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Transfusion Today

The ISBT Working Party on Global Blood Safety

Workshop on Eye Drops of Human Origin

I TRY IT 2023

The SUPPLY project

In Focus

Improving Global Blood Access and Safety





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Editorial

We start the new year by highlighting the activities of the ISBT Working Party for Global Blood Safety (WP-GBS) in this edition's In-Focus section. The WP-GBS works in close collaboration with WHO to undertake projects to improve blood safety and access in low- and middle-income countries (LMIC). A notable example of this is the instigation by WP-GBS of the International Coalition for Safe Plasma Proteins (ICSPP) hosted by ISBT to work alongside WHO and other partners to improve much needed access to plasma proteins in resource limited settings. This project is progressing at speed and enhances ISBT's ability to support WHO as a non-State actor.

In the final quarter of 2022, the ISBT Academy was busy with two face-to face ISBT Academy organised programmes. One in Malaysia in collaboration with the Malaysian Blood Transfusion Society, to bring an ISBT Academy Day programme to the region following the KL congress move to virtual (pages 26-27). The other was an ISBT Highlights session (pages 22-23) at the HEMO 2022 congress in Brazil, in collaboration with the Brazilian Society for Haematology, Heamoptherapy and Cell Therapy (ABHH). Thanks to both societies for being such excellent hosts and making these sessions a great success. The ISBT Academy section also reports on other educational events with programmes developed by the organisers. We are always looking to broaden the range of LMIC countries supported in this way, so if you are planning an event and meet the criteria why not apply via the ISBT website.

At Vox Sanguinis, following the recent changes in production to reduce the carbon footprint, there is a drive towards going "paperless", so if you like to stop receiving a paper copy of Vox (and Transfusion Today), then it is easy to update your preferences in 'My Account' on the ISBT website to switch to on-line only.

Plans for the two Regional ISBT congresses in 2023 in Gothenburg and Cape Town are now well underway. Registration and abstract submission for Gothenburg is open, and we look forward to welcoming you to the congress to enjoy the packed programme, share your own work and enjoy the land of the midnight sun! In the meantime, wishing you a very happy and healthy start to 2023.

Jenny White
Executive Director, ISBT

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The ISBT Working Party on Global Blood Safety (WP GBS)

The WP GBS was founded in 2010 in the spirit of the Global Collaboration for Blood Safety that was hosted and supported by WHO from 2000 – 2008. The goal of the WP GBS is to promote advancements to the availability, quality and safety of blood and blood products in low resource settings by using available knowledge to develop solutions that fit those environments. ISBT members from low- and middle- income countries (LMIC) and other members with an interest in this area are invited to join our working party.

Over time, ISBT leadership endorsed the unique role that WP GBS plays, which cross-cuts the missions of other working parties. Several priority issue-focused subgroups have been established within the WP GBS. Details of their work are described in the articles of this edition of Transfusion Today.

The subgroup on **Cryoprecipitate and Plasma for Fractionation** rapidly developed publications advocating alternative strategies to improve availability of safe plasma proteins in LMIC where patients suffer devastating consequences from lack of access to commercial protein replacement therapies. Also, early in the COVID-19 pandemic, guidance documents for preparation of convalescent plasma as a potentially effective therapy were published on the ISBT website. More recently, in September 2021, the subgroup organized an ISBT workshop on "Stepwise access to safe plasma proteins in resource-constrained countries: Local production and pathways to fractionation."

The subgroup on **Voluntary Versus Replacement Donation** began its work with an extensive literature review to define the issues that frame the dilemma of providing safe blood donors in an environment of blood shortages. The work was interrupted by the pandemic due to the pressing responsibilities that fell on the original subgroup chairman. This important work has been revitalized under the leadership of a new chairman.

A subgroup on **Harmonization of Regulations and Standards** has begun a project on benchmarking of the international practices and standards that are in place to assure blood quality and safety. As its first activity, a questionnaire was developed and circulated globally to identify the testing strategies and regulatory controls that are in place in high and low resource settings to prevent transfusion transmissible infectious diseases. The goal of the project is to develop an educational paper that might highlight important differences in the approaches that are in use.
In addition to the public workshop that it organized on plasma proteins, the WP GBS contributed to the online ISBT Barcelona Congress by providing a "showcase" session with examples of local production of safe plasma proteins, and an online InFocus session on dealing with the challenges of promoting donor availability in the low resource setting. You can find publications of the work of the subgroups on the WP GBS webpage.

Again, I invite interested members of ISBT to participate in our exciting work by joining the WP GBS. Members of other working parties are most welcome to share their expertise through collaboration.





Donor Availability in the Low Resource Environment: How Can we Deal with the Challenges?

Meeting report of the session organized by the ISBT Working party Global Blood Safety Session on World Blood Donor Day during the ISBT In Focus online congress, June 14th, 2021.

Disponibilité des donateurs dans un environnement à faibles ressources : comment pouvons-nous relever les défis ?

Compte rendu de la session organisée par le groupe de travail ISBT Global Blood Safety Session à l'occasion de la Journée mondiale du donneur de sang lors du congrès en ligne ISBT In Focus, le 14 juin 2021.

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ISBT WP GBS Subgroup on harmonization of regulations and standards

The harmonization subgroup of the global blood safety (GBS) working party (WP) aims to identify the range of established policies, practices and requirements for collection and preparation of blood components. The goal is to interpret the rationale for variability in policies and practices as the basis for an educational publication that would support relevant decision making in developing countries and enable international benchmarking. As a first project, the subgroup released an on-line survey to gather information focusing on Transfusion-Transmitted Infectious Disease (TTID) testing.

The survey was distributed in 2021 to 184 participants in 136 countries (one or two per country) who were members of the ISBT GBS and TTID WPs, and persons identified by World Health Organization as in-country contacts for blood issues. Survey recipients represented 44/58 (76%) of high- income countries (HIC), and 91/138 (66%) of low- and middle-income countries (LMIC). Sections of the survey addressed type of reporting organization, existence of laws, regulations and standards for TTID testing; practices of pathogen inactivation in relation to separation and leukocyte reduction of blood components; performance of routine and/or selective testing for specific disease agents; use of types of tests (e.g., rapid, antibody only, antigen and NAT) and confirmatory algorithms; product and donor management based on reactive tests; participation in External Quality Assessment Services and hemovigilance reporting. Responses were limited from only 12/44 (27%) HIC and 14/91 (15%) LMIC that precluded in-depth analysis of data. However, preliminary findings suggest that fewer mechanisms of oversight and standard setting are present in LMIC compared with HIC, particularly in the area of governmental licensing or registration of blood establishments (see table*). The data to date will be analyzed and summarized for a brief commentary. A solicitation of responses to a simplified version of the survey by section or in its entirety is under consideration to encourage an increase to our response rate.

	HIC		LMIC	
Existing practices and standards	Response received	"Yes" answer N (%)	Response received	"Yes" answer N (%)
One or more blood regulatory authority	12	9 (75)	12	8 (67)
Laws or regulations for TTID testing	12	10 (83)	12	10 (83)
Governmental licensing or registration of blood establishments	12	11 (92)	12	8 (67)
Professional associations establish best practices	11	7 (64)	11	6 (55)
Standards for test kit performance	11	8 (73)	11	7 (64)
Non-governmental accreditation organization	11	4 (36)	11	3 (27)
Quality management systems are used	11	10 (91)	11	11 (100)

* Kamel H, Dodd R, Stramer S, Smid W, Epstein J. ISBT international survey on practices, standards and regulatory requirements for TTID testing: a limited preliminary response Vox Sang 2022; 117 (S1):157-158.



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ISBT WP GBS Subgroup on Plasma & Cryoprecipitate

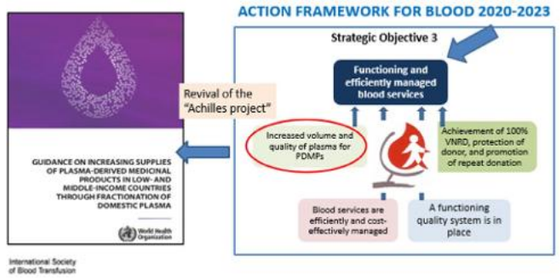
Under the "Action framework to advance universal access to safe, effective and quality assured blood products 2020–2023" WHO revived its 2009 Achilles Project to increase access to plasma derived medicinal products (PDMPs) in low- and middle- income countries (LMICs). To advance this goal, WHO published "Guidance on Increasing Supplies of Plasma-derived Medicinal Products in Low- and Middle- Income Countries through Fractionation of Domestic Plasma" and "Guidance on Centralization of Blood Donation Testing and Processing."[1,2] To support WHO in this context, WP GBS established the "Subgroup on Plasma and Cryoprecipitate (Subgroup P&C)" in 2016 that published "Recommendations on recovered plasma for fractionation," and "Recommendations local production of virus-inactivated cryoprecipitate."[3,4]

In consultation with the WHO Unit on Blood & Other Substances of Human Origin (BTT), the Subgroup P&C conducted a well-attended on-line international "Workshop on Stepwise Access to Safe Plasma Proteins in Resource-Constrained Countries: Local Production & Pathways to Fractionation" on September 21-23, 2021.[5] The purpose was to identify pragmatic technical options for stepwise access to safe plasma protein therapies aligned with the recent WHO guidance documents.[6] In addition to ISBT, participation included WHO, International Federation of Blood Donor Organizations (FIODS), International Patient Organisation for Primary Immunodeficiencies (IPOPI), World Federation of Haemophilia (WFH), blood related industries, scientists/researchers, and regulatory authorities. Scalable technologies for local production of pathogen-reduced cryoprecipitate and immune globulins were discussed as well as pathways towards eventual fractionation of domestic plasma either under a foreign contract or nationally. A concluding panel advocated formation of a common platform through which key international organizations could cooperate on actions to alleviate the suffering of patients with inherited and acquired bleeding disorders and those with primary immunodeficiencies through improved access to safe plasma proteins.

The WP GBS undertook this challenge and facilitated development and launch in October 2022 of the "International Coalition for Safe Plasma Proteins" (ICSPP) with key stakeholder organisations across the blood chain (representing globally blood and plasma donors, blood establishments and specialists in transfusion medicine, patient organizations and industry). A memorandum of understanding has been established between WHO and ISBT, setting a framework for ICSPP's relationship with WHO. The ICSPP Steering Committee is chaired by the WP GBS and reports to the ISBT Board. A pilot project initiated by WP GBS on behalf of ICSPP is underway at the National Blood Transfusion Centre (NBTC) Dakar, Senegal on local preparation of virus-safe cryoprecipitate using solvent-detergent treatment to eliminate risk from major transfusion transmissible infectious agents. In cooperation with ICSPP, WP GBS is considering future projects in LMICs in Africa, Latin America and South-East Asia (e.g., a contract plasma fractionation project in Indonesia). Several presentations have been given by members of the GBS on these activities in scientific congresses and meetings.

Additionally, GBS WP is drafting an application for WHO to add "Cryoprecipitate, pathogen-reduced, method not specified" to the Model Lists of Essential Medicines for Adults and Children WHO EML (Essential Medicines List) in Section 11 under "Blood coagulation factors". The WHO Expert Committee on Selection and Use of Essential Medicines will consider the application at its next meeting in April 2023.

The Subgroup P&C as a member of the ICSPP and in its constructive relationship with WHO BTT will continue works to support LMICs in alleviating shortages of safe plasma protein products that are needed critically to properly treat patients with coagulopathies and immune deficiencies.



Source:
who.int/publications/i/item/9789240021815



Source:
isbtweb.org/isbt-working-parties/global-blood-safety/intl-coalition-for-safe-plasma-proteins-icspp.html

References

1 Guidance on Increasing Supplies of Plasma-derived Medicinal Products in Low- and Middle- Income Countries through Fractionation of Domestic Plasma: who.int/publications/i/item/9789240021815

2 Guidance on Centralization of Blood Donation Testing and Processing: who.int/publications/i/item/9789240020825

3 Recommendations on recovered plasma for fractionation by ISBT Working Party on Global Blood Safety: isbtweb.org/resource/plasma-for-fractionation-and-safe-blood-products.html4. Recommendations on local production of virus-inactivated cryoprecipitate by ISBT Working Party on Global Blood Safety: isbtweb.org/resource/recommendationsonlocalproductionofvirusinactivated cryoprecipitate.html

5 Workshop "Stepwise Access to Safe Plasma Proteins in Resource-Constrained Countries: Local Production & Pathways to Fractionation" September 21-23, 2021: recordings and presentations: isbtweb.org/isbt-working-parties/global-blood-safety/resources/pdmpworkshop.html

6 Thierry Burnouf, Jay Epstein, Jean-Claude Faber, Claude Tayou Tagny, Daniel Somuah, W Martin Smid. Rationale for supporting stepwise access to safe plasma proteins through local production in low- and middle-income countries: A commentary of an international workshop. Biologicals. 2022; 79:27-30. DOI:10.1016/j.biologicals.2022.08.003



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Activities of the ISBT WP GBS subgroup Voluntary vs. Replacement donation

Silvano Wendel (Brazil) has handed over the lead of the subgroup voluntary vs. replacement donation to Nelson H Tsuno (Japan), who continues the activities started by Silvano and the group. The main focus is to develop an approach to deal with the dilemma to promote voluntary donation in situations while depending on replacement donation for availability.

The group started discussions on the differences between family/friend replacement and voluntary donation, and it has been decided to go through a literature review and group discussions to find common definitions and reach consensus on the various types of donations in the different regions/countries, and prepare a paper to report on their achievements.

As the short/midterm objective, the group aims to investigate on the real facts about blood donation in low-medium income countries (LMIC). Special focus is on the types of blood donation, which should be achieved by getting a general impression of the group by highlighting real facts, leaving false concepts and dogmas behind. It is important to cross check published evidence from several countries, and evaluate the evidence in the multinational groups. Discussing with the group based on the available knowledge, helps clarify the facts based on personal experiences, and when needed, defining terms and alternatives, with a focus on an outcome that is particularly helpful to LMIC.

In the long-term, the group aims to improve the availability of safe blood donors especially in LMIC based on already existing knowledge, which can be translated into a roadmap for conversion to voluntary donation. To achieve this, the group decided to identify obstacles, which will be evaluated by the PESTELE (political, social, economic, technological, legal, environmental and ethical factors) analysis, to find ways to overcome these obstacles based on countries' experience, and to define achievements, including but not limited to donor and patient safety, regular donors, and donor registry.

The literature review based on the following topics was started by Silvano: Altruism/recruitment, Behaviour/motivation, Ethics, Incentives/Rewards, Developed countries, Infectious diseases, Demographics, and Others. Nelson proposed to define research questions that can lead the discussions of the literature review, which will be open questions, such as "Should countries that depend on voluntary donation consider moving to VNRD?", and closed questions, such as "How could countries move from replacement donation to VNRD?", more directed to help countries move from replacement to VNRD.

Another approach proposed to achieve these goals is to learn from countries' experiences. The subgroup members, some who have experienced a good transition from replacement to VNRD, or those who mainly depend on replacement donation, or those who are involved in activities in LMIC to find the best solution to the blood transfusion system, will contribute not only by sharing experience and information, but also by indicating potential new members for the subgroup, who can contribute in the preparation of a survey, especially targeting LMIC, which is expected to be conducted soon, and those who can be contacted to answer the survey, and also to be interviewed to understand the country's situation and achievements.

In the third year with Covid-19, the subgroup has restarted the activities, and hopefully new members will join the subgroup to actively contribute to achieve the goals.

Member Spotlight Q&A



Katerina Pavenski

After exiting with the same number of votes for the Regional Director Position for North Americas, Katerina Pavenski managed to secure the position that was decided upon in a run-off election. Katerina took the time to answer the "member Spotlight Q & A" and kindly answered our questions giving us an insight on her career, interests and journey with ISBT.

1. What started your interest in Blood Transfusion?
I became interested in transfusion medicine towards the end of my training in hematology. When I started my first transfusion rotation, I was amazed at how diverse the field was. Within one day, I investigated autoimmune hemolytic anemia, provided hemostasis advice to manage a traumatic hemorrhage, and counseled a pregnant patient on HDFN. I loved it!

2. What are your main topics of interest now?
After I completed a fellowship in transfusion medicine, I got my first job as a transfusion physician at St. Michael's Hospital, where I still am today. My main interests are clinical transfusion medicine (specifically, the management of bleeding) and patient blood management. My clinical and research interests also include therapeutic apheresis and thrombotic thrombocytopenic purpura.

3. Most rewarding times in my career?
I really enjoy teaching, be it an informal one-on-one session or a formal presentation for a large audience. So, the biggest reward is to see my former trainees succeed – to watch them deliver an oral presentation at a congress, get hired, and get promoted.

4. Who have been the most influential people in my career?
I have been incredibly lucky to have the most amazing peers, my local transfusion colleagues. Throughout the years, they have inspired me and helped me with all kinds of challenges – whether it be academic, clinical, or personal. I have also had the privilege to learn from John Freedman, Mo Blajchman, Nancy Heddle, Jeannie Callum, and so many more transfusion medicine greats.

5. What made me decide to stand election for a regional director?
I have truly enjoyed my time at the ISBT activities, including the LOC for the 2018 Toronto congress, the Jean Julliard Committee, and of course the Clinical Transfusion Working Party. I decided to run for election so that I could continue to contribute to this organization, but also help shape its future direction and promote its value to the transfusion community.

6. What are your personal goals in ISBT?
To learn, to contribute, to make a difference

7. What energizes you most at work?
My team. Any challenge can be overcome with a committed team. It is so rewarding to see a challenging case go well as a direct result of teamwork, collaboration, and careful planning.

8. What do I do in my spare time?
I like to read and travel. Nature walks with my family are my favorite pastime. You may be surprised to hear this, but Toronto has so many beautiful parks to explore…

9. What do I want to say?
I am delighted to be starting a position as a regional director. ISBT offers so many opportunities – to network, learn, and grow. I encourage all members to get engaged – if you have not done so already, join a working party. See you in Gothenburg!

From the President



The Winds of Fate
Ella Wheeler Wilcox, 1897

One ship drives east and another drives west
With the selfsame winds that blow.
Tis the set of the sails
And not the gales
Which tells us the way to go.
Like the winds of the seas are the ways of fate,
As we voyage along through the life,
Tis the set of a soul
That decides its goal,
And not the calm or the strife.

My father recited "The Winds of Fate", his favorite poem, many times during my youth. I have passed it on to my family, friends, and colleagues throughout my adult life. The message is simple but compelling: as we face inevitable challenges, setbacks and losses in our lives and careers, we need to maintain a positive attitude and tack toward our evolving goals with fortitude and perseverance.

The message and call to action embodied in the poem is embraced by the entire ISBT family. But perhaps it is most compellingly demonstrated by the Working Party on Global Blood Safety (WP-GBS) that is the focus of this issue of Transfusion Today. The WP-GBS is one of the newest ISBT WPs, established about a decade ago by Drs. Silvano Wendel and Jay Epstein when the World Health Organization (WHO) disbanded the International Collaboration for Blood Safety that had foundered due to lack of resources and impact.

Over the first few years the WP-GBS worked to establish its identity and with continued commitment from Silvano and Jay and under the current outstanding leadership of Drs. Martin Smid (Chair) and Thierry Burnouf (Secretary), the WP-GBS is now thriving, developing and launching multiple high impact initiatives.

As detailed on the ISBT website (https://www.isbtweb.org/isbt-working-parties/global-blood-safety.html) the WP-GBS looks at the "big picture", exchanging information and coordinating educational programs and international scientific collaborations. It has established a global network of ISBT members and partner organizations with knowledge and expertise in transfusion medicine and related disciplines, with a focused mission of advancing safety and availability of blood, components and plasma derivatives in low- and middle-income regions (LMIC).

The "In Focus" section of this issue of Transfusion Today includes: 1) an overview of the WP-GBS; 2) reports from the subgroup on harmonization of regulations and standards, the subgroup on voluntary vs replacement donation and the subgroup on plasma and cryoprecipitate; and 3) details on a major new initiative to drive local improvements in collection and small-scale processing of locally available plasma in LMIC to improve patients' access to life saving and transforming plasma derivatives.

In 2022 the ISBT WP-GBS developed and launched the 'International Coalition for Safe Plasma Proteins (ICSPP) to advance access to safe plasma proteins in LMIC. ICSPP will be led and executed as a close cooperation with WHO, documented in a recently executed Memorandum of Understanding between ISBT and WHO. This coalition will promote public-private partnerships to address the global insufficiency of plasma-derived medicinal products that are unavailable or unaffordable in many LMIC, with consequent suffering and early mortality of patients with bleeding disorders and immune deficiencies who lack adequate treatments. Through its projects in LMIC, the ICSPP seeks to reverse the tragic wastage of domestic plasma that could be used, when meeting appropriate quality standards, either in industrial fractionation or locally to prepare safe intermediary protein therapies.

The ICSPP provides a platform, hosted by the ISBT, for the participating organizations to cooperate in support of the "WHO Action Framework to Advance Universal Access to Safe, Effective, and Quality Assured Blood Products 2020-2023" and ongoing activities aligned with the recent "WHO Guidance on increasing supplies of plasma-derived medicinal products in low- and middle-income countries through fractionation of domestic plasma." A first project has been initiated in Dakar, Senegal to enable sustainable local preparation of virus-inactivated cryoprecipitate as a source of Factor VIII, von Willebrand Factor and fibrinogen to address unmet local patient needs. Future projects in various LMIC will focus on local production of small-scale/pathogen-reduced concentrates of immune globulins and on fractionation of domestic plasma through contracts with foreign fractionators.

On behalf of the ISBT Board and entire ISBT community, I offer my congratulations and gratitude to the WP-GBS for their critically important endeavors which embody the soul and exemplify the vision of ISBT: **A world of safe and sufficient blood!**

ISBT GOTHENBURG 2023

June 17 - 21, 2023

IMPORTANT DATES:

ABSTRACT SUBMISSION DEADLINE: MARCH 6, 2023

EARLY REGISTRATION: JANUARY - APRIL 26, 2023



The 33rd Regional Congress of the ISBT
Gothenburg, Sweden

In conjunction with the Swedish Society of Clinical Immunology and Transfusion Medicine

ISBT International Society of Blood Transfusion

Swedish Society of Clinical Immunology & Transfusion Medicine

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Workshop on Eye Drops of Human Origin

Following a very successful workshop in Zurich 2018 on human platelet lysates, the Cellular Therapies Working Party decided to continue with bi-annual, intensive scientific workshops focusing on the novel use of blood derivatives in the manufacture of therapeutic cellular therapy products. The main aims of these workshops are to develop consensus guidelines and expert opinions on regulations, methodology and clinical use. Ample time for interactive discussions is an essential component of this format, together with a manageable participant number to facilitate this.

A workshop on Eye Drops of Human Origin (EDHO) was planned originally in March 2020 in Vienna. The workshop was unfortunately cancelled due to the first COVID-19 wave. Thereafter, the working party made additional unsuccessful attempts to organize the meeting but were reined in by the continuing pandemic. Finally, a window of opportunity allowed for the workshop to be held at Billrothhaus, the headquarters for the imperial Medical Society of Vienna, with more than 40 speakers (a hybrid of in person and virtual via video conferencing) and about 40 in-person attendees.
The workshop began with a review of the last ISBT survey carried out by Denese Marks. In view of the plethora of production methodology for eye drops, the different regulatory approaches and the emergence of novel products including amniotic membrane, platelet lysate and cord blood derived eyedrops, it was felt that the time was right to conduct another survey, addressing some of these variabilities in more detail.

A beautifully delivered introduction by the anatomist Friedrich Paulsen highlighting the complexity of healthy human tears production set the stage for the rest of the workshop. The functional interplay of different glands in the anterior eye, the multiple layers of tears and the sufficiency of production are all critical to prevent diseases. Sonja Mertsch presented her work on the tissue engineering of lacrimal glands and the secretome of tears. Reinhard Henschler focused on the comparison of the content of healthy human tears to serum and showed that not many parameters in current products matched with healthy human tears. Platelet lysate is one alternative to serum eye drops, and Thierry Burnouf closed the session by elucidating the content of human platelets and platelet lysate.

The second session was an introduction to different eye diseases requiring EDHO demonstrating that despite differences in the pathogenesis of various eye diseases, there are common pathways of inflammation and immunoregulation of the anterior eye which would allow for the use of EDHOs. Diseases such as neurotrophic keratopathy (Phillipp Roberts), GvHD (Tina Dietrich-Ntoukas), dry eye disease and Sjögrens Syndrome (Jutta Horwath Winter) were highlighted and the place of EDHOs in the treatment of these diseases. Unfortunately, current ophthalmological recommendations for the use of EDHO may be too late in the course of the disease and the question arose whether efficacy would be better if used in more early phases of the disease. Such guidelines have been published in the United Kingdom and were elaborated by Saaeha Rauz.

It is well recognized that not all individuals are able to donate autologous eyedrops for use. In addition, there may be advantages to using allogeneic eyedrops, and this was discussed by Christian Gabriel and Birgit Gathof. The general outcome was that allogeneic donations are a promising alternative that needs to be explored, as autologous donors are not always healthy and single donations may not fulfil the minimum requirements for effector substances.

Production methodology for EDHO is certainly a "hot" topic with no international gold standard currently available. Denese Marks described a way to produce serum eye drops in a large blood centre, while Dirk de Korte presented the fully automated system used by Sanquin in the Netherlands. Gerda Leitner gave an insight into the particular problems that smaller production centres face, and how to avoid them. Finally, Mickey Koh (Chairman of the working party) described the labelling of EDHOs and how ISBT128 can help achieve consistency and harmonization.

Quality standards for EDHO were also discussed and this included issues with small source volume, differences in regulatory requirements for microbiological testing. The advantage of pooled products, which are mainly allogeneic, may have an advantage as reducing inconsistencies as well as the number of tests required, but dedicated pathogen reduction treatment may have to be considered. The comparison with platelet lysates was made by Katharina Schallmoser where consensus recommendations published after the last workshop are now widely accepted.

New developments were part of the next session in which Paolo Rebulla presented eye drops derived from cord blood, and Rita Piteira discussed their results with eye drops from amniotic extracts. Both are getting more attraction in the EDHO environment as they enable new ways of using materials that would otherwise be discarded and from immunologically naïve sources.

In terms of clinical efficacy, promising data is available, but there are very few prospective randomized controlled clinical studies. However, Neera Jagirdar presented encouraging preliminary data from a phase III trial of platelet lysates for patients with ocular GVHD, while Marina Buzzi spoke about cord blood derived allogeneic EDHOs. The session was closed by Piera Versura, who argued that EDHO should be used earlier in the disease course.

One of the most pressing issues with cell-based products is the complex regulatory environment that is present. EDHO may be variously regulated as a blood product, as a drug or even as magistral preparations, which are prepared in a pharmacy for an individual patient. Regulators from Austria, Germany and Italy showed their approaches to regulation of EDHO.
All participants concluded that harmonization is required.

The workshop was a very intense meeting lasting 3 days and conducted in a joyful and productive mood. All participants enjoyed the Heurigen (traditional winery serving food and their own locally grown wine) and beautiful Vienna was showcased by the wonderful weather. The working party plans to follow up with publications and a webinar.



Cellular Therapies Working party group photo in Vienna

Educational pages

ISBT Webinars and Live Journal Clubs

This section is highlighting those webinars and Live Journal Clubs that were held in the last couple of months. The recordings are to be found in the webcast library, (Resources tab -> ISBT Education Portal).

ISBT-SRI Live Journal Club: Best of the Transfusion Evidence Library 2022



Date: 6 December 2022

Speakers: Aikaj Jindal, Rebecca Griffith, Samclide Mbikayi
Moderators: Allison Mo, Susan Brunskill, Catherine Kimber and Lise Estcourt

ISBT and SRI work together to provide ISBT members with a selection of Systematic Reviews and randomized controlled trials on transfusion-related topics, including those published in journals specializing in areas outside of transfusion medicine. SRI host the fully searchable libraries that are available free at the point of access to medical practitioners, policymakers and researchers worldwide, providing a comprehensive and up-to-date database of high-quality evidence in Transfusion Medicine. This Live Journal Club was based on the December Transfusion Evidence Round-Up that focused on a selection of top 10 papers from 2022 covering a range of transfusion related topics.

Live Journal Club: Six Sigma in blood transfusion services: A dream too big in a third world country?



Date: 26 October 2022

Speaker: Aikaj Jindal
Moderator: *Syeldy Sasongko*

This Live Journal Club was organized by Syeldy Sasongko, who is the Chair of the Young Professionals Council. Aikaj Jindal who is the Head, Transfusion Medicine at the Department of Transfusion Medicine, SPS Hospitals in Ludhiana, India presented a prospective study about transcription errors that occurred during manually performing tests. Resource-poor centers still use semi-automated/manual method for testing including manual labelling of column agglutination cards/testing tubes. Aikaj has successfully applied Six Sigma methodology to reduce errors during manual testing, hence this methodology is recommended in the developing world that cannot afford automation but aim to ensure quality in their processes.

Webinar: National Blood Supply from the Australian Perspective



Date: 9 November 2022

Speaker: Stuart Chesneau
Moderator: Justina Kordai Ansah

This webinar was organised by the Blood Supply Management Working Party. Stuart Chesneau is the Chief Strategic Supply and Growth Officer at the Australian Red Cross Lifeblood and has talked about recent challenges of Blood Supply Management in Australia caused by increased demand for fresh blood products combined with high donor cancellations and reduced capacity at blood centers.

ISBT Corporate Partner Educational Webinar, Terumo BCT: Electronic data transfer, a new layer for blood safety



Date: 18 October 2022

Speaker: Lous Larrea
Moderator: Marcia Cardoso

Luis Larrea is the Head of the Processing Department at Valencian Transfusion Center in Valencia, Spain. Luis highlighted the key role of electronic data management in the enforcement of GMP by increasing traceability and imposing adherence to SOPs through centralized device setting. Luis talked about how centralized data analysis can help blood operators to build up an efficient and paperless blood surveillance system. This webinar was organised by Terumo BCT, the moderator was Marcia Cardoso, who is the Global Senior Medical Affairs Manager at Terumo BCT.

Live Journal Club: Peripheral blood stem cells collection by apheresis in very low-weight children with malignant diseases - A single center experience



Date: 15 December 2022

Speaker: Lúcia Vieira
Moderator: Nour Almozain

This Live Journal Club was organized by Nour AlMozain, who is member of the Young Professionals Council. Lucia Vieira who works at the Immunohemotherapy Department, Hospital Center of Vila Nova de Gaia/ Espinho in Vila Nova de Gaia, Portugal presented her recently published work about a retrospective trial that was conducted in the Cellular Therapy Department of Portuguese Oncology Institute of Porto using peripheral blood stem cells collected by apheresis in very low-weight children with malignant diseases.

Nour Al-Mozain is a hematopathologist and transfusion medicine physician from Riyadh, Saudi Arabia. She oversees the therapeutic apheresis services at King Faisal Specialist Hospital & Research Center for adults and pediatrics. This Live journal club was a good platform to compare and contrast the Saudi and the Portuguese experience in an area without world standardisation in practice, limited expertise and the ever-growing revolution in stem cell and cellular therapy.

I TRY IT 2023

"IF YOU NEVER TRY - YOU'LL NEVER KNOW"

The I TRY IT programme is for those young professionals, who have little or no experience with conducting research and would like to receive help with starting up a research project in their own area. During the training, the participants will learn about many aspects of a research project.

Introduction

The I TRY IT programme is an initiative of the ISBT Academy and is led by members of the Transfusion-Transmitted Infectious Disease (TTID) and Clinical Transfusion (CT) Working Parties.

Objectives

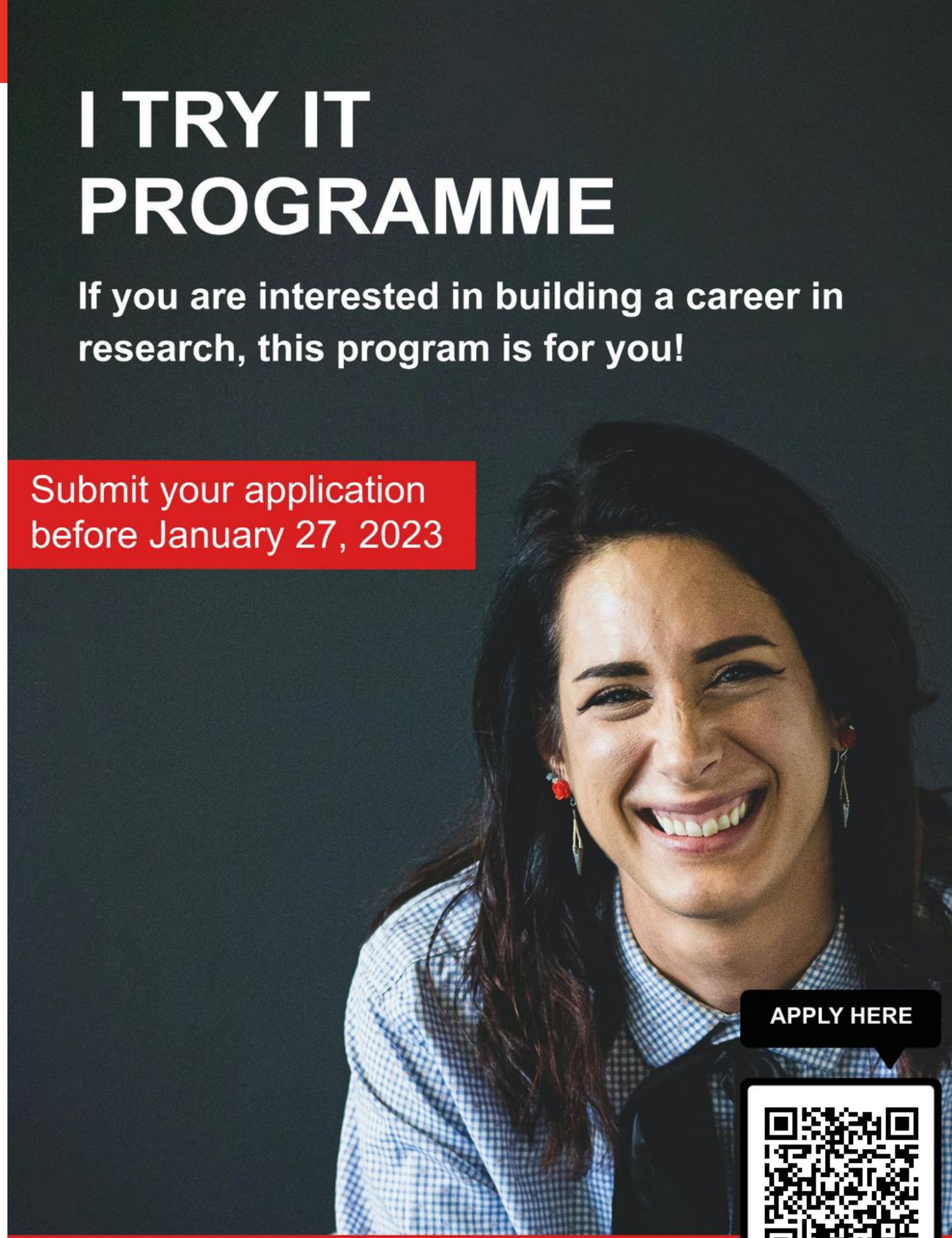
There are 4 main objectives for the I TRY IT programme:

- To complete a research protocol for a study designed to be conducted in your country or where your work.
- To learn the components of research protocols/proposals and specific study designs used in transfusion medicine.
- To learn how to provide and to receive constructive criticism of scientific research
- To help you plan for and conduct the research project you designed as part of the programme, and approaches for analyzing the data to answer your research question.

The most challenging part is conducting the study and analyzing the data. However, these are easier if you begin with a solid foundation - the research protocol is that foundation.

There are many 'bright ideas' or research discoveries in the field of transfusion medicine that are waiting for young investigators.

Are you a young professional in transfusion medicine? Do you have a research idea that you would like to be supported with? Apply for the 2023 programme through the ISBT website:
isbtweb.org/communities/i-try-it.html



Welcome to our new members

November 2022 - January 2023

Africa

Central Africa Republic:	Regina Edwige Leguetama Kodia
Cameroon:	Celestine Clemence
Kenya:	Gratia Muyu
Uganda:	Julius Kabbali Kuule

Americas

Canada:	Donald Arnold
USA:	Valeria De Giorgio, Jeremy Jacobs, Ted Kieffer, Abdulhafiz Zakieh,

Eastern Mediterranean

Sudan:	Nusyba Bushra,
UAE:	Vanessa Elomina

Europe

Armenia:	Gayane Kirakosyan
Belgium:	Joanna Simar
Finland:	Satu Karkkainen
Germany:	Evelyn Loeser
Italy:	AnnaLuisa Cremaschi
Malta:	Charmaine Vella Muscat
Netherlands:	Lenka Pacnerova,
Portugal:	Jose Macedo Alves
United Kingdom:	Deborah Pritchard

South East Asia

India:	Pragati Naik, Ajay Gandhi, Rahul Chaurasia

Western Pacific

Australia:	Bamunusinghe Arachchige Hasini Tharindumala, Olía Starowicz
Malaysia:	Naqib Wazir



From ISBT Central Office

Membership year 2023-2024

Thank you for your support and membership in 2022 by renewing or joining ISBT as a member.
For those that have joined us for the first time, welcome!
We are looking forward to keeping our mission promise, to share knowledge and education. Join us on ISBT Education and keep up to date with our journals and magazine. Not forgetting our social media channels. We are especially excited about the upcoming, long-awaited face to face 33rd regional congress in Gothenburg, where we will get an opportunity to meet and network again.

New Rolling/ Anniversary membership system!
As you may know, we are now running an annual rolling membership system. This means that your membership begins on the day you joined ISBT membership and is valid for 365 days. Therefore, renewable on an annual basis. This makes our new membership system flexible and easy to manage.

More information regarding membership is available on the website **isbtweb.org/membership.html**
You can email Mildred for questions: **membership@isbtweb.org**





Raheel Iftikhar
National Institution of Blood & Marrow transplant, Pakistan

ISBT transfusion session with WBMT 2022

The 8th Worldwide Network for Blood and Marrow Transplantation (WBMT) workshop was held in Islamabad, Pakistan from the 22 - 24 September, 2022. This represented a historical event that involved global transfusion experts, focusing on improvements in health care access and treatment throughout the World. WBMT promotes excellence in stem cell transplantation (SCT), stem cell donation and cellular therapy (CT) in countries with limited resources. The organisation promotes access to SCT worldwide through collaboration with existing international societies using coordination, communication and advocacy.



Dr Nuzhat Mushahid gives a landmark presentation on transfusion

The educational objectives of the transfusion session focused on the following topics:

- Ensuring a sufficient supply of blood and blood components for safe transplantation
- Ensuring the safety of blood including comprehensive infectious disease testing
- Teaching the participants the importance of a safe blood supply and the clinical indications on blood transfusion.

The hybrid event had delegates from 48 countries actively participate in the meetings. The well attended workshops had with more than 2500 registered guests in total from the Eastern Mediterranean region, North America, South America, Asia Pacific, Europe and Africa. The 2 chairs of the transfusion session were Nina Worel, Austria and Saba Jamal, Pakistan. The guest speaker at the meeting was Dr Nigar Johar, a chief surgeon from the General of Pakistan Army. Dr Nuzhat Mushahid was a key note speaker and presented on the access to safe and effective blood transfusion services in Pakistan, including blood component therapy. Natasha Ali from Pakistan gave a presentation on guidelines for transfusion. After her presentation, a roundtable was formed to discuss on transfusion services possible solutions in Pakistan was moderated by Ghassan Umair Shamshad, Pakistan with 6 panelists who are namely Bishesh Poudyal (Nepal), Mickey Koh (UK, Singapore), Mohiuddin Khan (Bangladesh), Nina Worel (Austria), Syed Osman Ahmed (Saudi Arabia) and Uzma Zaidi (Pakistan) .

A special thanks goes to ISBT for participating and supporting this landmark event.



Guest speaker: Dr Nigar Johar, chief surgeon



Dr Nina Worel presenting souvenir of participation to Dr Natasha Ali



Applications for the support of educational events happening after this date are now open.

Apply for ISBT Academy Support, which is available for educational activities, the use of the ISBT logo and the ISBT endorsement of an existing educational course.

- **Applications from countries in the Low, Lower Middle or Upper Middle World Bank Index categories are eligible.**
- **Organisations from High Income Countries can only request financial support if it is intended to support the attendance of a participant from an eligible country, or if the HIC is hosting an educational activity in an eligible host country.**

Each organisation can only submit one application for financial support in a given year and can request to use the ISBT logo as many times as required.
Applications are now open on our website.
Don't miss out, apply today!

APPLY HERE

ISBT



Dante Langhi Jr.
ABHH Director
Brazil



Gil De Santis
ABHH Hemotherapy Committee Member
Brazil

Highlights of ISBT in Brazil: HEMO 2022

The Brazilian Association of Hematology, Hemotherapy and Cell Therapy (ABHH) thanks the ISBT Academy for its support of the Highlights of ISBT held in São Paulo on October 26th, 2022 from 8:30 am to 12:00 p.m. The event provided South Americans with significant content from the ISBT 2022 Virtual Congress.

The edition of Highlights of ISBT day was a great success. The institutions' representatives: Dante Langhi Jr. (ABHH director) and Lin Fung (ISBT Vice-President) reemphasized the importance of upholding the partnership between both organizations. The event reviewed the main subjects discussed, as well as the most relevant topics in the field of transfusion, which can contribute directly to patients.

The Highlights of ISBT 2022 signaled the sequence of a cooperation program between the two entities, intending to make such cooperation a regular activity in Brazil. Dr. Dante Langhi Jr. (ABHH director), Dr. Gil De Santis and Dr. José Orlando Bordin (ABHH Hemotherapy committee members) were on the Scientific Committee.

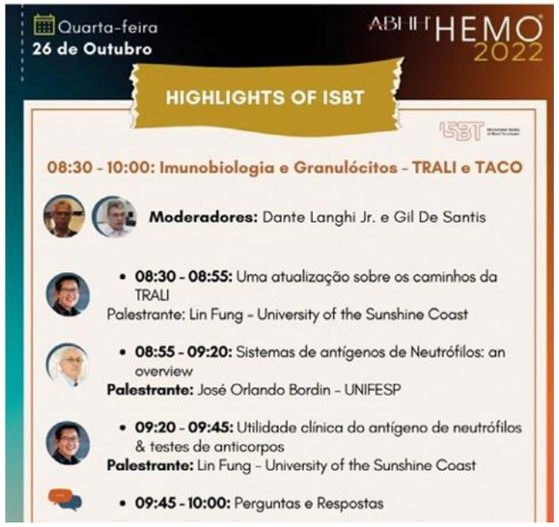
The program covered 2 sessions: Immunobiology and Granulocytes - TRALI and TACO and PBM – Patient Blood Management. At session 1 Dr Lin Fung from University of Sunshine Coast has presented 2 talks: "An update on TRALI pathways" and "Clinical Utility of neutrophil antigen & antibody testing", then Dr José Orlando Bordin has presented a talk about "Neutrophil antigen systems: An overview".
At session 2 Dr Guilherme Rabello from InCor has presented a talk about "Why implementing PBM?", Dr Lise Estcourt from NHS Blood and Transplant has presented 2 virtual talks about "Systematic use of developing evidence-based methodologies for PBM guidelines" and "Tranexamic acid for safer surgery", then Dr. Gustavo Duarte from New Zealand Blood Service has presented a talk about "PBM: The Brazilian experience".

At the end of both sessions we had a time for discussions. ABHH joined Brazilian governmental, transfusion professional, blood establishment and industry partners in supporting the event, which welcomed 192 people from Brazil.

We would like to thank the participants, speakers, and supporting organizations who made the event such a success. ISBT Academy funding enabled 1 international speaker – Dr. Lin Fung from University of Sunshine Coast. We also had 2 local speakers – José Orlando Bordin from Federal University of São Paulo and Guilherme Rabello from InCor and 2 virtual speakers: Dr. Gustavo Duarte from New Zealand Blood Service and Dr Lise Estcourt from NHS Blood and Transplant.



HEMO 2022 entrance





José Orlando Bordin
ABHH Hemotherapy Committee Member
Brazil



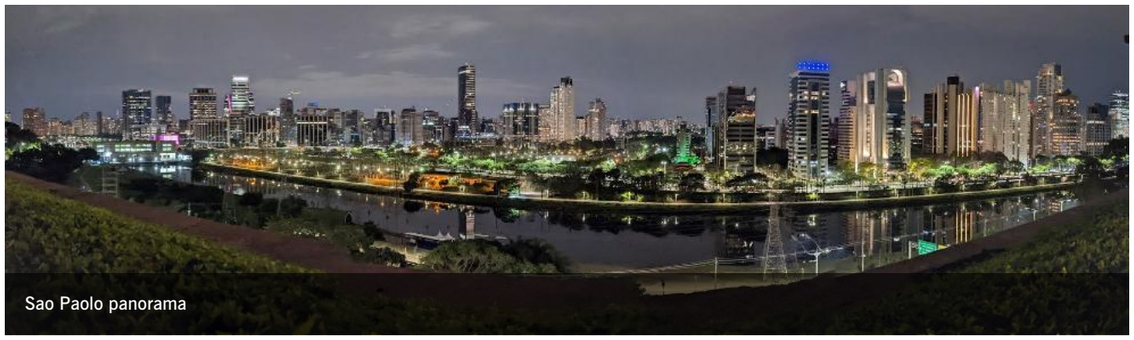
José Eduardo Levi
ISBT Regional Director South Americas
Brazil



Alessandra Lelis
Brazilian Association of Hematology
Brazil



HEMO 2022 with Prof Bordin & Dr Moritz team



Sao Paolo panorama



Ratti Ram Sharma
PGIMER, Chandigarh
India

CME Workshop on Therapeutic Apheresis and Cellular Therapy

A 'CME (Continuing Medical Education) cum Workshop on Therapeutic Apheresis and Cellular Therapy' based on the theme – 'Expanding Horizons of Therapeutic Apheresis and Cellular Therapy' was organized by the Department of Transfusion Medicine, PGIMER, (Postgraduate Institute of Medical Education and Research), Chandigarh on 15th & 16th October, 2022, in collaboration with ISBT, Amsterdam, in a hybrid mode (physical as well as virtual) workshop.



Left to right Dr. Ratti Ram Sharma, Dr. Anil Kumar, Dr. Rekha Hans and Professor Vivek Lal giving a presentation

On the 16th October 2022, The CME workshop was inaugurated by Professor Vivek Lal, India, the chief guest for the event. In his inaugural address, the director highlighted the role of Therapeutic plasma exchange (TPE) in various neurological disorders and certain other clinical conditions in improving the patient outcomes. He also shared his experiences regarding the challenges for beginning the TPE programme at this institute. He also discussed how the approach has evolved over the years for neurological patients requiring TPE. He encouraged the transfusion medicine specialities to work together with the clinicians as a 'team' for better patients care.

Dr. Anil Kumar, India, was the guest of honour for the programme, and he also released the 'E-Souvenir' on the occasion. In his address, he highlighted the role of 'e-Raktkosh' portal in integrating the transfusion services across the country. He also emphasized the role of coordination between transfusion services and clinicians for establishing a successful therapeutic apheresis programme. Jenny White (ISBT), highlighted the ISBT education initiatives and resources to improve transfusion safety across the globe. Prof. Narinder .K. Mehra, Former Dean Research, All India Institute of Medical Sciences (AIIMS), discussed about the guidelines for stem cell research in India and stressed the need for strong regulatory framework for research and clinical therapy on stem cells. Dr. David Stroncek, U.S.A delivered a talked-on CART–T cell Therapy–Manufacturing and clinical application and shown that how this therapy has changed the clinical practice for leukemic disorders. Prof. David Mckenna, U.S.A discussed about mesenchymal stem cell manufacturing and its clinical applications over the last two decades and its promising future. Prof. Rajendra .K. Chaudhary, India, discussed at length the basics of developing apheresis guidelines and how they evolved over time. Prof. Padma Srivastava, AIIMS, discussed the role of therapeutic plasma exchange in neurological disorders and shared her experience that how plex can change the course of certain neurological conditions. Dr. Ratti Ram Sharma, PGIMER, highlighted the role of transfusion medicine specialist in performing therapeutic plasma exchange and shared the experience over last decade with encouraging response in various clinical disorders. Dr. Raja Ramachandran, PGIMER, shared the clinical perspective about the role of therapeutic plasma exchange and Dr. Aseem Kumar Tiwari, Gurugram, highlighted the Transfusion specialist perspective for performing the Therapeutic Plasma Exchange in renal disorders and shared their experience on successful ABO Incompatible renal transplant at their institute. Dr. Sunil Taneja, PGIMER, discussed the clinical decision making in instituting Therapeutic Plasma Exchange in liver disorders and Dr. Meenu Bajpai, New Delhi, shared her experience of Plasma exchange procedures in variety of liver disorders highlighted the role of Transfusion specialists in this import therapeutic treatment modality.

The workshop on 15th October 2022 was academically rewarding with highly interactive sessions. Dr. Vijay Kumawat, Bengaluru, discussed about the basic principles of therapeutic plasma exchange. Dr. Archana Bajpai, AIIMS, Jodhpur, enumerated about the basic format of ASFA guidelines. Dr. Rekha Hans, PGIMER, highlighted the requirements for patient preparation and stem cell harvesting. Dr. Divjot Singh Lamba, PGIMER, discussed about the quality control, processing, and cryopreservation of stem cells. Dr. Satya Prakash, AIIMS, Bhubaneswar, talked about the management of adverse events during apheresis. Dr. Aikaj Jindal, Punjab, discussed about the Role of Apheresis Technologist / Nursing Officer. Dr. Satyam Arora, moderated the session dedicated to demonstration of the procedures where Dr. Kshitija Mittal, Government Medical College and Hospital, Chandigarh (GMCHC) highlighted the key elements of therapeutic plasma exchange, Dr. Gopal Patidar, AIIMS, discussed the role Adsorption columns in treating various clinical conditions and the technical aspects to the procedure. Twenty-Five scientific abstracts were submitted by transfusion medicine researchers from different parts of the country and seven best papers were presented as oral presentation and the reaming abstracts were presented as posters by the authors.



Dr. Ratti Ram Sharma and Professor Vivek Lal presenting an award.

Around 208 delegates (140 in person & 66 online) from various parts of the country participated in this academic feast and it was well received by both the transfusion medicine experts and the clinicians. These deliberations will certainly go a long way in further broadening the scope of therapeutic apheresis in various clinical conditions. The CME-cum-Workshop ended with concluding remarks by Dr. Ratti Ram Sharma, PGIMER, Chandigarh, where he highlighted the importance of therapeutic apheresis in various clinical conditions for improving patient outcomes and the emerging role of cellular therapy and its clinical applications and thanked all the guest faculty and expressed special gratitude to ISBT for supporting this event.



Group photo



Thane Moze Darumalinggam
Malaysian Blood Transfusion Society

10th National Transfusion Medicine Conference 2022 in Malaysia

Land of Hornbills, Malaysia marked history by hosting 10th and largest National Transfusion Medicine Conference with theme Challenges and Opportunities in Transfusion Medicine. The event was held on from the 9th to the 11th of October 2022. MBTS with ISBT, Sarawak Convention Bureau and sponsors rendered 3 diligent days of knowledge sharing. Organizers augmented the conference by inviting prestigious speakers. 20 exhibitors, 507 attendees from throughout the world and 118 intriguing abstracts received.

Conference started with ISBT Academy Day with topic; An Introduction to ISBT and education activities by ISBT members delivered with enthusiasm by Lin Fung. Kam Wooi delivered a topic of current trend on engaging blood donors through social media in tandem with encouraging younger generation into cultivate donating blood as life style. Immunohematology topics including updates on granulocytes given by Lilian Castilho from Brazil and Veera Nadarjan from Malaysia. Erica Wood enlightened us with updates in Hemovigilance Program in Australia. Two presenters from Malaysia seized the day with intriguing topics each.



Left to right: Sally Lam, Erica Wood and Christina Lee

First plenary, updates on Patient Blood Management conveyed by Erica and second plenary on final day of conference delivered by Lilian on Trouble shooting in genotyping. Both speakers delivered an informative and interesting lecture, in the given limited time.

First symposium on donors and donation; speakers of this session conveyed by local presenters. Cheuk Kwong Lee imparted knowledge on understanding deferral risk among blood donation virtually.

Symposium 2 encapsulated blood components in which areas such as anemia management in clinical setting shared by Dr Jesus.Relos continued with application of platelet lysates and access to safe plasma proteins in low-income countries by Thierry Burnouf.

Nelson Tsuno commenced symposium 3 with transfusion safety leading to monitoring of risk of microbial contamination of blood products. Dr Hartirathpal Kaur took transfusion safety to next level by focusing on patient bedside. Mohd Azam Mohd, concluded this session by triggering thoughts on which syphilis screening method is safer. As closure updates on genotyping QA and rare blood donor program in Asia was presented.

Accentuating the whole conference was magnificent Gala Dinner with black and red theme. Everyone who attended the event experienced breathtaking performance by local musicians. Phenomenal outcome of king and queen of the night. Great memories of the evening.

Last day of conference continued with symposium 5 in which covered clinical transfusion. New paradigm of PBM in transfusion was shared by Dr Arno Nierich. In addition, reintroduction of whole blood in acute hemorrhagic resuscitation and usage of fibrinogen concentrates in major trauma was shared.

Symposium 6 on cellular therapy which included convalescent plasma versus hyperimmune globulin. As way moving forward, details on use of engineered cells in transfusion medicine diagnostics and talk on Engineering CAR T Tcells lead to different dimension of transfusion.

Final symposium 8, consists of quality, transfusion issues in Malaria diagnosis, leadership during crisis and perioperative autologous blood donation concluded the conference.



Heading home armed with immense perspective that challenges ought to be accepted as opportunities, pandemic thought us values of perceiving matters from different angles and taking transfusion to the next level. On behalf of the organizing committee would like to thank all of our presenters for engraving the 10th National Transfusion Medicine Conference a spectacular event and looking forward for the next event by Malaysia Blood Transfusion Society.



Left to right: Nelson Tsuno, Lin Fung, lilian Castilho, Erica Wood and Veera Nadarjan



Group photo dinner gala



Sarawal Cultural dancers

Academy



Antonio Domasian
Philippine Children's Medical Center
Philippines



Noel Pingoy
General Santos Doctor's Hospital
Philippines



Kenneth Punzalan
Research Institute for Tropical Medicine
Philippines



Antonio Villafania
Philippine Red Cross – Laguna
Philippines

Philippine Blood Coordinating Council holds an in-person annual convention after 2 years

After a two-year hiatus that was imposed by the COVID-19 pandemic, the Philippine Blood Coordinating Council (PBCC) held its 38th Annual Convention in a hybrid format that enabled delegates to attend the lectures in person while also allowing those who could not make it face-to-face access the learning sessions virtually. As a response to concerns about the availability, safety and sufficiency of blood with the emergence of COVID-19, the organizing committee chose "Blood Safety and Security: A Call to Sustainability" as its theme for the convention that was conducted at the Crowne Plaza Hotel in Quezon City last September 20-22, 2022.



Group picture of the PBCC Officers present onsite during the convention.

As the designated educational arm of the national blood program, the PBCC fulfilled its mandate by including highly-relevant topics aimed at raising awareness of the need for sustainable blood programmes, robust multisectoral policies, meaningful community-based advocacies, and evidence-based protocols amidst the threat of emerging infectious diseases (IEDs). As demonstrated in the COVID-19 pandemic, there is a looming concern that infectious diseases may continue to present a formidable menace, and relentless pursuance of effective strategies to mitigate their impact on the blood program thus remain vital.

The pre-convention workshops on day 1 featured "Quality Control of Blood Components" by Ms. Diosa P. Caringal from the Philippine Blood Center, and "Donor Counseling" by Dr. Rossanna A. Ditangco, HIV/AIDS Research Group, Research Institute for Tropical Medicine. Both speakers emphasized the significance of valuing quality in every step of the blood banking process. PBCC President Mr. Antonio F. Domasian led the opening ceremonies in the afternoon with the traditional ribbon-cutting and tour of exhibits by industry sponsors and partners, which showcased the latest technology in blood banking and transfusion medicine. International Society of Blood Transfusion (ISBT) President Dr. Michael P. Busch delivered the keynote address. He underscored the vital information regarding the emerging trend of infections worldwide, with focus on transfusion transmissible infections (TTIs). He also cited the critical role of hemovigilance in blood transfusion services especially with the persistent menace of EIDs that could lead to another pandemic that is similar to SARS-CoV-2.

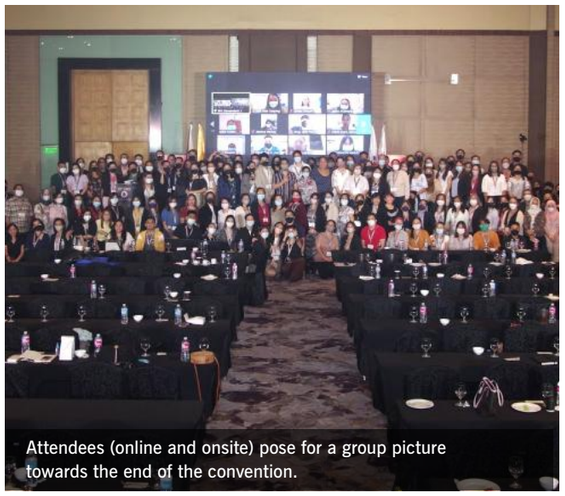
The highlight of every convention is the JCP Memorial Lecture, named after the late Dr. Jorge C. Peralta who is widely regarded as a pillar of blood banking in the Philippines. A past president of both the Philippine Society of Pathologists (1991-1993) and the PBCC (1997-1998), Dr. Peralta was described as "a devoted, hardworking, incorruptible and virtuous gentleman" who until his untimely death in 1998 had been an indefatigable bastion of the Council. This year's awardee is pediatric hematologist-oncologist Dr. Kathyrine B. Pascual who was cited for her role on safe blood transfusion in pediatric cancer patients as well as for her advocacy of providing palliative care among terminally-ill patients. In her talk, Dr. Pascual discussed that despite the continuous improvement of care standards in pediatrics, there are instances when an acceptable quality of life becomes the goal rather than aiming for a cure. She highlighted her lecture with her involvement with Kythe Foundation, a non-profit, non-stock organization aimed towards improving the quality of life among hospitalized children with cancer and other chronic illness. For over 30 years, Kythe is the only foundation in the country that offers the Child Life Program, which has provided psychosocial support to over 11,000 children a year.

Over the next two days, the plenary sessions served as a roadmap towards a greater appreciation for what is currently being done, as well as the possibilities that can be realized in light of the country's blood banking future. Facilitated by 19 professorial speakers and 12 moderators, the scientific discussions were clustered into the following: Sustaining Standards of Clinical, Practice Amidst Blips in the Blood Supply Session I; Blood Sustainability through Novel Approaches in Donor Recruitment and Retention (Session II); Safety Amidst Blood Inventory Insecurity (Session III); Security and Safety of Self Amidst Unpredictable Times (Session IV); Strengthening Rational Blood Use to Sustain Blood Security Session; Risk Management in Blood Transfusion Practice (Session V); and Revisiting Policies to Sustain Blood Security (Session VI). The overarching theme tying all the discussions contained within it a message of hope for all blood bank and transfusion medicine practitioners in the country. Whether the talks were technical, motivational, or both, there was an evident acknowledgement that the framework of a sustainable blood program has already been laid, and though lingering issues and challenges such as COVID-19 impede its advancement, the positive tone in the presentations during the convention resonated well among the attendees, projecting a shared resilience despite the setbacks of the recent years.



Dr. Kathyrine B. Pascual delivering her message as the 2022 Dr. Jorge C. Peralta awardee.

Beyond the scientific sessions, part of what makes every PBCC annual convention an enjoyable event are the socials. The evening of Day 2 saw a very interactive fellowship night that showcased a variety of talents by the delegates. From musicians playing as a band, to videoke artists belting out their favorite tunes, the attendees saw no shortage of impressive and merry entertainment. Prizes for a number of games were also given, much to the satisfaction of the delegates. Overall, the socials provided a welcome avenue for camaraderie, rest and recreation.



Attendees (online and onsite) pose for a group picture towards the end of the convention.

With the conclusion of its 38th annual convention, the Philippine Blood Coordinating Council marks another milestone in its continuing quest of advocating for voluntary blood donation, better blood banking and improved transfusion services in the country. On top of its many accomplishments, PBCC President Mr. Antonio F. Domasian reiterated that the vision of making the organization an affiliate member of the ISBT had also been realized, further establishing its foothold in the international blood banking scene. In both his opening and closing remarks, Mr. Domasian highlighted the fact that the act of service is in every PBCC member's blood – that being a family is what the organization prides itself in – a family that is strong and moves as one, a family that is resilient especially during the hardest of times, a family that, as its name suggests, brings people together under one common goal – achieving blood safety and adequacy at all times.



Lorna Cain
NHS Blood and Transplant Oxford
UK



Lakshmi Pillai
Specialty Registrar in Haematology Oxford
UK

Advances in Transfusion Medicine Symposium 2022

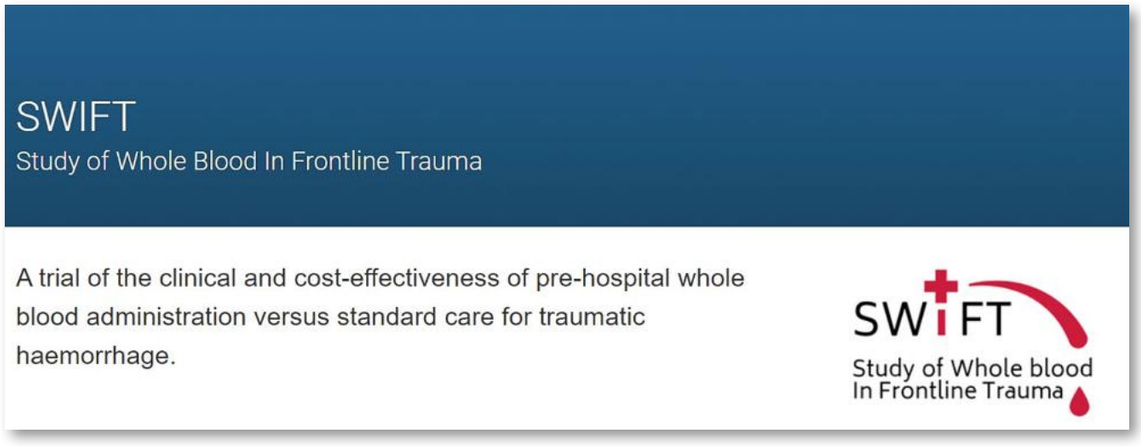
The bi-annual Advances in Transfusion Medicine Symposium in November 2022 was organised by the Royal College of Pathologists, in its Diamond Jubilee anniversary year, in collaboration with the Serious Hazards of Transfusion (SHOT) UK Haemovigilance scheme, celebrating its Silver Jubilee 25th anniversary. This was a virtual two half-day conference with more than 300 participants each day from medical, nursing and scientific backgrounds with speakers and session chairs from across the UK and internationally.

Evidence-based transfusion practice

As clinical haematology trainees, we particularly engaged with the session dedicated to evidence-based transfusion practice with themes that are familiar to us from liaison referrals. Dr Lara Roberts presented evidence on liver disease and coagulopathy and non-evidenced based practices of transfusing plasma to target coagulation test parameters. Dr Ruchika Goel spoke about building a patient blood management programme in a paediatric setting in the USA. Dr Laura Green summarised the evidence from large trauma trials in hospital and pre-hospital settings and set the scene for the Study of Whole blood In Frontline Trauma (SWIFT) trial.



Source: https://www.shotuk.org/home/shot-silver-jubilee/



Source: nhsbt.nhs.uk/clinical-trials-unit/current-trials-and-studies/swift/

Patient safety

Dr Shruthi Narayan described the journey that SHOT has been on over the past 25 years including exemplary work in human factors principles, systems thinking and learning from excellence.

SHOT was created in 1996 and has been at the heart of haemovigilance in the UK for more than 25 years.
2022 was a year used to recognise the contribution of everyone that has supported SHOT over the last 25 years and has made it what it is today – our reporters, our team members, our steering group and working expert group members, the MHRA, the UK blood services, our blood donors, the UK transfusion committees and our colleagues across the world.

Thank you to everyone who has been involved with SHOT!

Dr Su Brailsford gave a captivating overview of transfusion transmitted infections over the past 20 years which generated discussion about the use of new technologies and their wider implications in relation to testing.

The future of transfusion

There was a wealth of exciting new ongoing research studies presented in all the sessions. Of particular note, Professor Cedric Ghevaert, introduced the RESTORE trial in which a first human volunteer has been infused in vitro produced red cells. Red blood cells that have been grown in a laboratory have now been transfused into another person in a world first clinical trial.

The manufactured blood cells were grown from stem cells from donors. The red cells were then transfused into volunteers in the RESTORE randomised controlled clinical trial. This was the first time in the world that red blood cells that have been grown in a laboratory have been given to another person as part of a trial into blood transfusion[1].

Professor Baba Inusa spoke about the African Research and Innovative Initiative for Sickle Cell Education (ARISE) programme and a video clip from a train the trainer event in Nigeria powerfully illustrated some of this work[2].

We learnt about the relatively new higher specialist scientist training programme in the UK and how valuable Consultant Clinical Scientists posts can be in transfusion and hospital based services[3]. Jo McCullagh, a current trainee, praised her peer support network and this struck a chord with our own experience as being an important element of training.

Percy Oliver Award

The Percy Oliver award was awarded to two recipients this year in the lay category. John James OBE is the current Chief Executive of the Sickle Cell Society and Charlotte Silver who has chronic transfusion dependent anaemia and provides essential lay member input into national transfusion organisations[4]. It was wonderful to see their outstanding personal contributions to transfusion recognised through these awards.

A high calibre and stimulating day

We got exactly what we were promised: a high calibre and stimulating day looking at the past, present and future across the breadth of transfusion. We look forward to hearing further updates and the next symposium in 2024.

References

1 RESTORE is a clinical trial initiated by a joint research unit from NHS Blood and Transplant and the University of Bristol called the NIHR Blood and Transplant Research Unit in Red Blood Cell Products.
nhsbt.nhs.uk/clinical-trials-unit/current-trials-and-studies/restore/

2 ARISE programme:
rcpath.org/international/projects/the-arise-programme.html

3 The Royal College of Pathologist:
rcpath.org/trainees/training/training-by-specialty/clinical-and-laboratory-transfusion.html

4 The Royal College of Pathology:
rcpath.org/discover-pathology/news/john-james-obe-and-charlotte-silver-win-the-percy-oliver-lane-oliver-memorial-award-2022.html



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Strengthening resilience of plasma supply and aiming for tailoring demand. '*The SUPPLY project*'

The COVID-19 pandemic can be seen as an example to experience the lack of self-sufficiency in resources. The shutdown of parts of the world and the resulting shortages on for example mouth masks, being mainly produced in Asia, made this evident. Europe does not collect sufficient plasma for the production of plasma medicines and is for around 30% of its needs dependent on the United States, where the plasma is mainly derived from paid donors from the commercial industry.

The main driver for plasma is extraction of immunoglobulins (Igs), of which its use tripled between 2004 -2008, with a predicted growing annual demand of between 5-7%. Nowadays these Igs are used for patients with a primary or secondary immunodeficiency or for neurological patients as an immunomodulatory treatment. Strikingly, no evidence can be found to explain this huge increase. This lack of sufficient plasma collection together with the predicted huge increase are of great concern to many countries throughout the world, sometimes already leading to supply-shortages.

In Europe, a prestigious EU4Health funded project to stimulate strategic independency of plasma collection, tailored to the demand, has recently been launched: The SUPPLY project. This project aims to increase and strengthen the resilience of plasma collection in the EU to enable a stable and adequate supply of plasma medicines in Europe. Since plasma demand comes from the use of Igs, it is vital that its use is appropriate, and prioritisation is properly guided. With this project we also aim to gain valuable insights into the status of Igs usage, shortages and the decision-making process regarding Ig utilization within hospitals.

The European Haematology Association (EHA), together with the European Blood Alliance (EBA) and other stakeholders have aimed to develop a set of recommendations and guidance for medical societies, blood establishments, competent authorities, and other professional stakeholders to support them in being able to increase plasma collection in the EU by the public health sector and gain insight in current and future demand. The project contains seven work packages and will be finalized end 2023. The work packages include several topics, such as:

- On **donor recruitment and retention best practices** by studying both altruistic and non-altruistic strategies.
- On **plasma collection and processing best practices** by identifying the most suitable approach for blood establishments to start or increase their plasma collection programmes, reduce the waste of plasma and determine recommendations for plasma price and cost modeling based on plasma quality.
- On **the development of a proposal of common EU policies (and legal framework) aimed to support national and EU efforts to achieve a higher degree of strategic independence from non-EU sources in the collection of plasma and its fractionation in PDMPs**. To this end, a survey has been sent out to all competent authorities for blood and blood components.
- **Best practices to protect plasma donors** and finally on **assessing and possibly limiting the use of Ig's in clinical settings** including conducting a gap analysis.

The results will be translated into recommendations, which will be disseminated and communicated to all stakeholders. And finally, the success of this project will largely depend on the help of the stakeholders from the participating countries. We hope we can rely on the shared sense of urgency aiming for an optimal participation rate.

More information can be found on:
europeanbloodalliance.eu/supply-project-kick-off/



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Improving supply of ABO-compatible HLA-matched platelet concentrates (HLA-PC)

Hemolytic transfusion reactions (HTR) may occur due to transfusion of ABO-incompatible plasma, reason why ABO-compatible platelets or low-titer plasma-containing products are recommended[1].

In Japan, ABO-identical platelet transfusions are performed as a principle. All platelet units are single donor apheresis-derived. HLA-PC are not an exception. However, giving priority to HLA- matching, presently, we are not able to supply 100% ABO-identical. In the period 2010-2018, four definite cases of HTR due to transfusion of non-ABO-identical HLA-PC were reported to the Japanese Red Cross Blood Service (JRCBS), giving an estimated incidence of 0.0021% (Sato T et al. 2019)[2]. In 2015, JRCBS Headquarters issued a notification requesting reduction of ABO-incompatible HLA-PC supply.

At the JRC Kanto-Koshinetsu Block Blood Center, the largest in Japan, which is responsible for the testing, processing and supply of blood products to Tokyo and surrounding 9 prefectures, efforts have been made to reduce supply of ABO-incompatible HLA-PC even prior to this notification. Below, we show the present situation of ABO-compatible HLA-PC supply in our region, the issues and the measures implemented to improve it.

Annually, we supply 300000 PC bags and 2% of them are HLA-PC. When there is request of HLA-PC from the hospital, the patient's serum is investigated for the presence of anti-HLA antibody and, if positive, proceeded to search of compatible donor in our system. Until 2012, ABO-compatibility was not a priority when selecting HLA-PC. Instead, the antibody titers of anti-A/B in the donor's serum was tested, and in case of titers 1:128, information was provided to the hospital, and the decision to transfuse or wash the product was left to the clinician's discretion. At that time, around 40% of HLA-PC supplied were ABO-incompatible, including 20% blood group O products.

Washing of PC can effectively remove anti-A/B antibodies, but the procedure is time consuming, and platelets are lost. By reviewing 31 cases of HTR, 3 of which are fatal, after transfusion of ABO-incompatible PC, Josephson et al. (2010) observed that it was particularly associated with group O donors and non-group O transfusion recipients (Josephson, TransfusApherSci.2010)[3]. Therefore, the strategy of avoiding supply of HLA-PC from blood group O donors to non-O patients was implemented in our service. For this, the staff was instructed to avoid supply of blood group O HLA-PC to non-O patients, efforts were made to continuously increase the HLA-typed donor registry and the appointment rate for HLA-PC donation.

As a result, the supply rate of blood group O HLA-PC progressively decreased and reached 0% in Feb 2015. Supply of other group-incompatible HLA-PC also decreased gradually to around 10% now. In 2021, approximately 6700 HLA-PC were supplied to 380 patients, giving an ABO incompatibility of 9%.

Presently, the HLA-typed donor registry in our block includes approximately 170000 donors, and 4/5 of platelet units supplied are HLA-typed and 3/5 of HLA-PC are collected from donors with an appointment donation. Our challenging objective is to achieve 100% supply of ABO-identical HLA-PC.

HLA-PC - ABO Incompatible Ratio



References
1 Goel R, Tobian AAR, Shaz BH. Noninfectious transfusion-associated adverse events and their mitigation strategies. Blood. 2019;133(17):1831–9.
2 Sato T, Goto N, Tasaki T. Hemolytic Transfusion Reactions. N Engl J Med. 2019;381(14):1396–7.
3 Josephson CD, Castillejo MI, Grima K, Hillyer CD. ABO-mismatched platelet transfusions: Strategies to mitigate patient exposure to naturally occurring hemolytic antibodies. Transfus Apher Sci. 2010;42(1).



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Preoperative autologous blood donation as an important approach for PBM in Japan

The situation of autologous blood transfusion is unique in Japan; it is recommended by the national patient blood management (PBM) guidelines and the red blood cell (RBC) transfusion guidelines of the Japan Society of Transfusion Medicine and Cell Therapy[1,2]. While the Japanese Red Cross Society is responsible for supplying allogeneic blood from voluntary non-remunerated donors[3], autologous blood conservation techniques including preoperative autologous donation (PAD), perioperative autologous cell salvage (PACS), and acute normovolemic hemodilution (ANH) are hospital-based and incentivized by the national health insurance service[4,5]. PAD has been widely and continuously performed as a major alternative to allogeneic transfusion in Japan, and it accounts for more than 80% of autologous transfusions. The situation might be derived from a deep-rooted fear of allogeneic transfusion among the Japanese population, led by the history of hepatitis C virus spreading through contaminated blood products[6].

In my work institution, all PADs are performed at the outpatient autologous blood donation office by expert physicians with the assistance of nurses, in line with the PAD guidelines of the Japanese Society of Autologous Blood Transfusion [7]. The routine PAD practices are shown in Figure 1. During 2017 and 2020, the PAD number was about 350 per year. The majority of the requests were for orthopaedic, high-risk obstetric, and cardiac patients, while patients with rare blood groups or multiple blood group antibodies represented a small number.

According the current situation of PAD in Japan, a nationwide survey on transfusion practice from 2008 to 2020, in which 45% (4,500 out of 10,000) of institutions participated. The mean annual PAD number amounted to 143,000 (103,000-168,000). Despite the decreasing trend, about 82% (79-85%) were transfused, covering 5.3% (3.5-7.2%) of all RBC transfusions (Figure 2). The mean wastage rate of PAD was 18% at most but should be reduced more. A recent retrospective study from Japan showed the superiority of administering ferric carboxymaltose over saccharated ferric oxide in treating post-PAD anaemia5, contributing to improvement of PAD safety. The nationwide survey also found recent gradual increases in the number of ANH and PACS, covering 0.2% and 1.4% of RBC transfusions in 2020, respectively. Concurrently, the recent literature on autologous transfusion from Japan also addresses the clinical efficacy and safety of ANH and PACS 8-10.

Future perspective of PAD in Japan in a super-greying Japan, the safety of both allogeneic and autologous blood should be addressed. The fact that PAD units issued represent about 5% of all RBCs issued implies that PAD is still an important alternative to allogeneic transfusion. However, its decreasing trend and the increasing trend of the other autologous blood conservation techniques, due to advances in surgery and PBM, may suggest that the situation of autologous transfusion in Japan is at a transitional stage; from the broad application of PAD to optimizing the indication by multiple techniques. Considering that patients tend to prioritize reassurance when undergoing PAD, future research should address clinical efficacy, cost-effectiveness, and psychological benefit of PAD.

References

1 Ministry of Health L and W in J. Guidelines for appropriate use of blood products. 2021 [cited 2022 Oct 31]. Available from: mhlw.go.jp/content/11127000/000493546.pdf

2 The Japan Society of Transfusion Medicine and Cell Therapy. Evidence-based guidelines for RBC transfusion. 2018 [cited 2022 Oct 31]. Available from: yuketsu.jstmct.or.jp/wp-content/uploads/2019/11/82fd8a5cbb6d3f1607fe8776472846b7.pdf

3 Sato T, et al. (2021) Incidence and severity of adverse effects related to platelet transfusion: a narrative review of the literature and the recent hemovigilance data of Japan. Ann Blood.;6:24.

4 Tsuno NH, et al. (2013) The current status of autologous blood transfusion in Japan - The importance of pre-deposit autologous blood donation program and the needs to achieve patient blood management. Transfus Apher Sci. 49(3):673–80.

5 Ikeda T, et al. (2022) High-dose intravenous iron supplementation after preoperative autologous blood donation is useful to prevent post-donation/preoperative anemia. Transfus Apher Sci.June 1;61(3):103348.

6 Yasunaga H. Risk of authoritarianism: fibrinogen-transmitted hepatitis C in Japan. Lancet. 2007;370(9604):2063–7.

7 The Japanese Society of Autologous Blood Transfusion. Guidelines for preoperative autologous blood collection. 2020 [cited 2022 Oct 31]. Available from: jsat.jp/jsat_web/down_load/pdf/cyoketsushikijikoketsushishin_2020.pdf

8 Okuno T, (2021). Intra-operative autologous blood donation for cardiovascular surgeries in Japan: A retrospective cohort study. PLoS One. Mar 10;16(3):e0247282.

9 Hayata E, et al. (2021) Biochemical effects of intraoperative cell salvage and autotransfusion during cesarean section: A prospective pilot study. J Obstet Gynaecol Res. May 1;47(5):1743–50.

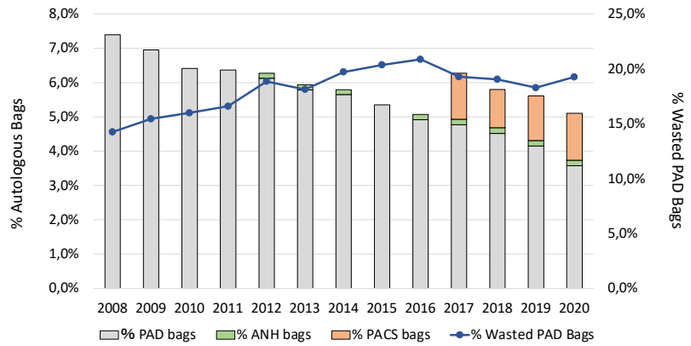
10 Muraki R, et al. (2019) Cell salvage processing of residual cardiopulmonary bypass volume in minimally invasive cardiac surgery. Heart Vessels. Aug 1;34(8):1280–6.

Figure 1



PAD practices at the Jikei University Hospital
(a) Patient Identification before collection
(b) Vascular puncture
(c) Blood collection with monitoring equipment
(d) Needle removal & pressure dressing

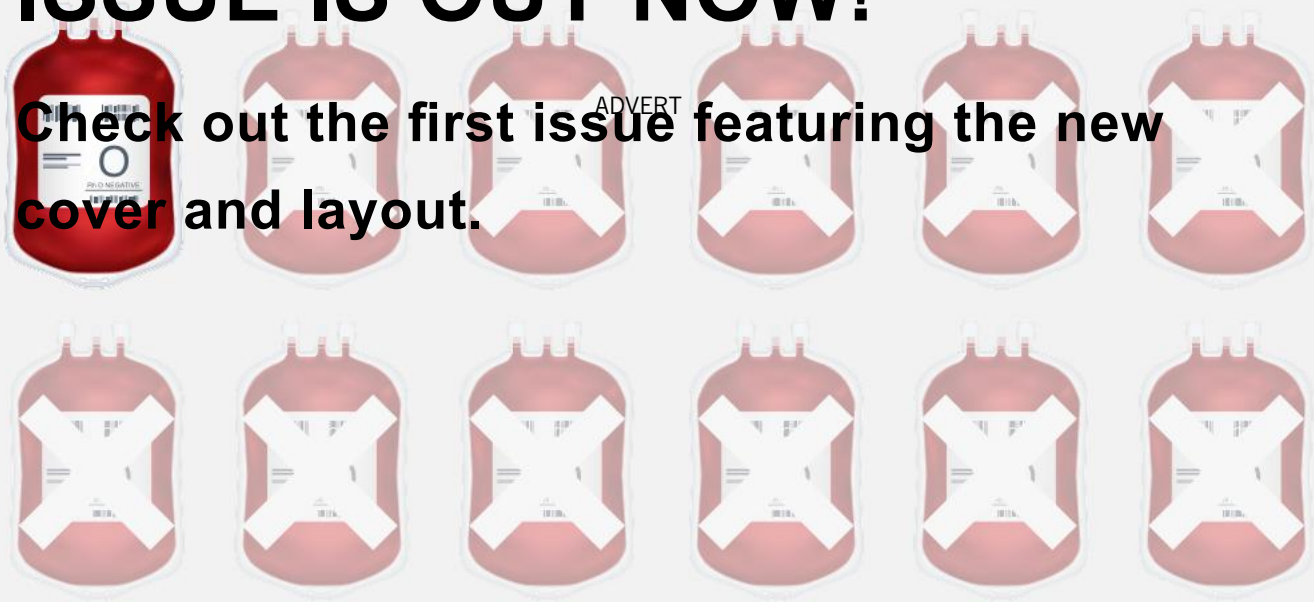
Figure 2



Nationwide survey 2008-2020: Autologous fraction of RBCs transfused in Japan
The PAD (grey), ANH (green), and PACS (orange) fractions of transfused RBC bags (bar) and the wastage rate of PAD bags (line) are depicted. Surveys on ANH and PACS started in 2012 and 2017, respectively (ANH data in 2015 was lacking).
Adapted with permission from the Japan Society of Transfusion Medicine and Cell Therapy.

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