Dr. Axel Hofmann, ME

Axel Hofmann is a Doctor of Medical Science with a Master's Degree in Economics. He is an adjunct professor at the Faculty of Health and Medical Science, University of Western Australia and a visiting professor at the Institute of Anesthesiology at the University Hospital Zurich, Switzerland. He is a key opinion leader in Patient Blood Management (PBM) with a focus on clinical and health economic research, and the implementation of PBM. He currently serves as Chair of the World Health Organization's (WHO) External Steering Committee to develop a WHO Policy Brief and Guidelines for the Implementation of PBM. He has published in several international peer-reviewed journals. As invited speaker, he presented his work in more than 60 countries and 450 international forums, including symposia, congresses, universities, medical schools, government agencies and health economic summits. He is a board member of the International Foundation for Patient Blood Management (IFPBM) and a founding member of the Society for the Advancement of Blood Management (SABM), where he currently serves as an advisory board member. He is also a member of the *Austrian Society for Anesthesiology, Intensive Care and Reanimation*.

The Sazama award was created in recognition of Dr. Sazama's bold insights in the field of medical ethics, her selfless dedication to individual growth, her steadfast and responsible leadership through change and the field of blood management. Dr. Hofmann exemplifies these high standards and demonstrates his commitment to patient rights, as he selflessly serves for the well-being of the patient. He demonstrates consistent dedication to progress in the field of patient blood management.



Kathleen J. Sazama Award presented to Bruce D. Spiess, MD, FAHA

Bruce D. Spiess, MD, FAHA, is Professor of Anesthesiology and Associate Chair for Research at the University of Florida, School of Medicine in Gainesville, Florida. Dr Spiess attended Denison, University in Granville Ohio, and in 2017 they bestowed upon him their highest honor, The Alumni citation for his research work in Medicine. He was Vice Chairman of Anesthesiology at Virginia Commonwealth University in Richmond where he stayed for 17 years until pursuing his present position at the University of Florida. Dr Spiess has focused his research upon blood: its critical oxygen carrying capacity, oxygen therapeutic pharmaceutical development (previously known as "blood substitutes"), risks of blood transfusion, and coagulation/coagulopathies and development of monitoring technologies. His extensive work in blood transfusion risks has led him to be an outspoken proponent of patient blood management. He has authored over 200 peer reviewed academic articles, more than 40 book chapters, 7 textbooks and appeared on the Discovery Channel and in many other lay media. His work has been funded mostly by the US Department of Defense and he has led major conferences for the DOD, NIH, FDA with regards to critical blood issues.

The SABM President's Award is presented annually at the SABM Annual Meeting in recognition of those who have made outstanding medical, scientific and/or educational contributions to patient blood management and that have contributed to the public good in the area of blood safety and the reduction of unnecessary transfusions.



2020 SABM Research Starter Grant Award presented to Lisa Eisler, MD

Lisa Eisler, MD, is a pediatric anesthesiologist and assistant professor of anesthesiology at Columbia University Irving Medical Center, New York, NY, USA. The title of her research project is: "Investigating the Clinical Impact of Iron Deficiency and Anemia on Outcomes in the Surgical Correction of Adolescent Idiopathic Scoliosis."

SABM is ever so grateful because this grant award would not be possible without support from HemoSonics, LLC, a company with roots in Charlottesville, VA, specializing in coagulation testing by sonorheometry. Their Quantra hemostasis analyzer was FDA approved in early 2019 and is now the newest coagulation testing technology to become clinically available, a truly exciting advance for patient blood management.

This is the first study on iron deficiency anemia since SABM began presenting the research grant awards in 2013 and is such an important and common medical problem which is very relevant to PBM. Dr. Eisler's study focus includes: prevalence of iron deficiency and iron deficiency anemia in patients presenting for scoliosis surgery; iron deficiency prevalence with and without anemia; the relationship to clinical outcomes including functional status; to assess feasibility of a larger study designed as a randomized clinical trial to address iron deficiency anemia.

SABM would also like to thank all of the investigators who put in the time and effort to write these detailed and high-quality grant proposals. There were 10 proposals submitted this year, the grant review process was rigorous and involved all members of the SABM Scientific Committee. We congratulate our award winner for 2021 and look forward to a bright future for this grant award program.

Supported by an educational grant from HemoSonics, LLC



International PBM – Western Australia

Lessons Learned from Implementing a Public Health System PBM Program

Shannon Farmer, DHSc, from the University of Western Australia, presented his lessons learned from implementing the Western Australia Patient Blood Management (PBM) program.

In 2008 the Western Australia Department of Health implemented a comprehensive health-system wide PBM program. Much has since been published around the success of this program, however at the time there were several challenges to overcome. For example, hospitals in Western Australia did not pay for blood products, and prior to implementation Western Australia already had one of the lowest red blood cell issuance rates in the world. This led some to conclude the PBM program would not have a significant impact on clinical practice.

In addition, the Global Financial Crisis of 2008 resulted in a freeze on all proposed staff appointments, severely limiting the program's initial leadership structure.

Despite these challenges the Western Australia PBM program successfully changed practice and improved outcomes. Speaking about the achievements of the Western Australia PBM program Prof Donat Spahn, Director of The Institute of Anaesthesiology at University Hospital Zurich, said: "this program is clearly number one worldwide and as such has set new standards."

Dr Farmer said that a key point this presentation will highlight is "culture change and sustainability can be achieved with a comprehensive PBM program." His top tips for getting there is beneficial for all involved or interested in PBM implementation.

Contributor: Kevin Trentino, MPH



International PBM – Nigeria

Placing Bloodless Medicine on the Front Burner

Bloodless medicine is the provision of quality medical care without the use of allogeneic blood. It is synonymous with *Transfusion-Free Medicine* and encompasses Bloodless Surgery. It is a multidisciplinary practice involving a multimodal combination of techniques tailored to the individual patient to achieve targets (or 'pillars') which result in improved clinical outcomes.

It began as an advocacy with the aim of protecting the rights of patients who decline blood transfusion, but as lower morbidity and mortality were found in bloodless medicine, the focus shifted to the aim of improving clinical outcomes. Bloodless medicine forms the real basis of effective Patient Blood Management adopted by the World Health Assembly (WHA) in 2010.

The pillars of bloodless medicine are 1) Optimize the hematocrit 2) Minimize blood loss 3) Optimize tissue oxygenation, and 4) Support patient tolerance of anemia (Lower the transfusion trigger). Bloodless medicine programs in the western world have demonstrated the safety and efficacy of bloodless medicine techniques, and the superior outcomes in 'bloodless' cases compared with transfused cohorts.

Medical literature testifies to the active, growing, and successful practice of bloodless medicine in Nigeria, a low-resource setting. Blood transfusion in a low-resource setting is beset with grave issues of blood safety, shortages, and relatively high cost, in addition to the issues of adverse outcomes and questionable efficacy. The 63rd World Health Assembly was "alarmed that patients in developing countries continue to be exposed to the risk of preventable transfusion-transmitted infections," some of which are endemic but are not routinely tested for even in the best local laboratories. On the other hand, *The Clinical Use of Blood* (WHO 2002) describes "simple alternatives to transfusion" as "safer, less expensive and may be equally effective." Some of the medical literature from Nigeria point to these issues, and strongly advocate bloodless medicine as a practical way of improving clinical outcomes, limiting the transmission of blood-borne diseases, and lowering the cost of health care in low-resource settings.

Multidisciplinary Bloodless Medicine & Surgery Groups have sprung up in public hospitals in Nigeria, starting from University of Calabar Teaching Hospital in 2007. An international multidisciplinary Bloodless Medicine & Surgery Society was legally incorporated in Nigeria in 2019. Bloodless medicine is therefore rightly placed on the front burner in Nigeria, which is a low-resource setting, even though it is indeed beneficial in all settings.

Contributor: Nathaniel Usoro, MD

International PBM – Italy

Beginning in 1996, Dr. Lelio Mario Sarteschi, in Italy, promoted the field of “bloodless medicine” with the website “Bloodless Medicine Research” related to the University of Pisa. In 2005 he founded A.R.S.E. (Associazione per la Ricerca in Strategie Emoconservative, meaning “Society for Research in Blood Conservation Strategies”). Sarteschi dedicated a good deal of his life to bloodless medicine research. He believed that this research was very important because an increasing number of people refused blood transfusion for ethical, religious or personal reasons. Unfortunately, Sarteschi’s untimely demise in 2010 caused his pioneering work in Italy to remain incomplete on the Italian scientific scene, although, since he first started this program, his work became a reference point on the subject with well-known scientific publications.¹

In the very same year the World Health Organization (WHO) endorsed Patient Blood Management (PBM)² and consequently PBM in Italy started to be promoted by the Ministry of Health in Italy by means of specific guidelines published by the National Blood Centre,³ transposed by ministerial decree of January 2017. Despite this, even though PBM is established by law in Italy, data published by the National Blood Center (ISTISAN report) suggests blood use in Italy has not changed significantly. For example, since the issuance of the new law, when comparing data between 2016 and 2019, there were no significant changes in the use of red blood cells, although plasma transfusions recorded a small decrease.^{4,5,6,7} While data for 2020 are not yet available, it is likely that the wide variation in PBM implementation across Italy will persist. Clearly, the “bloodless roots” of contemporary PBM were almost lost in the Italian scientific community.

In 2016, a comprehensive bloodless multimodality program was developed with excellent results, both in elective and urgent procedures in Maria Pia Hospital in Turin. Meanwhile, a focused approach in bloodless care produced a significant decrease in blood components use over all patients without affecting their outcomes, treasuring the experience of the previous years and comparing their bloodless care with other world-wide institutions experienced in bloodless surgery. Applying a specific protocol for the bloodless population, especially for the Jehovah’s Witnesses, produced a significant reduction in transfusion rates, from 64.5% in 2016 to 21.3% in 2020, with no significant variation in overall mortality and complications. This data show that a dedicated

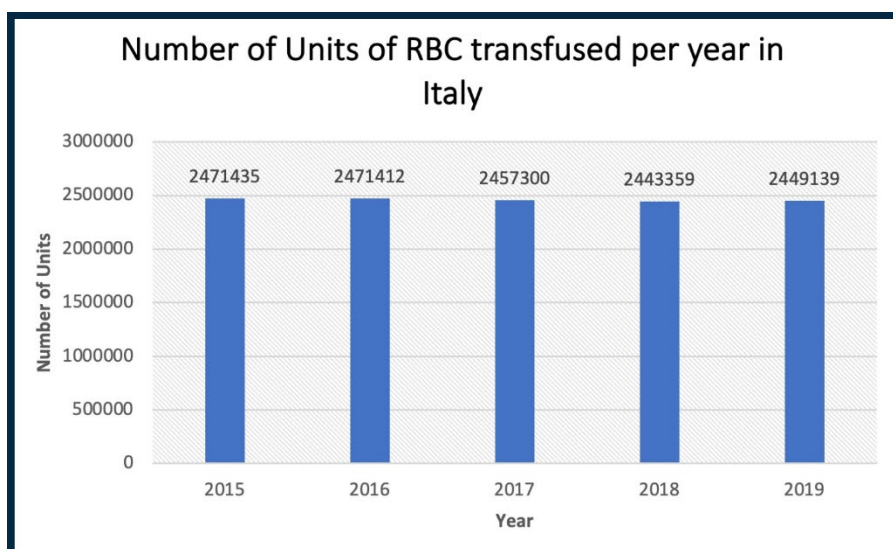
bloodless protocol can be an indicator of high quality PBM and an important driver of optimal blood conservation for all patients.

Since 2017, various bloodless programs began to be promoted all over Italy; the legal challenge to the acceptance of Advance Directives and Informed Consent was overcome by a specific law in 2018, (at last!) and in 2019, a Master Course in PBM was started by University La Sapienza in Rome which is now at its 2nd edition. Of course, there is still a long way to go to make Italy the spearhead of an international PBM program and a clear model for other countries!

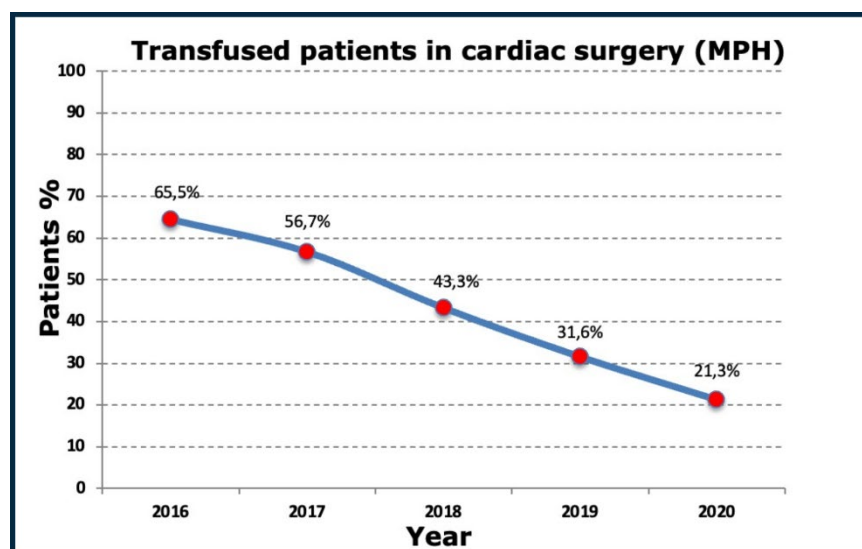
Contributor: Samuel Mancuso, MD

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National Blood Center (ISTISAN report)



Transfusion rates decreased since our bloodless program began in 2016

International PBM – Korea and Malaysia



The SABM Annual Meeting 2021 fosters an environment that is welcoming and embraces experiences from around the world. The growth of PBM in Asia is very much related to the activities in South Korea which in fact is like the artist who blends together many different colours to form an attractive piece of art.

Jonghyeon Lee, MD, presents on PBM in South Korea. South Korea's efforts in bloodless medicine and surgery started in 1986 with a successful bloodless open-heart surgery on an 8-year-old son of a Jehovah's Witness couple. Dr. Park Young-kwan said: "Too much blood has been used in open-heart surgery in Korea until today. We have to develop the method in this country to perform open-heart

surgery with as little blood as possible or completely without blood." This was a crucial insight and an impetus towards bloodless medicine and surgery, as well as PBM in Korea. The first bloodless open heart surgery program was initiated in Buchun Sejong hospital the same year. Subsequent years saw the birth of the Korean Research Society of Transfusion Alternatives (KRSTA) in 2006, and a joint congress with NATA was held in 2013. The plans for an Asian PBM society were initiated at the KRSTA symposium in 2014, and the Asia Pacific Society for Patient Blood Management (ASPBM) was officially formed in 2015. Throughout the years, active translation and distribution of books and videos related to PBM was done, in addition to symposium abstract book production. (see pictures below)



Accelerated growth is seen also with the formation of Korean PBM (KPBM) in 2014, and also the embracing of hospital-wide bloodless medicine in Korea University hospital since 2013 which also garnered support from policy makers. In all, the past 30 years has seen progress from hospital implementation to nationwide support. The enthusiasm and efforts from colleagues in South Korea spill over to other Asian countries, one of it being Malaysia.

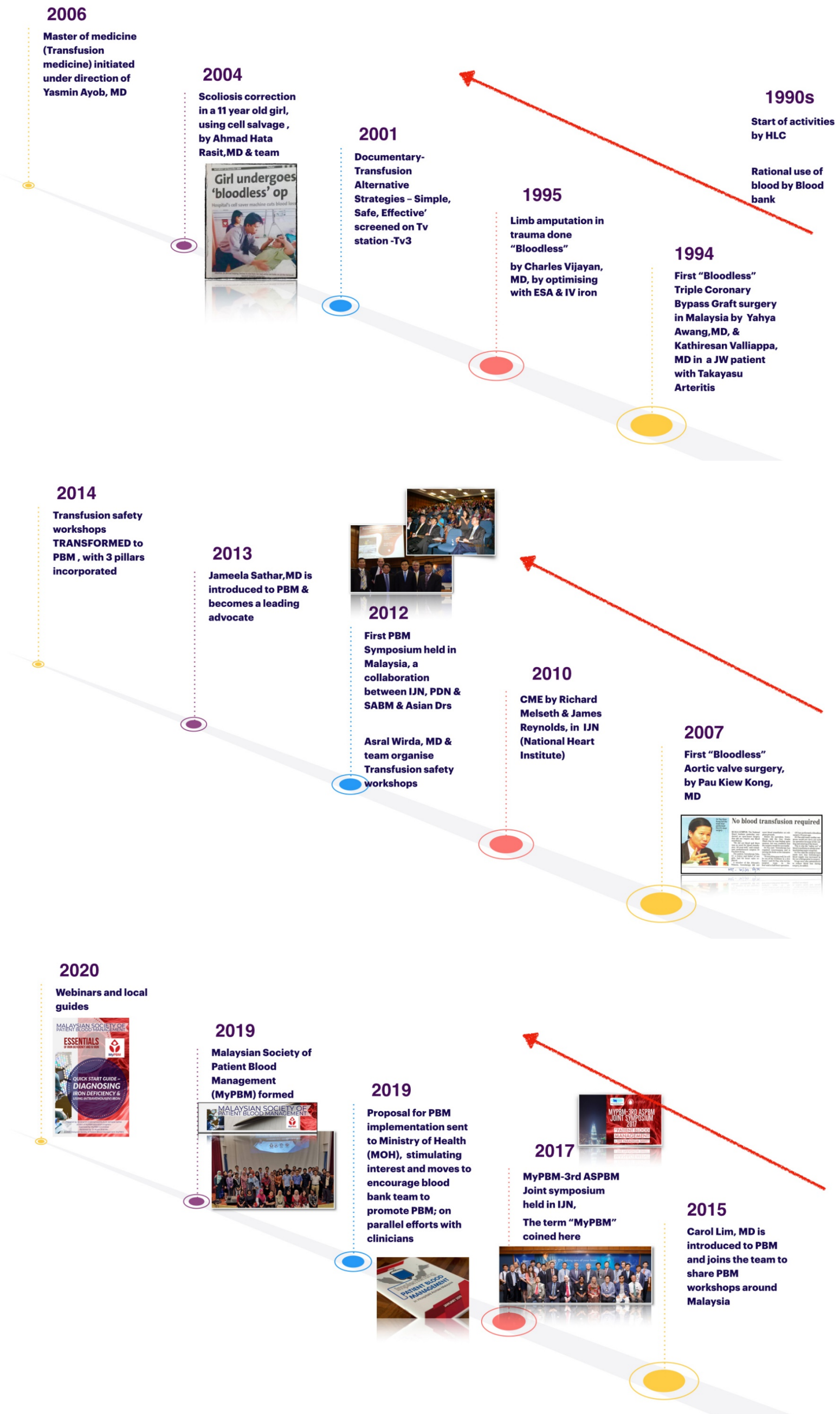
The journey of bloodless medicine and PBM in Malaysia was presented by Ananthi Krishnamoorthy, MD. The story which was earlier published in the SABM newsletter (link here) is

highlighted to show how great, like-minded individuals or organisations cross paths and work together for the benefits of patients and for advancing PBM. The role of ASPBM & SABM in the growth of PBM in Malaysia is crucial and is brought to the fore.

The talk closes with the reiteration of how beautiful it is when different colours blend and that is the case when all unique individuals or organisations work together for a common and higher purpose.

Contributor: Ananthi Krishnamoorthy, MD

The Journey of PBM in Malaysia Started with Bloodless and Grew to PBM



The World Health Organization Action Framework 2020-2023: Advancing the Objective of Patient Blood Management

Yuyun Maryuningsih, PhD

Team Lead for Blood and Other Product of Human Origin
Health Products Policy and Standards Department
WHO Headquarters, Geneva, Switzerland

Although blood transfusions can be essential to patient care, unnecessary transfusions, unsafe transfusion practices and errors seriously compromise patient safety.

In 2010, Member States resolved to promote transfusion alternatives including, where appropriate, autologous transfusion and patient blood management (PBM). The 2011 WHO Global Forum identified the need for a common understanding of PBM concepts, involving multidisciplinary teams and strengthening the legal framework on Clinical Use of Blood (CUB), PBM and hemovigilance (HV) system at national level.

The Global Database on Blood Safety (GDBS) 2015 outlined six blood services challenges:

1. **Poor access to blood during emergencies**, including no blood supply preparedness system.
2. **Sub-optimal clinical practices**, because CUB, HV system and PBM are not implemented.
3. **Lack of availability of Prescription Drug Monitoring Programs (PDMPs)**
4. **Deficiencies in safety, effectiveness and quality**. For example, in low-to-middle income countries, only 80% of donated blood was tested.
5. **Insufficient supply of blood products**. There are still 66 Member States with blood donation rates less than 10/1,000 in the population.
6. **Inadequacy in policy, regulations, governance and financing**. Only 60-70% Member States has blood policy, legislation and an oversight system.

In February 2020, WHO published the Action Framework to advance universal access to safe, effective, and quality-assured blood products. Providing strategic direction from

2020 to 2023, it reaffirms the importance of implementing effective PBM to overcome barriers to optimal anemia management, blood loss and other comorbidities.

<https://apps.who.int/iris/handle/10665/331002>

The Action Framework addresses these challenges through six strategic objectives:

1. Structured, well-coordinated and sustainably resourced national blood system
2. Appropriate national framework of regulatory controls
3. Functioning and efficient blood services
4. Effective PBM
5. Effective surveillance, HIV and pharmacovigilance
6. Partnerships, collaboration and information exchange

In order for PBM to be effective, it must be practiced based on national clinical guidelines and standards. Also, hospitals must establish transfusion committees and quality, pre-transfusion systems. This further involves developing and organizing a CUB, improving blood supply systems, and advancing PBM knowledge among clinicians and other care providers.

Recently, WHO published a Policy Brief and Guideline for implementing PBM. It was prepared by a workgroup chaired by Prof. Axel Hofmann and supported by individuals with clinical and/or public health expertise related to PBM. **Stage 1** raises awareness on **what, how and why** PBM improves population health, patient outcomes, patient safety and quality while saving cost and promoting clinically appropriate use of blood. It also heightens awareness among patients and health care providers that anemia and/or moderate to severe blood loss are serious predictors for adverse outcomes.

The guidance is being promoted via webinar and a pilot project is underway to assess how one country implements the guidance.

Contributor: Leilani Rangel

Proactive Management of Anemia

Friday afternoon breakout sessions contain crucial information for successful PBM. The session moderated by Kelli Simmons-Massey, DNP, provides an overview on creating successful anemia clinics. It begins with systematic how-to presentation by Sarah Walbolt, BSN, Coordinator of Patient Blood Management and Bloodless Care for ProMedica hospitals. Sarah outlines steps to bring the idea of a clinic to fruition. The second presentation by Adrienne Korzeniewski, RN, from ProMedica examines patient populations who can benefit from time sensitive anemia and appropriate therapies to address these. In the third presentation, Tiffany Hall, RN, discusses barriers to reimbursement and strategies to support reimbursement for IV iron in the United States.

Building A Rock-Solid Anemia Clinic outlined five important steps to successful implementation: the most imperative step is the creation of a strong business plan. Emphasis was placed on choosing organizational affiliations early to benefit from the many resources such as clinical research, guidelines, standards, policies, patient pathways and support. Sarah demonstrated SABM resources to assist with the creation of a business plan. Key aspects to include in a business plan are market research, identifying key stakeholders, determining your business model, billing and revenue streams and other financial considerations. A short discussion on business models, physical versus virtual clinics were considered.

Organizing operations include legal establishment of business, insurance requirements, organizational structure, fees for services, staffing requirements and creation of practice guidelines, algorithms, protocols, and patient pathways. Then acquiring hardware, software equipment and supplies. When choosing electronic health records (EHR) software, remember to consider your business model and requirements to support it. Additional partnerships for paid resources such as market identification, clinical guidance in therapies, or data collection may be considered.

Development of staff role functions; workflows and organizational policy along with appropriate training for staff are needed. Sign-off on departmental policies by any sponsoring organization through risk management is important before official adoption. Promoting the anemia clinic through available marketing avenues is a final step in getting the anemia clinic off to successful start. Patient outreach through website development supports appropriate consults from the community. Initiation of relationships with key specialties can greatly increase consults.

Anemia Clinics—Not Just for Pre-Op Anymore. Adrienne emphasized how anemia clinics patient outcomes and decrease numbers of transfusions, hospital admissions and ER visits. The patient populations she discussed include education on goals for that population and therapies prescribed. Iron deficiency in pregnancy increases the risk for pre-term labor, low birth rate and fetal mortality. IV iron can be a great option after the first trimester to rapidly correct iron deficiency and support hemoglobin for safe delivery. Women of childbearing years have increased percentage of

iron deficiency over the general population largely due to monthly menses.

Hospitalization is a common cause of acquired anemia. Patients with prolonged admissions may require correction of anemia after discharge to prevent re-admission. GI and post bariatric surgical patients often have absorption issues decreasing their ability utilize iron from oral nutrition or medication. Oral iron may be upsetting to the digestive tract in many Gastroenterological conditions. Adrienne discusses various gastric bypass surgical procedures and the impact each may have on the absorption of iron.

Tiffany Hall, RN, rounded out the discussion on anemia centers in her presentation entitled: **IV Iron Reimbursement – Strategies For Getting Paid.** She explained barriers and strategies for reimbursement of intravenous iron in the United States. Indications for intravenous iron included failure of previous oral therapy or in circumstances such as urgent surgical needs. Proper diagnosis coding and documentation requirements are often barriers to reimbursement. It is imperative for clinicians and hospital coding staff will need to keep updated on current insurance requirements.

Centers for Medicare and Medicaid Services require patients first fail on oral iron therapy. Examples of failures are GI intolerance or lack of efficacy. Secondly erythropoiesis stimulating agents (ESA) cannot be given on the same day as intravenous iron therapy. Currently, no Medicare administrative contractors (MAC) provide coverage to correct iron deficiency in the absence of anemia. Many commercial insurances require pre-authorization and will cover only preferred brands.

Strategies for coverage are becoming familiar with who your MAC is in your region and researching the IV iron coverage criteria. Working with your organizational reimbursement department in the creation of anemia in your local area. Review commercial insurance coverage in your location and their preferred brands and work with your organizations pharmacy to include them in your formulary. Promote education and awareness in the community and educate them in treatment options. Build order sets and clinical guidance that include required documentation, laboratory testing, and diagnosis codes. Current and emerging evidence in the treatment of iron deficiency and anemia, can be found in the many resources available on SABM.org.

Contributor: Sarah Walbolt, RN



Maximizing Efficiency of Cell Salvage

Cell salvage or autotransfusion results in the return of red blood cells to a patient who is losing blood. The efficiency of blood return can range from 40-80% of what has been lost, with an average of 60%. In other words, 60% of the shed blood will be returned to the patient on average. There are several things that can be done to return a higher percentage of the red blood cells. The first is to minimize the suction which is applied to the red blood cells. Higher suction pressure leads to expansion of the gases in the blood and subsequent rupture of the red cell membrane and loss of cells. The second thing that should be done is to try to not skim blood from a bleeding surface. Skimming leads to air bubbles being entrained which can damage red cells when the bubbles rupture and send shock waves into the blood. A third area that can maximize red cell return is through rinsing of sponges. Approximately 95% of blood contained in a sponge can be captured with careful rinsing. Another area for maximizing blood return is to make sure that adequate

anticoagulation is achieved. Blood should be mixed with anticoagulant in a 15 mL anticoagulant to 100 mL of shed blood ratio. So, if blood loss is vigorous, the anticoagulant should be increased so that the blood doesn't clot in the collection reservoir. During high blood loss procedures, the collection reservoir should be periodically flushed with saline to free up red blood cells from clot that may have formed in the filter of the collection reservoir. Lastly, if large blood loss is anticipated, normovolemic hemodilution should be combined with cell salvage. This has two benefits. First is that it will return some clotting factors and platelets to the patient but it also has a protective effect on the red cells in that lower hemoglobin concentrations tend to not be as susceptible to the mechanical trauma inflicted upon the red cells by the suction pressure. With these simple strategies, a larger amount of shed blood can be returned to the patient.

Contributor: Jonathon Waters, MD

Managing Trauma Without Transfusion

The main objectives to managing trauma without transfusion include stopping the bleeding, correcting coagulopathy and platelet dysfunction, and managing acute blood loss anemia. Early recognition of bleeding and prompt interventions including avoidance of crystalloid fluids and permissive hypotension can decrease factor dilution and blood loss. Timely interventional radiology or surgical procedures stop bleeding efficiently and intraoperative decisions such as damage control surgery, cell salvage and use of hemostatic agents can limit blood loss. It is important to identify abnormal clotting whether due to home medications, patient factors and/or injury. Thromboelastography can identify specific

abnormalities in clotting and platelet function and can direct appropriate therapy. Hypothermia and acidosis contribute to coagulopathy and also must be addressed. Acute blood loss anemia is often well tolerated. Focusing on the patient's clinical status can help avoid unnecessary lab draws and further iatrogenic anemia. Treating anemia with iron and appropriate erythropoietin stimulants assists in the patient's recovery. Teamwork and thoughtful decision-making contribute to success in the care of a bleeding patient who does not accept transfusion.

Contributor: Erin Suydam, MD, FACS

PBM: Where Have We Come From and Where Are We Going?

Prof. Dr. Axel Hofmann, ME, is the recipient of the 2021 SABM Presidents Award

Clearly, there are system failures in transfusion practice. For most transfusions, there is no underlying diagnosis, only a hemoglobin value. A study recently published in *The Lancet Haematology*, noted that in 2017 the global need for blood products was 305 million components. I suggest changing "need to demand, often based on liberal thresholds and perceived benefits for which there is limited or no evidence."

Clinical data on transfusion variability, which is largely due to poor compliance with threshold recommendations and the culture of multiple-unit transfusions, indicates that there can be 100 to 200 million non-indicated blood component transfusions per annum. If this happens so many times, year after year, are we still dealing with medical error or, at least, systemic negligence?

Most system failures are not on the transfusion side, but in the prevention and management of anemia, blood loss and coagulopathy. For medical/surgical patients, PBM starts well before admission, with the primary care physician and consulting specialist identifying and addressing anemia as well as risks from anticoagulant and antiplatelet therapy. During surgery, the emphasis is on meticulous surgery, regular use of hemostatic agents, and collection/reinfusion of shed blood. Post-operatively, minimizing phlebotomy and correcting anemia is the focus. When properly implemented, the three pillars of PBM eradicate many of the system failures, both on the diagnostic and therapeutic sides.

The revised definition of PBM is a patient-centric, systematic, evidence-based approach to improve patient outcomes by managing and preserving a patient's own blood, while promoting patient safety and empowerment. The goal is to correctly diagnose and manage the underlying disease, but not to reduce or avoid a specific therapy. Appropriate PBM requires managing a patient's blood like all other body systems.

Since 2006, utilization of blood in the U.S. has decreased by 36 percent. Now it is 32 units per thousand, which is a remarkable improvement. This also came with a reduction in mortality, morbidity, and activity-based transfusion costs, which does not take into account the savings in avoided complications. Contributing to the decline is broad implementation of PBM, especially among larger hospitals that have multidisciplinary protocols throughout the entire continuum of care. Tailoring care to patient needs requires patient education, informed consent, and shared decision-making apply to all three pillars.

The Australian PBM program began where some think the process is ending: implementation successfully reduced utilization to 19 units per thousand, and the Australian government is identifying implementation gaps that can further reduce utilization.

It is good to see that many societies are leading this strong movement in PBM. It has to be on the forefront because the evidence, economics and ethics clearly show that this is the preferred paradigm of care for all patients.

Contributor: Leilani Rangel

SABM - ASA American Society of Anesthesiologists Session

PBM in Women's Health – Managing Anemia in Obstetrics

Nicole Guinn, MD, is Medical Director for the Center for Blood Conservation at Duke University Medical Center; she has gained several years of experience managing anemia in the presurgical and obstetrical population, and has written publications regarding their program and patient outcomes. In this presentation, Dr. Guinn shared the impact and prevalence of anemia in pregnancy, reviewed the laboratory studies required to diagnose and determine a treatment plan to manage anemia and even shared a great algorithm they developed for their program. Iron deficiency is the most common etiology for anemia during pregnancy, and the Duke program recommends screening of all pregnant patients at 26-28 weeks for anemia. While oral iron therapy remains the standard treatment, it is often poorly tolerated due to its gastrointestinal side effects yet IV iron is a safe and effective alternative treatment for iron deficiency anemia for obstetrical patients who are unable to tolerate oral iron. She presented an overview of their anemia management enrollment process which included a summary of the successful patient outcomes, specifically the improvement in patient hemoglobin levels and reduced transfusion rates. For additional information and full details about the Duke anemia management program please refer to this article: Guinn NR, *et al.* How do I develop a process to effectively treat parturients with iron deficiency anemia? *Transfusion*. 2020 Nov;60(11):2476-2481.

PBM in ECMO or Mechanical Assist Device

Michael Mazzeffi, MD, is a Professor of Anesthesiology and Critical Care Medicine at George Washington University School of Medicine and Health Sciences. This presentation covered the impact of ECMO on a patients' blood with regard to coagulation, platelet count, hemoglobin concentrations and bleeding. Dr. Mazzeffi provided a helpful review of the recent literature addressing the impacts of allogeneic blood transfusion on increased mortality and highlighted the importance of why PBM and reducing transfusion exposure is important for patient outcomes. He shared evidence that supports a more restrictive transfusion strategy with targets of 7 g/dL in non-bleeding patients and 8 g/dL for patients with bleeding. (Abbasiano RG, *et al.* Blood Transfusion Threshold in Patients Receiving Extracorporeal Membrane Oxygenation Support for Cardiac and Respiratory Failure—A Systematic Review and Meta-Analysis. *Journal of Cardiothoracic and Vascular Anesthesia*. Volume 35, Issue 4, April 2021, Pages 1192-1202.) Dr. Mazzeffi reviewed the challenges of anticoagulation with regard to heparin versus direct thrombin inhibitors, the variable for heparin monitoring and recent literature regarding low vs high level anticoagulation, also a study which looked at no anticoagulation. Strategies were provided for coagulation monitoring and bleeding management for the ECMO patient. The take home points included: limit blood draws, limit bleeding events by managing anticoagulation, follow PBM principles and employ a restrictive transfusion strategy to improve patient outcomes!

Contributor: Tiffany Hall, RN

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Membership and Mentorship Committee Updates

The mission of SABM's Membership and Mentorship Committee is to engage individuals, hospitals, and organizations that share SABM's strategic mission to promote PBM. The Membership and Mentorship Committee develops and implements recruitment and retention strategies and recommends activities that ensure value to membership.

Get involved in the new SABM Mentorship Program

Contrary to traditional 1:1 mentoring, the SABM mentorship program houses a mentee in a "pod" with two or more mentors. This 'team-approach' to mentorship enables multiple perspectives for coaching, resources for questions, opportunities for networking, and much more. Mentorship pods are assigned for a duration of one year. After the introductory email, groups are encouraged to connect as soon as possible to begin developing their plans and goals for the year, including when and how to communicate (e.g., telephone calls, virtual meetings, emails, etc.). Whenever possible, all groups are encouraged to cap off their year with a special/joint project, and to try to meet in-person at the SABM Annual Meeting. To take advantage of the new SABM Mentorship Program please complete the online application on SABM website (<https://sabm.org/mentorship-program/>). Get involved as a mentor or mentee to take your PBM program to a new level!

Welcome new SABM Organizational Affiliates

SABM welcomes the Asia-Pacific Society for Patient Blood Management (ASPBM), the Malaysian Society of Patient Blood Management (MyPBM), the Verein zur Förderung der Perioperativen Medizin (VFPM, Association for the Advancement of Perioperative medicine), and the Bloodless Medicine & Surgery Society (BMSS) as Organizational Affiliates. SABM organizational affiliates are entities or organizations that align and partner with SABM to support and promote Patient Blood Management (PBM) as the gold standard in healthcare practice. We are confident that this partnership will create a stronger voice for PBM in the global arena. Qualifying organizations (US based or international)

might include but are not limited to PBM societies, healthcare associations, other professional medical societies, and regulatory agencies, or other related entities. Interested organizations can contact the SABM Membership and Mentorship Committee at membership@sabm.org to learn more about this program or express their interest in becoming a SABM Organizational Affiliate.

Contributor: Gagan Mathur, MD

SABM WELCOMES THESE NEWLY ELECTED AND RE-ELECTED BOARD MEMBERS

Carolyn Burns, MD is now President
Linda Shore-Lesserson, MD, FAHA, FASE, President Elect
Prakash Patel, MD, FASE, Secretary
Becky Rock, RN, was elected again as Treasurer
Sherri Ozawa, RN, Past President
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David Faraoni, MD, PhD, FAHA, At-Large Director
Tiffany Hall, RN, At-Large Director
Deborah Tolich, RN, At-Large Director
Sharon Sledge, MA, MS, RN, was elected again as At-Large Director

Complete Board Member List Available Here:

<https://sabm.org/governance/>

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Prof. Dr. Axel Hofmann, ME

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SABM ACKNOWLEDGES THE SERVICE OF OUR OUTGOING BOARD MEMBERS

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Hospital Affiliates

Hospitals across the world are seeing the important role Patient Blood Management plays in improving patient outcome and optimizing care, as well as the vital part SABM plays in bringing resources to their clinical and administrative teams.

SABM Hospital Affiliates enjoy a wide range of benefits, including individual memberships, annual meeting registrations, educational programs, as well as powerful and evidence-based administrative and clinical tools, all designed to improve the quality and safety of Patient Blood Management programs and patients. We encourage you to avail yourself and your institution of the multiple valuable facets of SABM Hospital Affiliation.

For a full description and list of benefits of becoming a hospital affiliate, please [click here](#).

Thank you to the following institutions for their support of SABM's mission as Hospital Affiliates.

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