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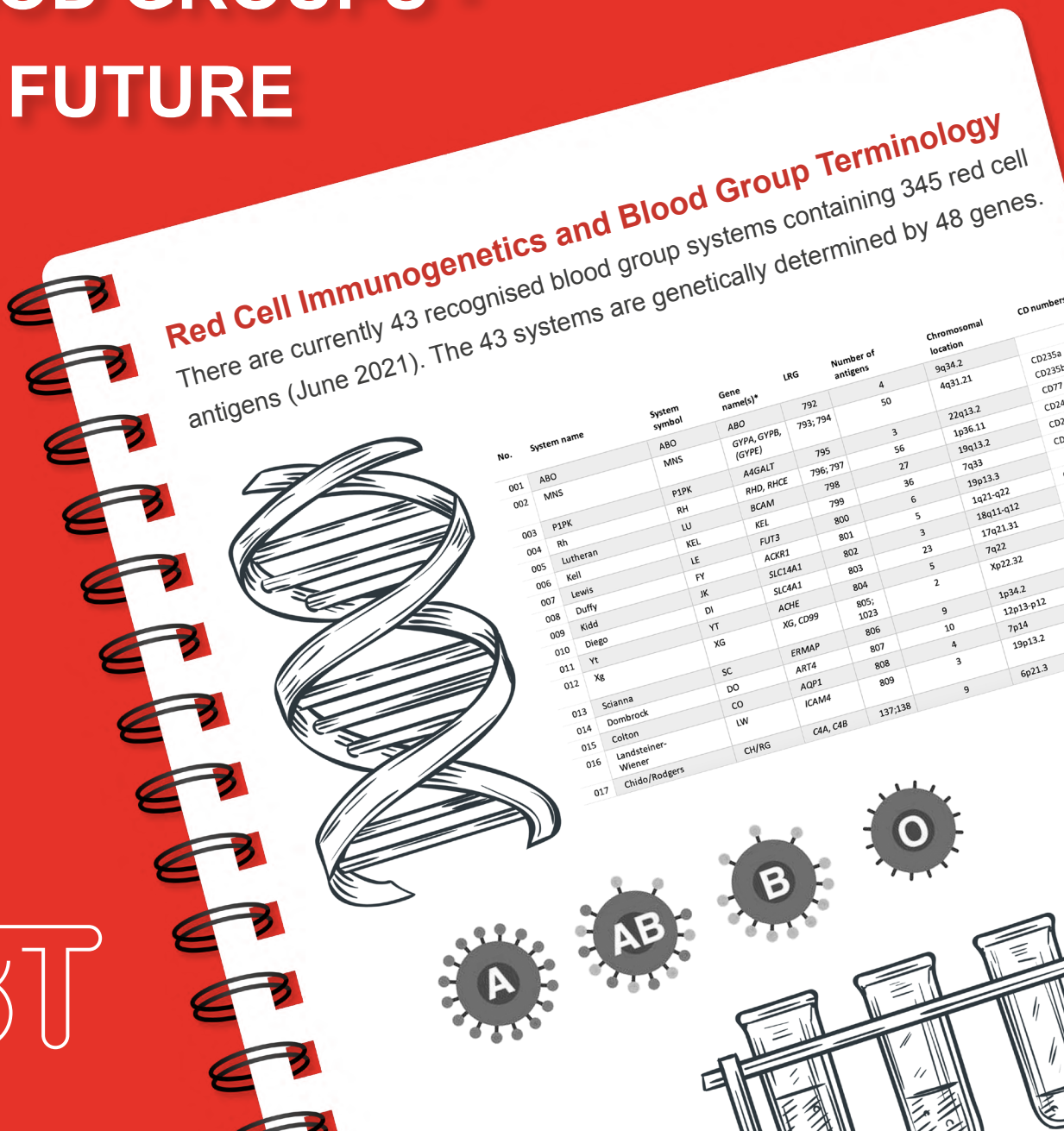
Transfusion Today

Congress reports
ISBT In Focus | Impact of blood group genomics | Blood Donation | MedLab Middle East Congress

In Focus

BLOOD GROUPS - THE FUTURE



Editorial

It is a real pleasure to be able to include reports, in the ISBT Academy section, of two recent events at which delegates were able to meet in person in Pakistan and the UAE. Much as we have all come to embrace virtual meetings, I do hope this is the start of a return to face to face meetings for many more of us.

This edition's In Focus section highlights the huge impact that molecular studies have had on our understanding of blood groups and the opportunity to reduce alloimmunization for transfusion dependent patients; with fully genomics-based transfusion medicine potentially taking this to another level.

The members of the Working Party (WP) for ISBT Red Cell Immunogenetics and Blood Group Terminology are the 'custodians' of blood groups and the Co-Chairs share in their article the rigorous process for accepting a novel antigen. Their WP webpages have definitive information on blood group antigens / alleles and remain the most visited on the ISBT website. It's exciting to know that all this information and more could be available in a digital format before too long.

All of the ISBT working parties made great contributions to the live sessions for the ISBT In Focus congress in June, and reports from the congress can be found in the ISBT Central Office section. Meet the new Chairs of the Information Technology and Platelet Immunobiology WPs in this section too; congratulations to both!

In the ISBT Central Office, we are busy making a new website guided by results of a recent survey – thanks to all those of you who let us know what you like / don't like about the current site and new features you would like to see. The new website will be launched toward the end of 2021 and we hope it will become a focal point for members to interact as well as to access information.

Meanwhile, it is time to think about ISBT awards and prizes 2022 (page 18) and we look forward to your nominations!

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How a new blood group is acknowledged

The ISBT Red Cell Immunogenetics & Blood Group Terminology Working Party (RCI and BGT WP) work aims "To develop and maintain guidelines for blood group antigen and allele nomenclature for use in Transfusion Medicine and related sciences'. The WP members are charged with acknowledging and curating blood group antigens.[1]

Since the discovery of the first blood group (BG) system, in 1900, by Landsteiner a total of 43 blood group systems, containing 345 distinct antigen specificities, have been documented. These systems and antigens are registered on the WP Home Page on the ISBT website. Here we describe the steps leading to formal acknowledgement and registering of a new blood group system or to a new antigen within an existing system.

First it is important to note that a blood group system comprises antigens that are defined by a human alloantibody. BG antigen discoveries frequently are triggered through detection of a red cell antibody in a transfused patient or in a pregnant woman. As discussed in a previous Transfusion Today (number 125, December 2020) Genomic Technologies have led to a wave of recent blood group system and antigen discoveries.[2-5] The scope here is to describe how to ensure the discovery is acknowledged and registered for the global Transfusion Community.

Step 1,

Criteria to define a BG System or a new antigen in an existing system:

The first question to ask is does your finding tick the check list developed and established by the past and present WP members? This criteria can be found from the second page of the WP website under 'Criteria Used' at **isbtweb.org/working-parties/red-cell-immunogenetics-and-blood-group-terminology**.

It is of note that inheritance of the antigen has traditionally been determined by serology studies on extended family members. While family studies are still important, both genetic and genomic studies, using massively parallel sequencing (or next generation sequencing), now contribute to defining the gene and chromosome location.

Step 2,

Submission and Review by the Working Party:

The second step is to submit the findings to the WP via the Co-chairs. Many submissions are in the form of a manuscript or an abstract that will be (or has been) peer reviewed for publication. The Co-Chairs will include the submission on the agenda of the next formal Business Meeting. The person submitting will be invited to attend and present the findings to the WP members at this Business Meeting.

The presentation is followed by an enriching debate and then a vote to accept the findings as a novel BG system, or new antigen. However do not be dismayed if the antigen is not formally registered on this first presentation as it may well spark further informative studies.

As part of the acceptance process it is important to propose a name for the new BG System or new Antigen for the meeting to ratify. These will be registered on the respective ISBT Tables.

(Please note: The gene name, defining the location of the BG System, is predefined by the International HUGO Gene Nomenclature Committee.)

Step 3,

Nomenclature - naming a BG or antigen:

The WP will assign both a numerical and a common name to the BG system or antigen name. The numerical name, designed with foresight by the ISBT WP in 1980, starting with ABO ISBT 001, is designed for Bioinformatic management across clinical laboratories. The last two BG systems accepted in June 2021 by the WP were ISBT 042 EMM and ISBT 043 ABCC1.

The common name for each System and Antigen reveals a corner of rich history behind the discovery. Some names honor the patients or pregnant women who generously contributed to the findings (an early example is Mrs. Duffy).

Others may recognise the location from where the donor/patient came, a recent example being for the ISBT 039 CTL2 BG System, where the first antigen in this system, 001, is called VER after Verona (ISBT 0039 001 or VER) in Italy, where first female antibody-carrier against VER became apparent. Finally some antigen names now simply reflect the nucleotide or amino acid change causing the antigen polymorphism.

In summary, as remarked recently, the discovery of a new blood group system is a major milestone in transfusion medicine.[3] The process of acknowledging and naming is an important step to ensure these discoveries contribute to improving accurate red cell antigen antibody detection and thereby improve Transfusion Medicine practices in the future.

Appendix – extracted from ISBT web site:

Criteria for the establishment of new blood group systems

For an antigen to form a new blood group system:

- the antigen must be defined by a human alloantibody
- the antigen must be an inherited character
- the gene encoding it must have been identified and sequenced
- its chromosomal location must be known
- the gene must be different from, and not a closely-linked homologue of, all other genes encoding antigens of existing blood group systems.

Criteria for the inclusion of a new antigen specificity in an established system

All antigens awarded an ISBT number must have been shown to be inherited and at least one of the following four criteria must be met:

1 An antithetical relationship between a new antigen and one already assigned to the system.
2 Demonstration that expression of the antigen is associated with a variation in the nucleotide sequence of the gene controlling the system.
3 Evidence, from a linkage analysis of family data, that the controlling allele is probably a newly recognised form of the pertinent gene, and supporting serological or biochemical information.
4 Demonstration that an antigen is located on a protein or glycoprotein that carries other antigens belonging to the system. It must be remembered, however, that this could result from post-translational modification of a gene product, such as glycosylation, which would not support inclusion within the system.

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Impact of blood group genomics in Transfusion Medicine: Brazilian experience

The use of the genetic information provided by the human genome project added a new era in Transfusion Medicine with the primary benefit of predicting the blood group phenotype in situations that cannot be performed serologically. Due to the developments of the past decades, blood group predictions based on genomic studies are proving accurate and have been especially useful in both research and diagnostics.

TTarget group of patients, such as those with Sickle Cell Disease (SCD), Thalassemia or autoimmune hemolytic anemia and those with unexplained complex serologic results, have particularly benefited from molecular assays with more efficient, faster, and less costly analyses, improving the safety and efficacy of blood products.

Several authors have shown that blood group genotyping of transfusion-dependent patients is useful in preventing and identifying alloimmunization with potential advantages for identifying rare blood types and finding better antigen matches. Provision of better-matched blood units for patients with SCD can reduce transfusion requirements, decreasing the risk of hemolytic transfusion reactions (HTR) and other adverse reactions like transfusion-related acute lung injury and potential exposure to infectious diseases.
At Hemocentro Unicamp (Campinas, Brazil), molecular matching has shown clinical benefits to the patients with SCD, contributing significantly to reduce the rates of alloimmunization and improving the outcomes of the patients as shown by better in vivo RBC survival and diminished frequency of transfusions [1].

Molecular screening of African descent donors has also allowed the implementation of prophylactic extended antigen- matching transfusion protocols for Brazilian female patients with SCD reducing the risk of RBC alloimmunization, especially for those of childbearing age [2].

Studies in Brazilians have also shown that molecular typing can assist in the identification of RHD and RHCE alleles encoding altered Rh epitopes in patients and blood donors, improving RH genotype-matched RBC units and providing the means for reducing Rh alloimmunization and delayed HTR [3].

Numerous partial D and weak D phenotypes have been defined at the molecular level in different populations and this information, together with clinical and serologic data, has been used to guide transfusion and testing policy for patients and donors. In Southeastern Brazil, we observed that the prevalence of RHD variant alleles differs from those found in other populations, including Brazilians from other regions [4].
A systematic RHD genotyping in 48 Brazilian patients with SCD serologically typed as weak D showed that 40 of them had RHD genes encoding partial D demonstrating the importance to differentiate weak D and partial D to establish a transfusion policy recommendation.
Although RBC genotyping still has limitations with the molecular methods currently employed, in a recent study evaluating 325 discrepancies between phenotypes and genotypes we verified that 97.67% of the discrepancies occurred due to false phenotype results in hemagglutination, demonstrating that despite the limitations genotyping is more efficient to define the blood types, especially in transfusion dependent patients [5].

The advance of next generation sequencing tests with the inclusion of genetic variants leading to null phenotypes, will overcome the limitations of the current molecular methods and allow the full replacement of blood group phenotyping in a near future.

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The Path Towards Universal Genotyping

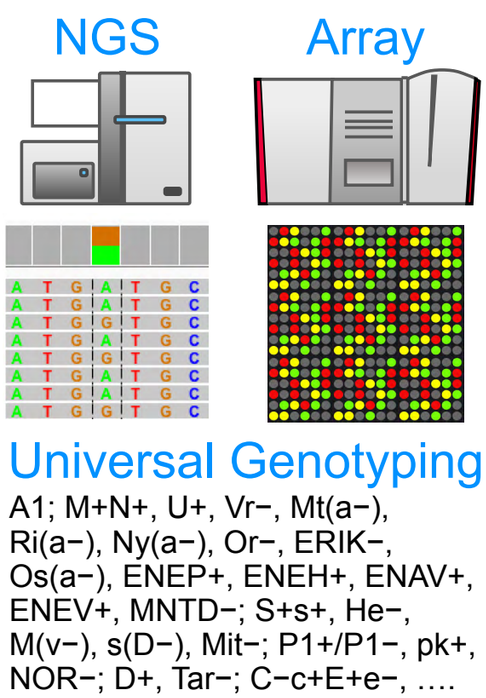
Next generation sequencing (NGS) and high density DNA arrays have enabled a new era of precision medicine. For example, NGS genotyping is the gold standard for stem cell transplant HLA genotyping. High density DNA arrays are being used for population level genetic association studies and to screen for genetic disorders and a multitude of inherited traits. Yet in transfusion medicine, DNA based blood group genotyping is only being performed on a subset of donors and recipients. The reasons for this are complex, but many of the hurdles that have historically limited the routine use of genotyping are now being overcome.[1,2]

One of the first hurdles to be overcome was the creation of curated electronic databases of known blood group genetic changes mapped to human reference genome chromosomal positions. This was essential since the reference genome positions are used in NGS and high density DNA array assay resulting.

The second key hurdle was creating interpretive software capable of analyzing the large amount of data. Our approach to this challenge was to break it into several smaller tasks. The first of which was being able to genotype blood group antigens defined by one single nucleotide variation (SNV). Followed by copy number approaches to detect the most common structural variations including RHD deletions and the C antigen exon 2 RHCE conversion. Next was adding the methods to cis/trans phase adjacent SNVs with a focus on ABO. This was followed by looking at additional Rh hybrids and the U– deletion. Along the way we uncovered novel genetic changes, including the genetic basis of new blood groups systems. For example, the genetic basis of U– in those of African Ancestry was redefined as two large deletions both of which remove the entire GYPB gene, but leave GYPE intact. Similarly, the PIGG gene was determined to define the Emm blood group system.

The third hurdle was assay cost and scalability. While NGS based approaches will likely become the new gold standard for genotyping, they are still too costly and time consuming to perform on all donors and recipients. However, given their low sample cost and large batch sizes, it would be possible to perform high density DNA arrays for all donors and recipients. In fact, we recently published that arrays allow for highly accurate genotyping. This information could supplement ABO and D serology and could be the primary testing method for virtually all other antigens.

Paramount to realizing this future is migrating the ISBT PDF based allele tables to an official ISBT electronic database of genotype to phenotype correlations. Although several research groups have derived their own electronic databases, the development of clinical assays would be best served by an official ISBT database. Towards this end, the ISBT Red Cell Immunogenetics and Blood Group Terminology working party is actively working on this remaining hurdle.



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Introducing genomics into routine donor and patient antigen typing

In recent years genomic data for millions of individuals from around the world has been made publicly available. The DNA-based genotyping technologies that are currently used for population scale genomics studies, such as DNA-microarrays, are of direct relevance in Transfusion Medicine as they can be used for affordable high-throughput donor and patient antigen genotyping.

What are DNA-microarrays?

DNA microarrays are a high-throughput and cheap tool for ascertaining genotype information about an individual on a pre-determined set of genetic variants that are selected during array design. They popularised in 2003 by the International HapMap project which used them to genotype 1,397 individuals with the aim of identifying loci in the genome for assessing risk of common diseases and the genetic variants which control biological traits such as height, weight, and blood cell metrics.[1]

In 2006 the Wellcome Trust Case Control Consortium conducted the first genome wide association study (GWAS) in which blood donor samples were used. In this study DNA samples from 17,000 people (1,500 of which were UK blood donors) were genotyped on a DNA-microarray which contained probes for typing 500,000 DNA variants and captured about 60% of the common sequence variation in the genome known at the time. 24 genetically independent loci associated with disease were discovered showing GWAS could be used as a hypothesis-free method to identify risk loci for human diseases.[2]

Today DNA-microarrays can type upwards of 800,000 genetic variants and have been used on DNA samples from millions of individuals worldwide, including many thousands of blood donors taking part in studies such as INTERVAL (45,000 donors, UK), Donor Information Study III (3,000, NL), and COMPARE (30,000 donors, UK).[3-5]

The Blood Transfusion Genomics Consortium

In 2017 the Blood Transfusion Genomics Consortium (BGC) was setup to take advantage of this wealth of available genotyping data on blood donors and sought to further develop the DNA-microarray used in these studies so that it could accurately type almost all Human Erythrocyte, Platelet and Leukocyte antigens (HEA, HPA, and HLA, respectively) to clinical standard. In 2020 the BGC reported on the development of the UK BioBank version 2 (UKBBv2), which had been trialled using DNA samples from 7,984 English and Dutch donors. Using this array in combination with the bloodTyper and HLA*IMP:02 algorithms they demonstrated 99.9% concordance in 101,676 comparisons between genotype inferred antigen typing results and those on electronic donor records.[6-8] Furthermore, use of genotyping increased the total number of antigen typing results available for these donors from 110,980 to more than 1.2 million, and using real-world data from historical NHS patients the researchers showed that having dense typing available yielded a 2.6-fold increase in the chance of finding a compatible unit when using genotyping data from the same donors.

Looking forwards

Based on the exciting results of their initial study, seven national blood supply organisations joined the BGC and together have embarked on a two-year study which aims to; 1) further improve the design and performance of the UKBBv2 array, 2) develop a higher throughput version of the array which contains only content relevant to blood donation and transfusion medicine, 3) create an internationally composed panel of 14,000 blood donor DNA samples which will be used to ascertain regulatory approval in multiple countries for both arrays by 2022, 4) develop the infrastructure, protocols and regulatory frameworks required to integrate at-scale genotyping into the clinical laboratories of blood supply organisations. This provides blood supply organisations with the means and opportunity to implement a policy of genomics-based transfusion medicine which by reducing the risk of antibody formation against blood cell antigens, will improve quality of care for thousands of patients who receive transfusion support.

You can find more about the BGC and the project outline here on their website: **www.bgc.io**

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From the President

Welcome to this issue of Transfusion Today, with a special focus on blood group antigens and alleles. Readers of Transfusion Today and members of ISBT all know how interesting blood groups are! I encourage you to read on through this edition to find out more.

There is a wide range of antigens – and a wide range of situations and techniques by which they have been identified: some discovered serendipitously or accidentally, some by investigation of patients or donors with unexpected laboratory findings, pregnancy complications or transfusion reactions due to red cell antibodies, and some by careful, targeted scientific searching. More and more, these are now being identified by molecular techniques, as outlined in this edition.

There's still so much we need to know for many red cell antigens: What is their functional significance – what do they do/what is their main purpose, and why? What significance do they have in transfusion practice?
The more we know, the better we can understand the biology of these antigens, their antibodies, and transfusion implications, to provide better diagnostics and better matched blood for patients – and also to understand the biology much more broadly. The significance of these molecules outside transfusion is extremely broad – their structure and function are fundamental contributions to both the healthy and abnormal red cell membrane.

ISBT is central to this work. Our Working Party on Red Cell Immunogenetics and Blood Group Terminology aims to "develop and maintain guidelines for blood group antigen and allele nomenclature for use in Transfusion Medicine and related sciences" and maintains an official record of all currently recognised blood group systems, as well as information on antigens that have not yet been linked to blood group systems. Our Working Party on Immunohaematology aims to "promote best practice and facilitate improvements in immunohaematology through education, exchange of ideas/resources and support red cell serology, molecular testing, antigen/allele matching and transfusion recommendations." Our working parties on Clinical Transfusion and Haemovigilance focus on the clinical consequences of these antigens and antibodies, including supporting patients with special transfusion requirements, and managing, classifying and preventing alloimmunisation, transfusion reactions and more. Please do check out the information available on the ISBT website. To support these endeavours, ISBT holds sessions at our Congresses and Academy events and supports exchanges of ideas and samples from participants all around the world for the purpose of scientific discovery, validation, classification, data management and communication.

I recognise and thank the many members of ISBT, and many others of course too, for these wonderful scientific discoveries, and the curation, communication and educational activities.

In closing I remember the words of Professor Peter Agre, who is credited with the description of aquaporins – water channels in cell membranes, for which he received the 2003 Nobel Prize in Chemistry – as well as other important contributions to our understanding of red cell antigens. The gene AQP1 is located on the short arm of human chromosome 7 – and at the exact location of the Colton blood group system. Studies on red cells of healthy people who are "Colton null' were very important in this work.

Delivering an address to the American Society of Hematology in 2008, I was in the huge auditorium in San Francisco when he said that "Young scientists should expect to fail often, but giving up is unthinkable." This was good advice to me, and to many others I am sure. It was many years ago, but I remember it well.
I encourage everyone to read Peter Agre's Nobel Prize lecture, where he describes some of this work, at
nobelprize.org/uploads/2018/06/agre-lecture.pdf

Welcome to our new members

July 2021 - September 2021

Africa

Tanzania:	Mariam Monah

Americas

Brazil:	Franklin Luis Oliveira Martins
Canada:	Heather Purcell, Wendy Lau, Jennie Haw, Kelly Holloway, Alanna Howell
Chile:	Carla Salvo
Mexico:	Katheryn Garzon Velasquez
USA:	James Lee, Angelica Vivero

Eastern Mediterranean

Bahrain:	Durjoy Shome
Egypt:	Marwa Wahdan

Europe

Belgium:	Ludwine Claeys
Croatia:	Franc Radman
Finland:	Katariina Lähdesmäki
Germany:	Ramune Sepetiene
Netherlands:	Susanna Fustolo-Gunnink, Nivetha R, Claudia Ootjers
Portugal:	Concalo Baptista
Serbia:	Branislava Vasiljevic-Jovanovic
Sweden:	Walter Isenheim
United Kingdom:	Jayne Hughes, Jennifer Easterbrook

South East Asia

India:	Sirat Kaur
Thailand:	Morakot Emthip

Western Pacific

Australia:	Sandy Hume, Shoma Baidya
China:	Charles Gao
Hong Kong SAR of China:	Chun Yuen John Ng
Malaysia:	Hazwani Hassan
Vietnam:	Huu Nguyen Ha

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Congress report ISBT In Focus

The scientific sessions were a big success at the ISBT virtual In Focus meeting. We put our minds together and we believe presented a unique In Focus experience for this meeting. I first want to personally thank Lin Fung (co-vice president ISBT), Jenny White, Eszter Herczenik from ISBT Central Office and Iris Dikkers from MCI for their great devotion and helping us to put this meeting together. The scientific aspect of the program started with an exciting virally-focused plenary session which was highlighted by a talk from the 2020 Nobel laureate, Harvey Alter. Then each day after, specific themes were focused on including Immunohematology, Platelet and Granulocyte Immunology, Blood products and Cellular therapies, TTID, Clinical and Adverse events, Supporting safe transfusions, Strategic management and the last was dedicated to donors and donation to celebrate the World Health Organization's World Donor Day on the 14th of June. All the themes were followed by a moderator-led panel discussion and there were also very well attended abstract oral sessions. In addition, each day had related working party-led interactive sessions with polling and live question and answers. Based on the many positive comments, it was clear that most people enjoyed the scientific content of the In Focus meeting.

In all conferences, the ISBT Academy aims to deliver interactive educational sessions to provide people with a state-of-the-art overview on the progress made on certain topics. In our transfusion medicine value chain going from donor to recipient, there is lot of innovation ongoing, and at many different levels. Importantly, many people involved in ISBTs working parties are continuously giving great input in international study groups to improve the daily practice in low-and medium resource countries. It was a huge challenge to cover everything in a compact virtual conference, but we think, the selection made together with the working parties was a great success. If we asked people how they experienced the virtual ISBT2020 meeting, most comments were positive, but some suggested that it is difficult to be in sessions for hours and that the direct interaction is most missed. In the design of ISBT In Focus, we scheduled innovation, education and interaction in the one day sessions; and, to make it possible for all in the world to attend, we repeated the sessions twice a day. It was lovely to see how the members of the Working Parties had lots of ideas for topics and for creating interactive sessions. It was also clear that the dedication of the speakers and session moderators simply made the ISBT In Focus meeting excellent. Very well thought educational presentations were delivered and live panel discussions were done to try and mimic a live meeting. Moreover, many people took some time from their holiday to contribute to a session, or were working very early or very late, or joined the sessions during work. In the meantime, we learned a lot on how to connect with people in the virtual world. We are sure that you picked up some interesting sessions and were inspired by the new knowledge you got, by the enthusiasm of the speakers and their dedication to move their topic or ideas further! There was too much to follow during this one-week of ISBT In Focus, so it is of value that sessions could be watched on demand until the end of August. Of course, we are very much looking forward to face-to-face meetings again not only because there is no obstacle to asking questions to the experts, but because there will be a free exchange of ideas on science and innovation. We certainly wish to meet everyone live in Kuala Lumpur in 2022 and together with the Local Organising Committee in Malaysia, we will work on an exciting live program with the attractive mix of science, education and interactive sessions. A big thank you to all who contributed!

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The ISBT E-learning Module "Transfusion Reactions"- a three month experience

After the launch of this new module in March 2021, we now share the first experiences and received feedback. The module was conceived by both ISBT and EBA and made freely available for all transfusion professionals, ISBT and non-ISBT members.
After members of the Clinical Transfusion Working Party and the European Blood Alliance (EBA) recognized the knowledge gap in the basic medical training of junior professionals, who may be confronted with transfusion-related problems at the bedside, the idea was born to develop an e-learning case-based module that is focused on the acute adverse events after blood transfusion.

Participants are required to register for the module to gain access. The training consists of an introduction followed by 7 interactive cases and associated quizzes. The main and most prevalent acute transfusion reactions will be discussed, based on the presenting signs and symptoms (e.g. fever, dyspnea and blood pressure changes).
The participant will learn to recognize, investigate and treat:

- TRALI and TACO
- Hemolytic and non-hemolytic febrile reactions
- Septic reactions
- Allergic and anaphylactic reactions

Completion of the two parts (Introduction and Cases) of the module is required to obtain a certificate and CME points, which is accredited by European Board for Accreditation in Hematology (EBAH).

As of July 23, 2021, 83 transfusion professionals from more than 30 countries visited the module. The mean time to complete the module was 2,5 hours and not all who started completed the entire module (Introduction: 45%, Cases: 52%). Up to now, 92 and 120 CME credit points were issued for the two subunits of the module, Introduction and the Cases, respectively.
The module received enthusiastic comments. The feedback of the participants is collected and used when reviewing the module. We sincerely hope that this module will reach more junior transfusion professionals and becomes a helpful tool for them to gain more confidence at the bedside.

And finally, a word of thanks to all contributors for their time and input, for their help and support. We hope this initiative will help to improve the quality of blood transfusion practice to minimize complications as much as possible.

"I found the content very interesting!"

"Thank you and congrats."

Transfusion Reactions Module

ISBT eba EUROPEAN BLOOD ALLIANCE

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Looking back at young professional activities during ISBT in Focus 2021

Albeit virtual again, young professionals (YPs) participated in several activities during ISBT In Focus. Here is a review of some of these activities, followed by some thoughts from our Young Professional Council members.

Harold Gunson Fellowship Awards

The Harold Gunson Fellowship awardees were YPs from all around the world who work in the field of transfusion medicine, are 40 years of age or younger and had an abstract accepted for ISBT 2020. The winners of this award received complimentary registration for the congress. Congratulations to Abhishekh Basavaraje Gowda, Anubhav Gupta, Arwa Al Riyami, Beukou Fonkou Hygin Steve, Cintia Soledad Principi, Divjot Singh Lamba, Divya Setya, Parmatma Prasad Tripathi, Puneet Ashok Jain, Sahar Zienab Saeed, Shweta Ranjan, Susanne Fustolo-Gunnink, Suvro Datta, Tenzin Dorji, Valentino Granero!

The Virtual Young Professionals Networking Breakfast

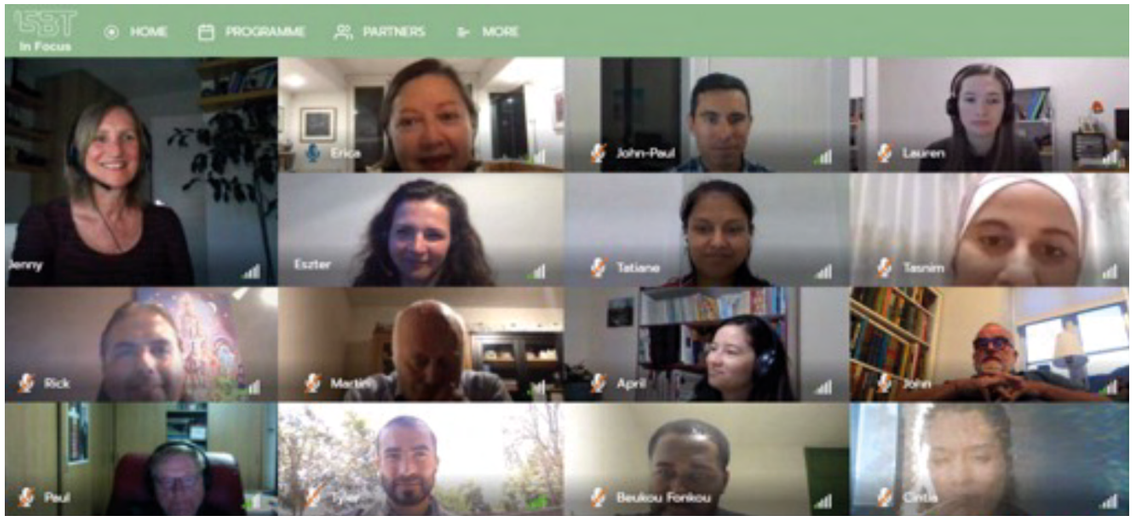
The Young Professionals Networking Breakfast is held to facilitate an informal networking meeting between YPs and Transfusion Medicine experts. This time, the event had two different virtual sessions to accommodate for the different time zones and participants were divided into different breakout rooms led by (an) expert(s). We had a total of 175 YPs attend both sessions -a record number- and it was a great success!

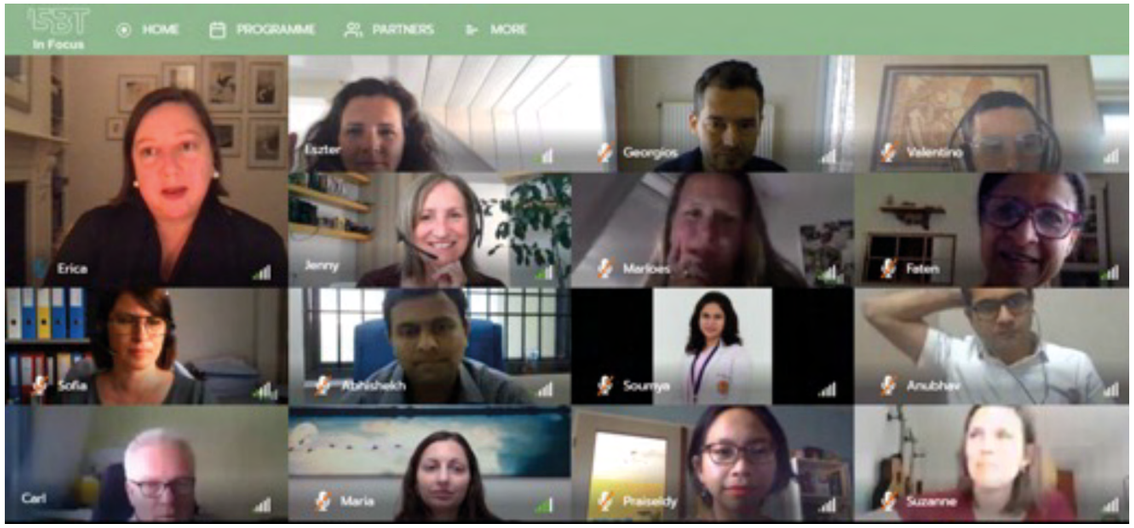
Some of them had the following remarks:

This was my first time joining the YP networking breakfast session. It's especially nice to talk to people that are not necessarily in your own field of expertise, and get acquainted with people from other parts of the world. It was very informative and I sincerely hope to keep in touch with the people I met there!
-Marloes Spekman, Netherlands-

It was an amazing event interacting with the ISBT president and members.
-Sharmila Manian, Malaysia-

I have been a regular attendee of ISBT young professional breakfast networking since 2016… This is a podium for the young minds of Transfusion Medicine to be involved into the various activities of ISBT at an early stage of their careers.
-Soumya Das, India-





The ISBT in Focus was the first-ever ISBT congress I attended… Aside from the knowledge gained through the informal interaction, I was also able to initiate discussions with other young professionals for future collaboration in transfusion science research.
-Oluwafemi Ajayi, Nigeria-

Reflections about the Young Professional Council

The inaugural Young Professionals Council (YPC) began in 2018 with the aim to increase the value of ISBT membership and to promote active participation of YPs in the society's activities through social media, educational content, congress events, and more (https://www.isbtweb.org/about-isbt/youngprofessionalscouncil). Councilmembers are representatives of the WHO regions who are contact persons for the larger young professional community.

This year, we said goodbye to John-Paul Tung and Yanli Jing, our West Pacific representatives, as their terms had come to an end. Here are some of their reflections upon the past years:

What was/were your favorite thing(s) in being part of the YPC? What was/were your least favorite(s)?

John-Paul: *My favourite things were seeing the success of the YPC in improving opportunities for YPs to be involved with ISBT and transitioning congress activities for YPs to the virtual space.*
My least favourite thing was waking up for middle of the night meetings during winter – it was so tough getting out of bed at 1am in the cold!!

Yanli: *The favourite thing in being part of the YPC is to help the YPs to be a part of ISBT big family and find a way for self-improvement through joining the ISBT activities they are most interested in.*
The least favorite is not able to log in the social media to communicate with the others, that made me feel isolated from the rest of the world.

What lesson(s) did you learn in being part of the YPC?

John-Paul: *Perhaps not strictly a lesson, but being part of the YPC reminded me that despite our geographical and cultural differences, we have so much in common in wanting to help each other and to make blood transfusion even safer than it already is.*

Yanli: *Enough and good communication and good English are so essential to being part of the YPC, there are still lots of room to me for improvement.*

We thank them for their service and will miss them. However, we welcome our new team members, Nysa McGowan and Jian Ou-Yang!

What's ahead?

We want to strengthen our Young Professional Community! We are thinking of ideas towards creating more meaningful connections and providing opportunities for direct involvement. Do you have ideas? Send them our way via our direct emails or the ISBT Central Office.
Stay connected with us via the ISBT Instagram, Facebook, and Twitter accounts. #ISBTYoungBlood

ISBT In Focus reports from Harold Gunson awardees

Sahar Saeed
Canada

The COVID-19 pandemic profoundly changed all aspects of our lives. I continue to be amazed at the speed blood operators have leveraged their unique resources to lead SARS-CoV-2 research worldwide. The ISBT in focus conference highlighted these public health contributions with impressive plenary presentations, demonstrating how blood operators have been critical in understanding emerging epidemics in the past, present and will continue to be vital in the future. Translational science was evident from presentations on SARS-CoV-2 antibody kinetics, convalescent plasma as therapeutics and tracking seroprevalence. What I take home from the ISBT conference and what I hope others will too, is the important role blood operators play in public health research.

Divjot Singh Lamba
India

It was my third ISBT congress and I was very excited to attend especially as I was granted the Harold Gunson fellowship this time. I attended most of the talks on the very engaging and interactive virtual platform and was especially motivated to attend by the interaction with the speaker's sessions after each talk. All the talks were by the experts in the field and it helped me to know the latest technologies, innovations and recent advances being done in the field of Transfusion Medicine from a global perspective. I especially attended talks related to Transfusion Transmissible infectious diseases organized by the working party of TTID and the incredible talks related to platelet and granulocyte serology, clinical transfusion and patient blood management. I also got an opportunity to meet the ISBT scientific experts in the field and young peers from other countries in the young breakfast session organized for the young investigators.

Cintia Principi
Argentina

Even though this year the congress went virtual and did not have the chance of meeting lots of colleagues, it was an amazing experience! I really enjoyed the sessions, especially those about blood groups pheno/genotyping. Many conferences gave me and my group new ideas and connected me with people working in the same theme, allowing an approach. Also I had the chance of showing my research. This is very important because I can discuss my work and doubts and get other points of view. So, I would like to thank you all for letting me live such an experience! I hope there's a next time!

Valentino Granero
Italy

The ISBT In Focus 2021 was an extraordinary interactive event. Every day the main topics of Transfusion Medicine were addressed (from pandemics and other TTIDs, to innovative cell therapies, immunohaematology updates, donor and donation management, etc ...) and each speaker shared their experience. The virtual poster area proved very useful and managed to create the network for future studies and collaborations. Unforgettable breakfast with the experts for us Young Scientists: an experience full of ideas for work. Thanks ISBT! it was a privilege.

Divya Setya
India

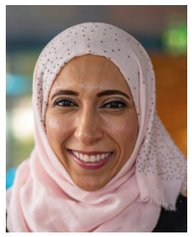
ISBT In Focus 2021 was my first ISBT Congress. It will always be memorable because I was delighted to be awarded the prestigious Harold Gunson fellowship. It was a great learning experience for me at the congress. The event was carefully planned and all the sessions were brilliant. As a young transfusion medicine physician from India, the fellowship helped me connect with professionals from different countries and learn so much more. I enjoyed the talks and interactive sessions thoroughly. Thank you ISBT!

Beukou Fonkou Hygin Steve
Cameroon

Challenges bring opportunities and one of these was the ISBT In Focus congress going virtual in two different time zones in 2021! From the Young Professional Networking Sessions, through the holistic nature of the topics included, kindled my quest to gain the apogee of knowledge available from fellow experts and speakers around the globe in transfusion medicine. The hybrid of panel sessions, interactive sessions, breakout rooms, poster presentations and expositions revealed the incredible opportunities present. Most importantly, networking with passionate colleagues and the discovery of the ISBT working parties, especially "Quality Management System" intrigued me to join and, contribute positively in the growth of this organization.

Suvro Sankha Datta
India

ISBT In Focus was memorable because it was conducted in the midst of a pandemic. I would like to thank the ISBT for the Harold Gunson Fellowship. It was a privilege to learn so many new things from the international stalwarts; scientists, and doctors through an incredibly smooth virtual platform. During the congress, I had attended mainly sessions on immunohematology; platelets immunology, evidence based strategies and all sessions were wonderful. Thanks to the ISBT board for encouraging the young transfusion medicine professionals across the globe by providing them the platform to present their work in front of an international audience.



Arwa Al Riyami
Oman

COVID-19 has brought about challenges in the health care systems globally. I presented the results of a survey conducted by the ISBT Young Professional Council to assess the impact of the pandemic on young professionals in Transfusion Medicine around the world. Obtaining this award and having the opportunity to share the results of this study at the ISBT in Focus congress was an outstanding achievement for me! I enjoyed the congress a lot, and the opportunity to connect with other young professionals at the networking sessions. I look forward meeting everyone face to face in the future! #ISBTYoungBlood

Abhishekh Basavaraje Gowda
India

Harold Gunson Fellowship allowed me to be a part of ISBT In Focus 2021. Being part of ISBT In Focus was one of the best things that happened in 2021. The sessions were well planned and organised. The flexibility about the time of the relay helped in making optimum utilisation of this academic feast. The breakout sessions were the icing on the cake wherein we could interact with the speakers and other participants and build up a rapport. The opening was grand with the plenary session by Dr Harvey Alter on his road to the Nobel Prize. The sessions can be repeated and accessed, which helped me to understand it at my willingness and pace.

ISBT Awards and Prizes 2022

ISBT Presidential Award

All ISBT members are invited to propose candidates for the ISBT Presidential Award which will be granted in 2022 at the 37th International Congress of the ISBT in Kuala Lumpur, Malaysia. The Foundation Transfusion Medicine grants this Award to a senior person who has made eminent contributions to transfusion medicine or a related field through original basic or applied research, the practice of transfusion therapy or through significant educational and/or service contribution to the field.

A short curriculum vitae of the proposed candidate and a description of his/her contribution in transfusion medicine, accompanied with three signatures of ISBT members who support the nomination, should be sent to the Secretary-General of the Foundation, Henk Reesink, email hwreesink@gmail.com. The Nomination Committee (consisting of the ISBT President, the ISBT President-Elect, the Scientific Officer of the ISBT, the Chairman, and a member of Board of the Foundation Transfusion Medicine) will decide which candidate will be nominated.

The deadline for proposing candidates is October 29, 2021.

Jean Julliard Prize

The Jean Julliard Prize recognises clinicians or scientists who are less than 40 years of age and have a noteworthy portfolio of recently published work contributing to advances in transfusion medicine. The prize of € 5,000 is open to members and non-members of the Society under the age of 40. Normally the Prize will be awarded to one individual. However, in special cases, the Prize may be shared. The Prize will be awarded during the 37th International Congress of the ISBT in Kuala Lumpur, Malaysia. The successful candidate will be required to give a presentation on their submission during the congress. Travel, registration, and accommodation costs for the congress will be covered by ISBT. The Award regulations, application procedure and application form can be found on the ISBT website.

The closing date for submission is December 17, 2021.

ISBT Developing Country Award

Applications are invited from Blood Services/Centres from a qualifying developing country for the ISBT Award for Developing Countries. Applications should be from a Blood Service/Centre from a developing country that has made a significant contribution in strengthening Blood Transfusion Practice within the country. Qualifying developing countries will be those that are considered low or lower middle income according to the World Bank index. The Award will be in the form of full sponsorship for two delegates from the Blood Centre to attend the 37th International Congress of the ISBT in Kuala Lumpur, Malaysia (airfares, registration, accommodation and per diem). The award also includes sponsorship of an education symposium in the country of the winning applicant (value €10,000). The Award winner will be presented with a certificate at the Opening Ceremony of the 37th International Congress of the ISBT in Kuala Lumpur, Malaysia and will be expected to give a presentation in one of the scientific sessions.
The Award regulations, the procedure for applying, and the application form can be found on the ISBT website.

The closing date for submission is December 17, 2021

Erica Wood
Monash University
Australia

World Blood Donor Day

In 2021, ISBT was again very pleased to support World Blood Donor Day!

ISBT is a society in official relations with the World Health Organization (WHO) since 1955, and World Blood Donor Day is very special to ISBT: without blood donors, there would be no transfusions for patients who need them! In partnership with WHO, and hosted this year by the Ministry of Health and the National Blood Center in Italy, it was a great pleasure for me to join in the celebrations on behalf of ISBT.

The program opened with an institutional event on June 14, followed by a concert, featuring marvellous performers, and then on June 15, a scientific symposium.

The scientific symposium covered a wide range of topics. Across different sessions, discussants emphasised the importance of voluntary, non-remunerated blood donation, shared experiences of caring for donors and their health, and thanked donors for their contributions. Other presenters from Italy and around the world shared strategies to ensure timely access to safe blood and blood products, and to improve clinical practice. International collaborations, such as through the WHO Action framework to advance universal access to safe, effective and quality-ensured blood products, 2020–2023, as well as the Oviedo Convention on Human Rights and Biomedicine were highlighted. The roles of national and international organisations including national blood services, WHO, Council of Europe and the European Commission, and research groups and professional organisations, such as ISBT, were emphasised. One session considered the implications of COVID-19 on supply and use of blood products around the world.

ISBT's vision is for "A world of safe and sufficient blood" and our mission as a global community of professionals is sharing knowledge to enhance transfusion science and clinical practice. One important part of our work is advocacy for the welfare of blood donors and patients. We do this by providing opportunities for education in transfusion science and medicine, such as congresses and online learning and by sharing experience through our working parties. We also publish scientific advances in our peer-reviewed journals, and we work with a wide range of partners at national and international level, including blood donor organisations.

Every day, people all around the world in many different situations depend on blood transfusions. These might be red cells, platelets or plasma – or products manufactured from plasma, like immunoglobulins to fight infections, or coagulation factors to help prevent or stop bleeding.

Most blood is donated, tested and available for use in high-income countries, and more safe blood is needed in low- and middle-income countries. ISBT is working to support voluntary blood donors, blood services and hospitals all around the world to improve this situation.

We recognise that the past year and a half has been especially difficult for everyone due to the COVID-19 pandemic, and that extra efforts have been needed to donate and to collect, test and distribute blood to maintain supplies. Thank you for your commitments.

On World Blood Donor Day 2021, ISBT thanks everyone – young or young at heart, who is, or has ever been, a blood donor. Donating blood is safe, and your donation can literally mean the gift of life to someone. Thank you!

New Working Party Chairs

ISBT Working Party for Information Technology

We would like to introduce you to two of our new working Party chairs. Suzanne H. Butch is the new chairperson for the Information Technology Working Party and Brian R. Curtis is the new chairperson for the Platelet Immunobiology Working Party.

I was the Administrative Manager of the Blood Bank and Transfusion Service of the Michigan Medicine in Ann Arbor, Michigan, USA. While currently maintaining a part-time appointment at Michigan Medicine, I have been consulting in laboratory management. I hold a bachelor's degree from the University of Michigan and a master's degree in Management and Supervision from Central Michigan University. I am certified as a Medical Laboratory Scientist, Specialist in Blood Bank Technology and as a Diplomate in Laboratory Management from the ASCP and an Certified as a Quality Auditor by the American Society for Quality.

I have been active in state, national and international professional societies and edited books on irradiation and information technology in transfusion medicine. I currently serves as chair of ICCBBA's ATAG, as an observer to the ASCLS P.A.C.E.®, Committee, as a Trustee of the ASCLS Education and Research Fund, and as a member of the AABB's Public Policy Strategy Committee, Coding and Reimbursement Committee and Information System Committees.

I have been a member of the ISBT Working Party on Information Technology for several years and have been actively working on the Validation and Traceability Task Forces. I have published articles on quality management and improving laboratory operations. My current professional interests include the use of bar coding, regulatory compliance and streamlining laboratory operations. To this end I have worked since 1990 on various committees and with a number of organizations to promote the electronic crossmatch and automation in the clinical laboratory.

Suzanne H. Butch,
MA, MLS(ASCP)SBB^{CM}, DLM^{CM}, CQA(ASQ)

ISBT Working Party for Platelet Immunobiology

After obtaining my bachelor's degree in Biology from Iowa State University, Ames, IA, I began my Transfusion Medicine research career in 1987 training with Dr. Hugh Chaplin Jr at Washington University and Barnes Hospital, St. Louis, Mo, where I became fascinated with platelet alloimmunization. A few years later I was recruited by Dr. Richard Aster to work at the Blood Center of Southeastern Wisconsin, now Versiti, in Milwaukee. During this time, I obtained a master's degree in Transfusion Medicine Science, and Ph.D. in Health Sciences and Immunology. I have enjoyed a 30-year career at Versiti, including as Director of the Platelet & Neutrophil Immunology Laboratory (PNIL). The PNIL developed out of Dick Aster's research lab in 1972, and I assumed its direction in 1999. It now employs over 20 staff, offers 17 different assays, and performs 25,000 tests/yr on patient samples received from across the USA and the world. I also serve as the Senior Director of Diagnostic Hematology with oversight of the Hemostasis, Molecular Oncology, and Hematology Genetics Labs.

I hold an appointment as Senior Investigator at the Versiti Blood Research Institute on the campus of the Medical College of Wisconsin. My research studies focus on assay development, and clinical studies of platelet and neutrophil autoimmunity and alloimmunity with a goal to develop improved methods of diagnosis, treatment and prevention of immune hematologic diseases, including Fetal & Neonatal Alloimmune Thrombocytopenia and drug-induced neutropenia and thrombocytopenia. Some our most significant accomplishments include identification of the gene variant in SLC44A2 and the encoded protein (CTL2) that determines the human neutrophil antigens (HNA) HNA-3a and HNA-3b, discovery of 8 human platelet antigens (HPA), and the first reports of CD36-defciency in patients of African ancestry and associated CD36 isoimmunization. Our work has also resulted in publication of 125 journal articles, 8 book chapters and other publications, 8 grants and 2 patents. I am especially proud of the numerous medical residents, graduate and SBB students, and fellows that I have trained too.

I also keep very busy serving two journal editorial boards, and of course most recently serving as Chair of the Platelet Immunology Working Party (PIWP) of the ISBT. My lab has been a long-time participant of the PIWP international platelet serology workshops. I very much enjoy making new friends when we gather at the PIWP business meetings to discuss our test results and share new ideas for improving our diagnostic tests. I look forward to working with each and every member of the PIWP in the next 4 years and to further building and improving what we do.

Brian R. Curtis,
Ph.D., D(ABMLI), MT(ASCP)SBB

Director of the Platelet &
Senior Director, Diagnostic Hematology
Director, Platelet & Neutrophil Immunology Lab
Senior Investigator, Blood Research Institute
Versiti / Diagnostic Labs, Milwaukee, Wisconsin

Educational Page

Vox Sanguinis themed issue: donor assessment, motivation and vigilance

In this themed issue, Sheila F. O'Brien, Henrik Ullum and Clive R. Seed selected 11 articles from Europe, North America, Australia and Africa, including four multi-country articles that span diverse aspects of three subjects: donor assessment, donor motivation and donor vigilance.

We have posed a few reflective questions on some of the papers in this issue. "Reflective learning" is useful to help us to use knowledge and / or experience to improve our everyday practice. Writing a reflective statement is also a great way to demonstrate understanding of new information and is encouraged in many professional CPD schemes.

Blood donation by men who have sex with men: using evidence to change policy

Katy L. Davison, Claire A. Reynolds, Nick Andrews, Susan R. Brailsford, the UK Blood Donor Survey Steering Group.
January 2021 **doi.org/10.1111/vox.13033**

Men who have sex with men (MSM) are significantly and disproportionately affected by HIV, and, since the early 1980s were permanently excluded from blood donation by all four UK blood services to minimize transfusion transmitted HIV.
In 2010, SaBTO assessed the impact of a 12-month deferral of MSM, and a 12-month deferral for commercial sex workers. The outcome was a recommendation by SaBTO to change to a 12-month deferral for MSM. This was accepted by government and implemented by the blood services in England, Wales and Scotland in 2011, in Northern Ireland in 2016.
The article describes information about MSM donating blood in the UK including a comparison of male donors with confirmed markers of infection for the five years before and after the 12-month deferral policy, and an analysis of responses from males to the 2013/14 UK blood donor survey of negative donors.

Compliance with the 12-month MSM deferral policy was very high. The very low rates of infections post-change demonstrated the effectiveness of the policy. These data were an important part of the 2017 review of all sexual behaviour deferrals.

- **Although MSM are at increased risk for HIV, HBV, HCV as well as syphilis, the public debate on MSM-deferral predominantly focuses on HIV. Why?**
- **Are deferral policies stigmatising and discriminatory towards MSM? Should donor screening be based upon individual risk-behaviour of each and every donor?**

Putting the spotlight on donation-related risks and donor safety – are we succeeding in protecting donors?

Christina Mikkelsen, Gaia Mori, Suzanna M. van Walraven, Johanna Castrén, Sharon Zahra, Sheila MacLennan, Kirsten Seidel, Stefano Fontana, Eva Veropalumbo, Livia Cannata, Simonetta Pupella, Maria Kvist, Marjan Happel, Piia Korkalainen, Birgit Wulff, Jesus Fernandez-Sojo, Cristina Eguizabal, Fernando Urbano, Miguel Angel Vesga, Primoz Pozenel, Marian van Kraaij, Morten Bagge Hansen, Ed Slot, Henrik Ullum.
October 2020 **doi.org/10.1111/vox.13014**

The European consortium project TRANSPOSE (TRANSfusion and transplantation: PrOtection and SElection of donors) aimed to assess and evaluate the risks to donors of Substances of Human Origin (SoHO), and to identify gaps between current donor vigilance systems and perceived risks.
The data collection took place in the spring of 2018. All TRANSPOSE participants were asked to provide donor vigilance data and to include data on both serious and non-serious adverse reactions, regardless of severity.
Data from 12 countries over 4 years and for four types of SoHO showed that reported donor complications rates are low even when including non-serious reactions. However, as reporting is not mandatory a significant degree of underreporting is likely.
An international focus on donor vigilance is strongly needed and should be a key priority for all stakeholders including regulatory bodies and national competent authorities.

- **Is a donor vigilance system implemented in your country? Is reporting of all donor complications in place? Are your country's blood centres and hospitals informing donors about donation-related risks?**

Vox Sanguinis International Forum on Mitigation Strategies to Prevent Faint and Pre-faint Adverse Reactions in Whole Blood Donors: Summary

Mindy Goldman, Mary Townsend, Karin Magnussen, Miquel Lozano, Lise Sofie Nissen-Meyer, Cheuk Kwong Lee, Jennifer Ngar-Sze Leung, Minoko Takanashi, Jennifer McKay, Maria Kvist, Nancy Robitaille, Jessyka Deschênes, Emanuele Di Angelantonio, Amy McMahon, David Roberts, Mahtab Maghsudlu, Johanna Castrén, Pierre Tiberghien, Genevieve Woimant, Pascal Morel, Harry Kamel, Marjorie Bravo, Eilat Shinhar, Veronica Gendelman, Hana Raz, Silvano Wendel, Roberta Fachini, Franke Quee, Katja van den Hurk, Jo Wiersum, Kathleen Grima, Joanna Speedy, Mie Bruun, Nancy Dunbar.
November 2020 **doi.org/10.1111/vox.13037**

Approximately 2–5% of whole blood donors will experience a pre-faint reaction, including light headedness, dizziness, sweating, nausea and anxiety, while 1–3 in 1000 will go on to experience loss of consciousness. Even donors with mild reactions are less likely to return, while those with faint reactions are at risk of injury.

The aim of this International Forum was to explore what mitigation strategies blood centres throughout the world have implemented to reduce faint and pre-faint complications. The study aimed to cover different geographic areas and include both large national blood suppliers and smaller blood centres who had published studies related to donor vigilance and mitigation strategies to prevent donor adverse reactions.
Almost all BCEs routinely offer water pre-donation and a variety of refreshments post-donation. Routine provision of a salty snack pre-donation is done by a minority of BCEs and about two thirds encourage AMT. Time on the donation chair post-donation varies from 2 to 15 min but is not always specified. Several BCEs have special provisions for first-time donors, including more information about mitigation steps, additional encouragement to hydrate, minimum EBV or smaller donation volume, and longer time on the donation chair post-donation.

- **Younger donors are at higher risk of both vasovagal reactions and other adverse effects such as iron deficiency. Do you think there should be less blood drawn from younger donors? Or is additional waiting time post donation a better solution?**

Determinants of intention to return to donate blood among first-time blood donors in Ghana

Lucy Asamoah-Akuoko, Henrik Ullum, Bernard Appiah, Oliver W Hassall, Thomas Ndanu, Philip Adongo, Imelda Bates.
November 2020 **doi.org/10.1111/vox.13026**

Maintaining adequate levels of blood for transfusion is a global challenge, and a critical public health problem in sub-Saharan Africa. The World Health Organization recommends a minimum blood collection index of 10 units of blood per 1000 population. However, all 66 countries reporting a blood collection index of less than 10 to the WHO were low- and middle-income countries, with 33 of these, including Ghana, located in SSA.
A better understanding of the motivators for, and barriers to, blood donation is needed in order to make a significant impact on increasing blood donations in Ghana. There has been very little research from Ghana, or from SSA, on the factors that affect first-time blood donors' decisions to become regular donors. The aim of this study was therefore to identify factors that predict intention to return to donate among first-time blood donors in Ghana. This information could then inform interventions that the National Blood Service and other organizations across SSA could introduce to increase the number of returning donors and consequently increase the blood supply.
Factors that positively influence blood donor return include motivational items, convenient access to blood donation session, if the donors know that Ghana needs blood, and if it makes people feel good about themselves, SMS and email reminders, and advertisements on blood donation through television, radio or newspapers. Factors that negatively influence repeat blood donation include donating to get 'blood credits', getting to know one's TTI test, and not knowing what happens to the blood after donating.
This study suggests that interventions that are likely to increase first-time donor return in Ghana include those aimed at providing information and education on blood donation, improving access to donation sites, reminders for blood donation and a more evidence-based incentive system. Motivational incentives should receive priority attention, as they could potentially increase the number of first time and repeat donors.

- **What interventions are used in your country to motivate donors? Is their effect on donors studied, reviewed and updated if necessary?**

Akhlaaq Wazeer
Divisional Headquarters (DHQ)
Teaching Hospital
Pakistan

Screening of Blood for Transfusion Transmissible Infections

A training workshop on 'Screening of Blood for Transfusion Transmissible Infections' was organized in Mirpur, AJK, Pakistan from June 22-24, 2021, by the Divisional Headquarters (DHQ) Teaching Hospital, Mirpur, with the ISBT Academy support. The workshop was attended by 35 participants comprising managers of blood banks from public, private, and NGO sectors, haematology and transfusion medicine trainee doctors, medical technologists, blood transfusion officers, and blood bank technicians.

The objectives of the workshop were to train the existing workforce in the blood banks on the screening techniques available; educate the participants on the quality control criteria used in the TTI screening laboratories, provide an update on the biosafety aspects during the TTI screening and an overall emphasis on the centralized screening in blood centres which is a relatively new concept for the country.

After a welcome address by the Medical Superintendent, Dr. Farooq Ahmed Noor, the technical sessions began with lectures on national blood safety scenario, V2V transfusion chain, existing and emerging TTIs, screening assays (ICT, ELISA, CLIA, NAT), screening for hepatitis B, C, HIV, syphilis and malaria, routine and emergency screening, national screening strategy and algorithm, nucleic acid testing vs ELISA/CLIA, blood quarantine and release, quality control and quality assurance, and biosafety in blood centres.

The participants also visited the new building of Regional Blood Centre and appreciated the efforts of hospital administration and pathology department for achieving this endeavor.

Pre- and post-workshop/course assessment was done to haveasystematic collection and analysis of information to improve participants' learning. Participants were provided a questionnaire with 30 multiple-choice questions at the beginning and the end of training. The results of the analyses provided valuable inside information regarding the participants' learning and effectiveness of teaching. Furthermore, the results will be used to continue improving teaching efforts since the results have shown which topics students had difficulty learning that the speakers could focus more on in future. Overall, the knowledge after the post-course assessment has been raised from 35.2% to 72.8% (Fig. 1).

The concluding session was chaired by Director General Health, AJK. He thanked the participants and speakers for their presence and appreciated the efforts of the organizing team and ISBT in professionally conducting the workshop. He urged the participants to implement the national standards and guidelines in their blood banks to increase blood safety through improved quality-assured screening and biosafety practices. He said the active participation from all hospitals and blood bank professionals has been very encouraging. Souvenirs and certificates were distributed among the keynote speakers and participants.

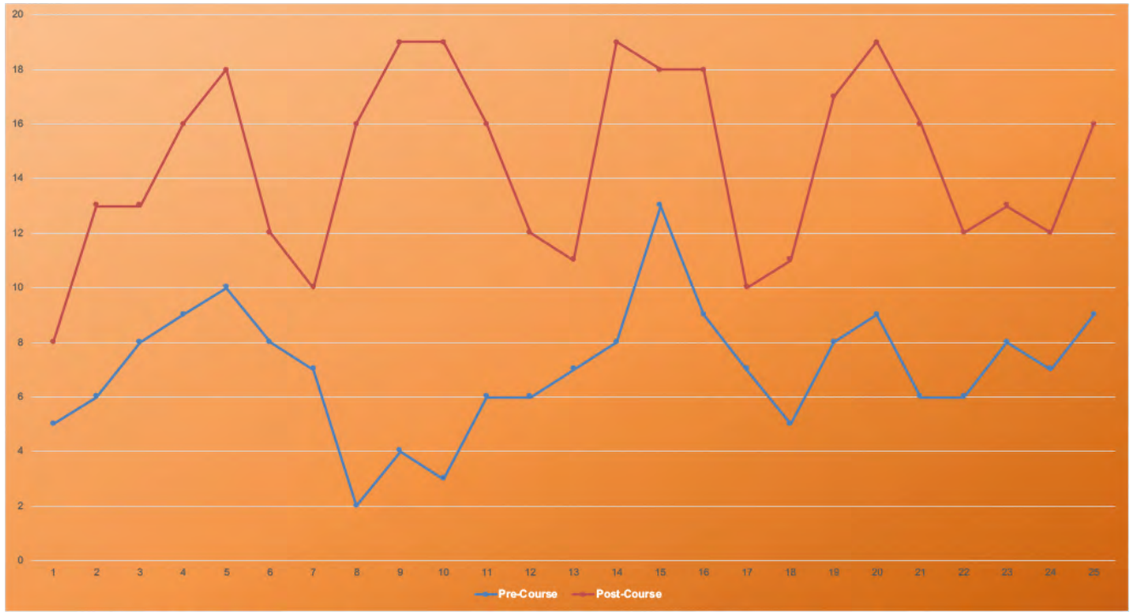


Figure 1: Pre- and Post-workshop/course assessment results

May Raouf
Dubai Blood Donation Centre
Scientific Chair, MedLab Middle East Congress
United Arab Emirates

MedLab Middle East Congress 2021

It is an important time to reunite and reconnect. Blood Transfusion Medicine Program, MedLab Middle East Congress 2021
On June 24, 2021, a 1-day blood transfusion medicine program was undertaken as part of the 21st edition of the Medlab Middle East Congress in Dubai, United Arab Emirates that took place between June 21-24 covering different specialities in Medical laboratories. The congress has been organised following Informa's AllSecure health and safety standard. Where a detailed set of enhanced measures to provide the highest levels of hygiene and safety at its events, giving everyone reassurance and confidence, we are participating in a safe and controlled environment. Giving an opportunity for participants to choose between attending on site or on line, the total number of delegates to MedLab congress was 4,028 and for Blood Transfusion Medicine program 543 participants; 199 attended live and 344 online. The congress also had 9,678 visitors to the huge exhibition area.

Blood Transfusion services has faced many challenges during COVID-19 pandemic just like other health services . Having a full day educational program to discuss COVID-19 pandemic challenges and lesson learned in addition to other important topics related to transfusion medicine is very essential to practitioners in blood transfusion field. The Scientific program has been supported by ISBT and chaired by May Raouf, head of Dubai Blood Donation centre in Dubai Health authorities. Topics were selected according to the regional demand and touching on most important updates worldwide. Speakers has supported the program by attending physically when possible while other participated remotely in discussions and answered the questions of participants at the end of each session.
The scientific program includes 4 sessions started with session about the Insights on COVID-19 implication on blood services. The Keynote address entitled "The impact of COVID-19 on transfusion medicine" given by Erica Wood, Head, Transfusion Research Unit, Monash University, Australia and President, ISBT. Followed by a talk given by Cynthia So-Osman, Consultant Haematology and Transfusion Medicine, Sanquin Blood Supply, Amsterdam, The Netherlands with a title of "Updates on COVID-19 convalescent plasma".

Session two was entitled as Blood donors infectious disease testing and a talk about "An update on emerging pathogens" was given by Hans Zaaijer, Head of Department of Blood-Borne Infections, Sanquin Research, Amsterdam, The Netherlands.

While Session three covered Donors and donations and an interesting topic about "Frozen red blood cells technology for emergency & rare blood groups" was given by Masja de Haas, Centre for Clinical Transfusion Research, Leiden University , Netherlands. In addition a local participation was given by Naima Oumeziane, Medical Director, Abu Dhabi Blood Bank, Abu Dhabi, UAE. With a title of "Causal impact of temporary deferrals on return behaviour".

The last session has covered clinical aspect of blood transfusion with a talk about "Immunological aspects of transfusion support in thalassemia" by Nay Win, Consultant Haematologist ,Transfusion Medicine, NHS, UK. Then a talk about "Clinical utility of neutrophil antigen and antibody testing " by Lin Fung, School of Health and Behavioural Sciences, University of the Sunshine Coast, Australia and local speaker from Oman talked about "Highlights on paediatric transfusion" by Shadhiya Al Khan, Department of Haematology, The Royal Hospital, Ministry of Health.

We are pleased to be back to onsite gathering in person. It was a successful meeting with an active participation from all participants with very rich and updated information from speakers from different part of the world.

Magdalena A Lyimo
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Implementation of a mixed operational approach for blood safety services in Tanzania

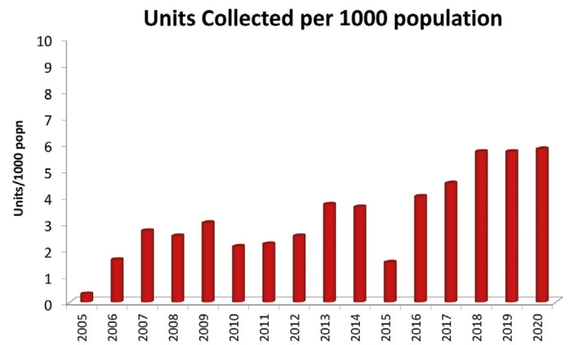
In 2005 with support from PEPFAR Tanzania established the National Blood Transfusion Service (NBTS) in keeping with WHO recommendations that blood transfusion services be coordinated at national level[1]. Tanzania which covers a surface area of 945,087km^2 and has a projected population of 57.6 million, is divided administratively into 28 Regions and 184 District Councils[2]. Health services are delivered in a tiered manner in alignment with the national administrative structure. Tertiary level facilities at national, zonal, and regional level provide specialized services while primary health care is provided from district council level and cascades down to ward and village level.

Following the transition of NBTS to the Tanzanian Ministry of Health in 2015 a mixed organizational and operational approach for blood safety services was adopted. This is based on the existing tiered health delivery structure that is in place, and ongoing decentralization by devolution in the delivery of health services[3]. National coordination is maintained through NBTS, which is responsible for development of policy and standards as well as overall oversight of quality and safety throughout the transfusion chain. There are seven NBTS zonal centers, which oversee blood safety services in 4 to 6 Regions. Zonal centers collect blood, prepare blood components, perform laboratory testing, store, and distribute safe blood to transfusing facilities. Efforts to increase blood collection and meet blood requirements, made it necessary to decentralize blood collection to blood safety teams to all regions and district councils. These teams collect, store, and distribute safe blood to transfusing facilities. Quality assured laboratory testing for transfusion transmissible infections and blood grouping serology remains centralized to zonal center laboratories, which receive blood samples from the regional and council blood collection teams[4].

This mixed approach has resulted in raised community awareness about blood donation and a significant increase in blood collection from 1.5 whole blood units per 1000 population in 2015 to 5.8 whole blood units per 1000 population in 2020 (Fig.1).

Despite the increased blood collection, Tanzania is still 40% below the minimum recommended 10 units per 1000 population. There is a marked variation in performance when regions and councils are compared, with some able to meet population requirement, while others collecting below 20% of their population requirements. Additional challenges are associated with limited capacity for sample management and transportation to the testing laboratories. Delayed sample referral results in prolonged quarantine of collected blood units and an increased likelihood of utilization of blood for which poor quality testing has been done, especially when faced with medical emergencies that requires transfusion.

Figure 1



This data demonstrates that blood collection can be increased through decentralization and adoption of a hybrid approach[5]. For efficient and effective blood collection, there is a need to build capacity of blood collection teams and ensure compliance to recommended standards. Furthermore, optimization of sample referral networks and digitalization of sample management and results feedback will allow continued centralization of quality assured testing through zonal center laboratories and enable timely access to safe blood by transfusing facilities.

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IDCBIS blood bank in Bogota

Colombia won the 2021 SETS award for the best international initiative to promote blood donation.

Last June, the Spanish Society of Blood Transfusion and Cell Therapy (SETS, acronym in Spanish) awarded the District Blood Bank of the District Institute of Science, Biotechnology and Innovation in Health -IDCBIS- the prize for the best international initiative to promote blood donation. The international award was presented during the 31st SETS Congress, that recognized the communication strategy of the IDCBIS Blood Bank for promoting blood donation and attract blood donors during the ongoing global pandemic of COVID-19.

Before the onset of the COVID-19 pandemic, the IDCBIS began to consolidate the strategy to promote blood donation through the social appropriation of knowledge and communication of science. Specifically, it began to disseminate technical and sensitive aspects of blood donation with messages aimed at attracting new communities and building the loyalty of frequent blood donors.

Due to the confinement in Bogota and the small number of social groups gathered resulting from the pandemic, the IDCBIS realized the need to create an interdisciplinary team (communications area along with the blood donation promotion experts and the technical experts of the blood bank and logistic area) to work from different perspectives to promote blood donation and recruit blood donors.
One of the first stages of the communication strategy was to identify the technical and scientific messages related to blood donation and COVID-19; this stage allowed understanding the social behavior of donors and the building of texts and images that could break down the barriers of classic forms of mass communication. This process helped to generate a bidirectional dialogue between blood bank professionals and blood donors. It is essential to highlight that the activities in social networks aimed at attracting and achieving donor loyalty led to a dialogue with the interested individuals and the understanding of popular culture.

Based on the characterization of blood donors, digital tools were designed to capture a new audience and identify the databases of frequent donors. Also, a web page was developed with technical details on blood donation and a format for registering as a potential blood donor. This format made it possible to get to know the potential donors and register their intention of donating to arrange a donation appointment. Simultaneously, strategies were designed to create digital campaigns with messages on social networks, email marketing, mass SMS, and mass and traditional media links. This strategy allowed the development and feedback of an adequate database of blood donors so that the promotion team could schedule and organize their transportation logistics from their homes to the IDCBIS and return.

The communication area created graphic messages to approach different audiences and concluded that warm colors and vectors were more appealing to young people during the pandemic. For other social groups, messages were designed to transmit confidence in the biosafety of the process, using symbolic colors of blood donation such as red and blue color that identifies the IDCBIS. This starting point led to the creation of audiovisual content using both traditional and animated graphic designs. This facilitated the dissemination of technological and scientific terms related to blood donation in an understandable language to the community at large. The messages rely on a standpoint that perceives the donor as a person rather than a medicalized object.

Thanks to this strategy, between June 2020 and March 2021, the IDCBIS admitted 54,030 donors out of a total of 63,000 potential donors who applied on the platform. The strategy managed to guarantee the availability of blood components for the entire network of public hospitals in Bogota and to initiate a loyalty campaign for all donors recruited during that period.

Nabajyoti Choudhury
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Implementation of concept of an ideal blood center in a resource restricted country

Prathama Blood Center is a state of the art standalone blood center in the city of Ahmedabad, India. Prathama is a Sanskrit word meaning "the first and the foremost". It was established in 2000 as a model not for profit blood center where there would be use of modern technology in a self-sustaining model. Unique resolution of Prathama was to collect blood from 100% voluntary non remunerated blood donors (VNRBD) and not to encourage family replacement donors. When Prathama was conceptualized, VNRBD in India was about 50% and component separation was about 35%. Blood collection in India in 2001 was about 6.5 million.

In the event of low VNRBD and low percentage of component preparation at the national level in the early years, Prathama stood high as a model for motivation and retention of VNRBD. To achieve 100% VNRBD, Prathama adopted societal marketing, arguably for the first time in the country. The concept of marketing was new in blood banking. With the help of a scientific approach in societal marketing, there was an exponential growth in blood collection. In 2000, total whole blood collection was about 19,000 units which increased to about 43,000 in 2008. The unique point of Prathama's success story was collection of 100% VNRBD when the national average was almost half.

When all collected units were separated into components by Prathama, the first challenge was to popularize components among clinicians. It was a huge challenge when 'warm fresh whole blood' was the general practice in the beginning. Though there was clinical demand for various components, there was 'component hesitancy' in hospitals and among clinicians. Therefore, Prathama started with a societal marketing team which included qualified marketing personnel. It was a pure marketing strategy to popularize new products to clinical fraternity. It included regular visits to clinicians, leaflets on components, organizing seminars etc. Societal marketing targeting to popularize component was a success. During the initial period, total component usage in Ahmedabad was about 45% which increased to about 75% in 7 years. This trend continued to increase year by year. Most of the blood centers in the city now practice component separation for the benefit of patients and rational use of blood.

Prathama is committed to transfusion safety of thalassaemia patients by developing a dedicated group of donors for thalassemia patients to reduce alloimmunization. Therefore, only few patients have developed an alloantibody and some of them are more than 30 years of age. Prathama is working towards thalassemia prevention and screening of youth regularly for the last two decades.

Prathama was the first blood centre to start post graduate DNB (equivalent to MD) degree in India. On accreditation front, it is accredited with ISO-15189 (by NABH); ISO-17025 (by NABL) and ISO 9001:2008. Prathama has also received six sigma award and Indian Society of Blood Transfusion and Immunohaematology (ISBTI) Institutional award. Prathama has also supported in setting up other modern blood centres in other Indian provinces. Sustaining successfully on 100% VNRBD and 100% componentization in a resource restricted setup and propagating safe blood transfusion shows resolve of the staff and management of Prathama.

Regional

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Revisiting transfusion medicine curricula for professionals in other medical fields

In many countries in the Eastern Mediterranean region, blood donation and blood banking is largely overseen in practical aspects by experts professionals in blood establishments. However, patient blood grouping, crossmatching and allocation (delivery) to patients in undertaken by pathologists / blood bank specialists, and clinical transfusion / hemotherapy by trained physicians assisted by specialized nurses (transfusion practitioners)[1,2]. This expertise is often concentrated in in large university hospitals, life-saving transfusion therapy is applied in many small hospitals where physicians in charge did not take specific course in transfusion medicine. Furthermore: in several developing countries, no educational course is available locally for physicians who daily transfuse patients in need. Although courses are being made available courtesy of the World Health Organization (WHO) or other institutions, some countries within the Southern and Eastern banks of the Mediterranean Sea indeed report having difficulties in enabling specific transfusion courses, though others have already successfully offered courses to graduate attendees[3]. WHO and other organizations as well as professional associations have developed several curricula for blood transfusion professionals, many of them specifically designed for physicians and nurses undertaking the immense task of providing safe transfusion treatment in unfavourable working conditions[4]; it is noteworthy that WHO and ISBT are working together to update and expand the 2002 edition of the WHO Clinical Use of Blood Handbook and on tools to assist blood services in resource limited countries with establishing and developing haemovigilance schemes.

A group of professionals in Transfusion Medicine, with no other tie than long-time experience and friendship, sought to exchange views to promote paths of help for better handling blood components and transfusion all along the chain. The rationale for that was the opinion that educational materials made available so far target blood bank specialists, rather than prescribers in the hospital ward, especially in non-university environments. This group—self called EMITm, standing
for the "European and Mediterranean Initiative in Transfusion medicine"[5]—has identified so far two gaps, among (possibly) others:

1) education in transfusion medicine for medical students and other undergraduates in medical schools,
2) education in hemovigilance for clinical staff administering and monitoring transfusion therapy and hemovigilance officers.

This group engaged reflections based upon member's experience and surveys carried out in the Maghreb and the Machrek regions. It has contributed already two recommendations addressed at medical school attendees and undergraduates[6,7] while the reflection on wider hemovigilance education for healthcare professionals is still underway. In the initial article, this group advocated for the coverage of the essential physiology and pathophysiology of blood as applied to blood transfusion as well as the medical and societal aspects of issues related to blood donation. It proposed incremental levels of training in Transfusion Medicine, referred to as 'A', 'B', 'C' etc. curricula, in ascending order of complexity; for example, 'A' and 'B' levels would involve medical, midwifery and nursing students, covering a broad base of topics. It was intended that these courses include aspects of donor care, patient care and the appropriate use, safety and effectiveness of blood components. Next, it is advocated that those curricula are addressed not only to high-income countries but to make sure that they can be delivered also—if not foremost—to middle- and low-income countries[6]. More specifically, this group aimed to propose a revision of the way education in transfusion medicine is delivered in this era of the 'global competency approach'.

It advocates in favour of a "Know How" on 5 key issues:
Diagnosing the patient condition in line with the Patient Blood Management principles;
Facing acute blood loss;
Addressing compatibility and avoiding immunization;
Seeking for maximized benefits and dampening complications;
and Inlaying competence within global health care issues, also comprising of economy.

The methods used would be those developed for medical education at large, such as assessment tools. The overall objective is to deliver the necessary competence to manage patients by an intern/resident. At the end of the curriculum, students should be able to self-evaluate the following items:

1) Do I know why my patient is anaemic, thrombocytopenic, bleeding...?
2) Do I know the best approach to treat anaemia, thrombocytopenia, bleeding (including the "no treatment" option)?
3) Do I know whether a transfusion approach is appropriate for my patients?
4) Do I know how to evaluate and anticipate benefits from blood transfusion and to avoid side-effects in the patient?
5) Do I know how to avoid unnecessary use of the blood components?[7]

As mentioned, EMITm is now approaching how to address wider education in hemovigilance; it appears indeed from experience that in non-university hospitals, physicians in charge of hemovigilance did not take specific course on blood transfusion; this situation is not uncommon also in countries where hemovigilance is only in progress.

This policy is inlaid in the fact that the EMITm group has a strong commitment towards developing countries and also towards ethical concerns relative to blood and blood transfusion, beyond the education problems[8,9].

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1. Mean bacterial contamination rates differs by production method: buffy coat=1/893; apheresis=1/4.348; platelet rich plasma= 1/2.632. (SK White et al; Transfusion 2020;60;986–996)
2. 25-43 % of bacterial contaminated platelet concentrates will cause a septic transfusion reaction in the patient. (HX Hong et al; Blood 2016;127, 380-381 | MR Jacobs et al; Clin Infect Dis. 2008;15;46(8):1214-20)
3. 13-23 % of those confirmed septic transfusion reactions will be fatal for the patient. (AF Eder et al; Transfusion 2007 Jul;47(7):1134-42 | PEI Hemovigilance Report 1997-2008 | SHOT-report 2007; cumulative data 1996-2007)
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