

Transfusion Today

ISBT2020
Congress report

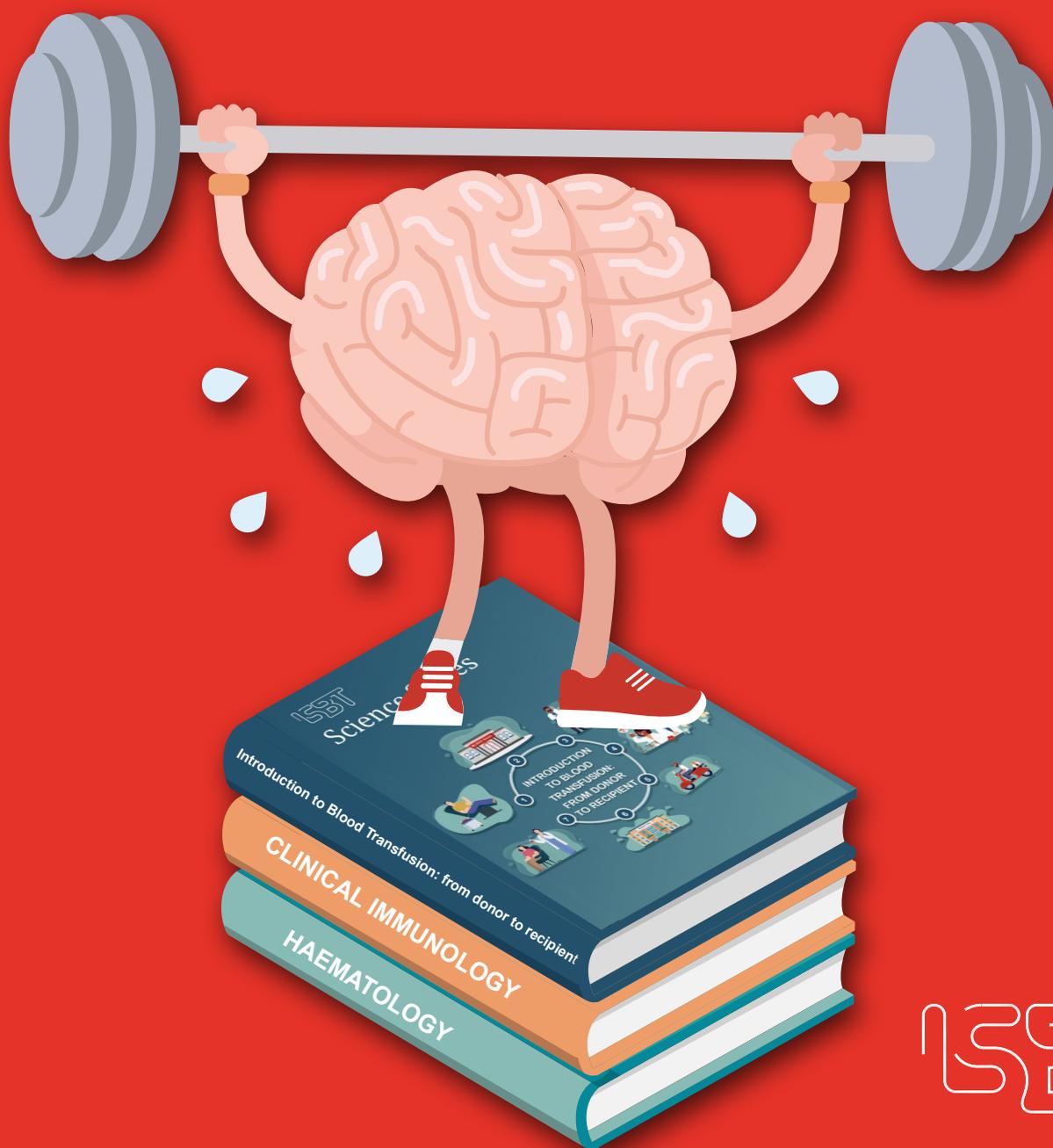
The hidden cases of
SARS-CoV-2

Donor recruiter
education

ISBT Book
Launch

In Focus

TRANSFUSION EDUCATION





We all know that education and training play a vital part in ensuring safe practice in every aspect of transfusion medicine, and this is also a high priority for ISBT. A great diversity of education and training takes place all around the world for many different staff groups involved in the transfusion chain, and just a few examples are highlighted in this issue's in-focus section. These include some of the formal courses which have been endorsed by ISBT Academy, other great examples regional initiatives supported by the ISBT Academy and from ISBT working parties.

During the pandemic we have all had to adapt our practice to the limitations caused by the pandemic, with education being no exception! However, it has allowed us to be more creative in some ways, and in December last year ISBT held a successful virtual congress "ISBT2020" that was accessible to all and captured many of the aspects of a face to face event. The articles in this issue give some of the highlights of ISBT2020 experience and a flavour of the scientific extensive programme, which is still available for registered delegates to watch on demand until the end of March 2021. If you missed it, then it's still just possible to register and binge watch the lectures! ISBT2020 also saw the launch of an update to the perennially popular 2008 book "Introduction to Blood Transfusion Technology". This issue of Transfusion Today also features a fascinating insights on how it all began, the original book and the project to update it for 2020 to ensure that it remains as useful and relevant as ever today. I'm sure we all wish that we could still meet in Milan this year as planned and, whilst this was sadly not to be, we do hope to return to Italy for an ISBT meeting in the future. However, in June this year, building on the success of ISBT2020 we are looking forward to more innovation with the "ISBT in Focus" virtual meeting. This will be in an exciting new format of "themed" days to include the latest scientific updates and opportunities to interact and learn with the invaluable help of the ISBT working parties. Abstract submission is open now, registration starts in early April and we hope to see you there!

Jenny White
Executive Director, ISBT

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Educational courses endorsed by ISBT Academy

In 2017 ISBT launched a new form of ISBT Academy support, the endorsement of formal educational courses aimed at developing knowledge in transfusion medicine. The applications undergo a structured review by the Standing Committee of the ISBT Academy, and the endorsed courses are listed on the ISBT webpage <http://www.isbtweb.org/isbt-academy/endorsed-courses>.

These endorsed courses and other educational activities, including some of those provided by ISBT working parties, are featured the In Focus section of this current issue of Transfusion Today. If you are an organiser of a formal educational course in the field of transfusion medicine and would like to apply for ISBT endorsement, please visit <http://www.isbtweb.org/5> for details of the process and requirements.

There are currently five courses endorsed by ISBT:

- **Management of Transfusion Medicine programme** (MTMM) of the University of Groningen and Sanquin
- **Online education and training resources** by BloodSafe eLearning Australia
- **Specialist Certificate in Transfusion Science Practice** by British Blood Transfusion Society (BBTS)
- **Blood Donor Recruiter Education and Certification Program** of the Global Blood Fund (GBF)





Martin Smid
Chair ISBT WP Global Blood Safety
Sanquin
The Netherlands

The Management of Transfusion Medicine Programme

The Management of Transfusion Medicine (MTM) Programme is a unique programme developed for capacity building of leadership for centrally coordinated blood supply organizations. It is aiming to educate professionals in management, education in medicine or biomedicine with management responsibilities in the blood transfusion chain.

The MTM programme that was renewed in 2016 is based on WHO guidelines. In order to provide universal health care for all, centrally coordinated health care structures are essential and the blood supply is part of that. To build these structures resources are needed and leadership capacity is an essential prerequisite.

The University of Groningen, University Medical Centre (UMCG) and Faculty of Business, and Sanquin collaborate in the Academic Institute for International Development of Transfusion Medicine. They took the initiative for the MTM programme that is offered by the Graduate School of Medical Sciences of the UMCG. The faculty consists of University teachers and Sanquin experts. ISBT awarded the programme as an "Endorsed Course" in July 2017 and sponsors contributed for scholarships.

The MTM programme is a two year part time programme. During the first year the student will follow 8 distance e-learning courses and starts in parallel with a research project that continues during the whole programme and results in a thesis. The courses are a combination of transfusion related and management subjects. The research subject is about a challenge the student experiences in his own daily practice. Through monthly progress meetings the student has regular contact with the programme and can discuss the research in detail. During the second year students visit the Netherlands for two internships of two months. Students are offered a combination of a practical traineeship at Sanquin, where they learn how a centralized blood supply organization is managed, and four tutorial courses. Between the two internships they return to their home country during which they can work on the assignments and perform the data collection for their problem solving research. The research project builds up from the first year and is completed with the writing of the thesis during the second internship.

Until today 13 students have been admitted and are active in the renewed programme since it was implemented in 2017. Two students have completed the first internship and four more completed their e-learning courses. Considering the majority of students come from LM-HDI countries with a variety of challenges, progress is considered indeed more than satisfactory. Unfortunately, due to COVID-19 pandemic, travel to the Netherlands had to be delayed for these students. For 2021 we are preparing for alternatives should the extraordinary situation continue.

	Management of Transfusion Medicine programme
Year 1	
Distant e-learning	
Course 1	General introduction and basic methodology
Course 2	Organization and structure
Course 3	Legislative and Regulatory Aspects and Policy making
Course 4	Human Resources Management
Course 5	Health and Economy
Course 6	Blood Donor Management
Course 7	Blood Donor Management
Course 8	Process and Quality Management
Thesis part I	Problem statement, research questions, literature search
Year 2	
Course 9	Information Management
Course 10	Operations Management
Course 11	Modernization in the Blood Transfusion Service
Course 12	Innovation Management
Practical	Traineeship at Sanquin Blood Supply
Thesis part II	Writing research proposal.
Thesis part III	Data collection, analyzing, completion of writing.



Pei Huey Shu from Singapore and Masiku Phiri from Zambia during their first Internship at the UMC Groningen.



Gavin Evans
Global Blood Fund
UK

Donor Recruiter Education and Certification Program launches

The charity Global Blood Fund (GBF) in collaboration with AfsBT has developed a Donor Recruiter Education and Certification Program specifically for professionals in Africa.

This is a response to a shortage of training materials for those charged with recruiting, retaining and managing blood donors effectively. GBF's Executive Director, Gavin Evans, observes: "There is a wealth of materials for scientists and clinicians, but little out there for those who secure the raw material everyone else depends on. In many organizations, donor recruiters are left to develop their own approaches with limited access to best practise in other countries or even other regions. Our new program aims to address this shortcoming by making relevant, high-quality materials freely available to anyone with an internet connection."

Consisting of 12 half-hour narrated videos, each module covers a separate topic, building into a comprehensive overview of the discipline, relevant to both seasoned practitioners and those new to recruitment. It should also appeal to blood bankers working in other fields but keen to understand more about donors and how to engage the public in donation.

AfsBT Managing Director Mohammed Farouk comments: "We wanted content to be as relevant as possible to the African setting. So rather than repurpose existing materials from the US and Europe, all modules have been written by expert practitioners from across Africa.

This ensures that subjects such as youth donor retention and the conversion of family replacement donors to VNRBD – topics not as relevant in western blood banking – are adequately covered." Two learning options are available. Registering for the education pathway gives access to all videos with freedom to watch as few or as many as desired. The alternative certification pathway couples an exam component with each module. A pass mark of 100% across all 12 modules is required, but videos can be watched multiple times until this is achieved. Successful completion of the course leads to the award of a downloadable, personalized certificate. Evans comments: "We hope leaders in blood establishments large and small will make the program a routine part of their induction and staff development approaches and use the certificate as evidence of understanding and achievement."

Better knowledge and skills will lead to improved donor recruitment and management practise and will go a long way towards meeting hospital demand, especially critical in those countries with a current shortfall."

This programme has recently been endorsed by the ISBT Academy. The program can be accessed without charge via a link on the ISBT and AfsBT websites, through the Global Blood Fund website (www.globalbloodfund.org) or directly at www.certifiedrecruiter.org.





Michaela Cheetham
British Blood Transfusion Society
UK

BBTS Specialist Certificate in Transfusion Science Practice

Background

The Specialist Certificate in Transfusion Science Practice (TSP) offered by BBTS is a popular and highly sought after qualification designed for registered biomedical scientists (BMSs) working in transfusion science. It is accredited by The University of Manchester for 45 level 7 credits, which can be put towards a Master's degree (dependent on individual university acceptance criteria).

For UK/Republic of Ireland BMSs, the qualification provides further specialist education in transfusion science following HCPC /ACSLM registration to enable demonstration of specialist and independent practice capability. It is recognised by NHS Trust Hospitals and the UK Blood Services as supporting evidence of fitness to practice at 'specialist' level.

With a consistent average success rate of ~84%, the Specialist Certificate in TSP is endorsed by ISBT and more recently gained listing as an equivalent qualification required to apply for the Higher Specialist Scientist Training (HSST) programme via the National School for Healthcare Science.

BBTS also welcomes overseas applicants for the programme (subject to eligibility/English language proficiency criteria being met) to encourage diverse and lively discussion of international practices. Although it is important to note that this qualification is based on UK practices, it's always interesting to learn of differing approaches.

The programme

Running May to May, the programme is delivered via a 12 month structured online curriculum of distance learning through the BBTS website. The course text book, 'Introduction to Transfusion Science Practice' is the platform for the teaching and learning on this programme and is included in the fees.

From induction to exam, students are supported and provided with many opportunities for interactive learning/self-assessment and the chance to discuss different practices and gained knowledge with fellow students in the student forum.

Included resources:

- A set study textbook
- Monthly online presentations (with audio)
- Guided learning schedule
- Student forum (for discussion activities)
- Interactive quizzes
- Directed and recommended reading

The final examination marks the end of the programme.



**British Blood
Transfusion Society**

Student Voice

Student voice and feedback is extremely important to us so that we can ensure the Specialist Certificate programme is kept up-to-date and consistently meets the needs of those working within the demanding worlds of transfusion laboratories and blood establishments. Each cohort is asked to nominate a student representative to feedback ideas and suggestions throughout the 12 month programme; and who is also invited to attend Programme Committee meetings twice a year. All students are asked to complete short, anonymous post-induction, mid-term and post-exam surveys.

BBTS is committed to play a leading role in safe and effective transfusion practice by delivering high quality education and training, setting standards and promoting research and development and innovation. As such, adaptations were made in 2020 with the examinations being converted and moved online. Even in the face of extreme challenges (COVID-19), BBTS has been able to continue to deliver on its commitment to education within transfusion.

Application and enrolment takes place from October 1 – November 12 each year and the programme starts the following May. Full details can be found at: www.bbts.org.uk/education



The University of Manchester



Thierry Peyrard
CNRGS
France



Sandra Nance
American Red Cross
US

ISBT Working Party on Immunoematology Education by Case Studies

The ISBT Working Party (WP) on Immunoematology is the most recent addition to the ISBT Working Parties. One of the goals of the WP is to enhance the education of ISBT membership. In addition to other activities the WP has a focus on publishing Case Studies on Immunoematology cases on the ISBT Webpage. With few exceptions, all Working Party members have contributed Case Studies with some contributing 3 or more to the ISBT Webpage. While most case studies have been prepared by the WP members, guests to the Working Party meetings have also contributed to the effort.

Starting in 2016, the Case Studies have covered some of the most common, the most intriguing, the most complex and the most current topics using state-of-the-art tools. The Case Studies are presenting using an ISBT approved template with a standard presentation of the Case. The Case Studies include the latest ISBT Terminology, pertinent references and lessons learnt so that the members accessing the case can continue to learn more details about the topic or the blood group antigen or system.

What is most intriguing about the Case Studies is that the progression of testing is presented. This step-by-step logical approach is certainly the most difficult process to teach new staff in the immunoematology reference laboratory. This "thinking" process is important. These cases are so helpful in experiential learning by being exposed to similar cases that might be seen once in a lifetime. Other cases are some of the most commonly encountered in patients presenting with positive antibody screens.

The Case Studies include antibodies to high prevalence antigens, antibodies to low prevalence antigens, unusual serologic reactivity, reagent specific reactivity, autoantibodies with underlying antibodies to common antigens and characterization of new red cell antigens. Some of the cases include a detailed presentation of published articles, which is so helpful to show in detail the progression of testing which could not possibly be presented in full in a manuscript.

The initial version of the Case Studies are submitted to the Past Chair of the Working Party for a first review; the Working Party Chair and Vice Chair further perform a second and third review respectively. This "three reviews" process helps to ensure the global Case presentation and testing protocols are sound, the terminology and references are current, and that the submitter agrees with any suggested enhancements.

We warmly thank all the past and future contributors of Case studies for our WP. It is hoped that this endeavor, learning by case studies, can be embraced by other Working Parties and that the e-learning activity of the ISBT is enhanced by these international contributions.





David Peterson
BloodSafe eLearning Australia
Australia

BloodSafe eLearning Australia

BloodSafe eLearning Australia is an award-winning, online education program. It supports health care professionals by providing on-line education and training resources on clinical transfusion practice and patient blood management.

Learners can currently access 40 courses that aim to provide knowledge of clinical transfusion practice and patient blood management to enhance patient care. All courses are based on published guidelines, evidence-based practice and expert opinion, and are used by doctors, nurses, midwives and other health professionals involved in transfusion practice. A list of all courses and resources is provided in Table 1.

At the end of December 2020, there were 626,064 learners registered with the program who had completed more than 1.45 million courses. On average one course is completed every three minutes. More than 1,500 Australian healthcare organisations, such as hospitals, universities, and pathology laboratories, use the program to educate staff, assist with accreditation, and for CPD/CME requirements.

All courses are available free to the learner, their health facility and/or organisation.

Evaluation

Quantitative and qualitative evaluation demonstrates that the BloodSafe eLearning program:

- Provides credible, consistent education across Australia
- Is cost effective and reduces duplication
- Is readily accessible, best-practice elearning
- Allows institutions to focus on the practical aspects of transfusion education and training
- Results in change to clinical practice, and
- Supports the broader implementation of a blood management strategy in Australia.

Analysis of end-of-course completion surveys (n=3,855) submitted by learners shows that BloodSafe eLearning courses provide users with a consistent and reliable knowledge base (89.3%) that they can use to change practice (87.6%) and that these may improve patient outcomes.

Actions and changes identified by learners that they can make include:

- Reviewing local transfusion policies and procedures to ensure alignment with current guidelines
- Improving the identification of near misses and adverse events
- Reviewing blood ordering practices for stable, non-bleeding patients
- Assessing and treating anaemia prior to elective surgery
- Developing massive transfusion protocols for critically bleeding patients
- Improving the assessment and management of postpartum haemorrhage, and
- Implementing professional development and mentoring programs in transfusion practice.

Feedback on the education strategy and design indicates that learners find the case-based approach, peer and expert videos and interactive elements of the courses engaging and interesting.

Endorsements and funding

BloodSafe eLearning Australia receives joint national funding provided by the National Blood Authority (Australia), on behalf of all Australian Governments, to enable free access by all users.

BloodSafe eLearning Australia is supported by the Australian and New Zealand Society of Blood Transfusion and Australian Red Cross Lifeblood, and courses are endorsed for CPD/CME by medical, nursing, midwifery and scientific specialty colleges. The program and courses are also endorsed by the International Society of Blood Transfusion.

Free access to courses and resources:

www.bloodsafelearning.org.au

Contact us: support@bloodsafelearning.org.au

Table 1: Courses and resources

Transfusion Practice	<ul style="list-style-type: none"> • Clinical Transfusion Practice (CTP) • CTP Refresher 1 and 2 (EMR) • Transporting Blood • Collecting Blood Specimens
Iron Deficiency Anaemia (IDA)	<ul style="list-style-type: none"> • IDA Essentials • Preoperative • Heavy Menstrual Bleeding • Paediatrics • Maternity • Chronic and Complex
PBM: General	<ul style="list-style-type: none"> • PBM Essentials
PBM: Medical	<ul style="list-style-type: none"> • Introduction • Gastrointestinal • Cancer • Cardiac • Chronic Kidney Disease • Chronic Transfusion
PBM: Acute Care and Surgical	<ul style="list-style-type: none"> • Critical Bleeding • Critical Care • Perioperative • Intraoperative Cell Salvage • Viscoelastic Haemostatic Testing
PBM: Obstetrics	<ul style="list-style-type: none"> • Obstetric Haematology • Obstetric Blood Management • Postpartum Haemorrhage
PBM: Neonates and Paediatrics	<ul style="list-style-type: none"> • PBM For Neonates and Paediatrics • Neonatal: Preterm • Neonatal: FNAIT • Neonatal: Major Haemorrhage • Paediatric: Haematology Oncology • Paediatric: Surgical • Paediatric: Major Haemorrhage • Paediatric: IDA
Immunoglobulin	<ul style="list-style-type: none"> • Essentials • Governance and Access • Prescribing • Administration • Adverse Events
Videos and podcasts	<ul style="list-style-type: none"> • Transfusion Consent: Neonates, Paediatrics, Adults, and When Consent is not an Option • Acute Care and Surgical • Massive Transfusion Protocol • IDA Diagnosis and Management • IV Iron Administration in Primary Care • Patient Blood Management Overview • Clinical Transfusion Practice • Tranexamic Acid Podcast
Other resources	<ul style="list-style-type: none"> • IDA Mobile App (IOS, Android) • IV Iron Tools • Promotional Tools



Peter van den Burg
Sanquin
The Netherlands



Cynthia So-Osman
Sanquin
The Netherlands



Arwa Al Riyami
Sultan Qaboos University
Hospital
Oman

Launch of the ISBT E-learning Module “Transfusion Reactions E-learning Module”

There is a global recognition of a need to improve transfusion education to further improve the safety of transfusion practice. However, knowledge on transfusion-related adverse events were placed under the least known among non-transfusion medicine physicians (1).

Members of the Clinical Transfusion Working Party of the ISBT and the European Blood Alliance (EBA) recognized the knowledge gap in the basic medical training of Junior physicians, who may be confronted with transfusion-related problems without adequate knowledge. The idea was born to develop an e-learning module that is focused on the acute adverse events after blood transfusion. The project is funded by both ISBT and EBA.

This interactive e-learning module is case-based and intended for early career physicians, who might be challenged with acute transfusion-related reactions.

The training is designed for international use on a global level. 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, dyspnoea 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

Feedback on every given answer will be provided to stimulate the learning process. Completion of all components of the module is required to obtain a certificate, which is accredited by European Board for Accreditation in Hematology (EBAH).

The tutorials will be launched in March 2021 and will be accessible on the society's e-learning platform ISBT Education.

Because of the urgent need and importance of such trainings, the module will be freely available to all ISBT and non-ISBT members all around the globe.

We thank 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.



References:
1. Lin, Y., and R. L. Haspel. "Transfusion medicine education for non-transfusion medicine physicians: a structured review." Vox sanguinis 112.2 (2017): 97-104.

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Thank you for your support throughout 2020

From the President



Happy New Year to all, and welcome to this edition of Transfusion Today, focussed on education.

Blood transfusion is one of the most common medical procedures. It must be performed safely and only when clinically necessary, and in a context of respect for blood donor health and well-being and in recognition of their gifts to the community. Therefore, everyone engaged in blood donation, collection, testing, preparation and transfusion of blood products, along with donors and patients, should be properly educated about what is involved. Government policymakers, industry and the broader community also need to be educated about blood, so that they can make good decisions, including support for blood systems and transfusion-related research. But what does that education (and training) actually entail?

This issue of Transfusion Today highlights some current activities and future educational opportunities across the transfusion spectrum. This includes a very broad group of medical, nursing and midwifery professionals. Most clinicians prescribing and transfusing blood are not focussed primarily on this in their daily practice – so getting their attention and making transfusion education important is a challenge among many competing priorities! Other groups needing education are patients, blood donors, blood centre staff, laboratory scientists and technicians – and all have different needs. For example, patients need to be educated about why a transfusion might be recommended, available alternatives, potential hazards, what to look out for during and after transfusion, and how to get help if they become unwell. Blood centre staff need to understand good manufacturing practice and regulatory compliance, managing confidential and sensitive information, performing assessments for safe donation and how to prepare safe products, among many other matters. Staff, patients and donors have different levels of general education, professional experience, language skills and technological access and proficiency, and these factors should be considered when designing and delivering education. We also need to do more to evaluate the quality of our education and training. Medical education has evolved greatly since I was a medical student, when I don't recall receiving much transfusion education at all! Most of that came only during specialty training. At the time, resources available included books, hard copy journals, face-to-face classroom sessions and apprenticeship-style ward or lab-based teaching. Now almost everything is electronic and most of it is available on demand – very convenient for learners, educators and contributors, as content can be modified and updated much more readily and reach a wider audience, while minimising costs and delays for printing and shipping. ISBT's mission is to be "a global community of professionals sharing

knowledge to enhance transfusion practice", and one of the ways we do this is "by providing opportunities for advancing knowledge and education". These opportunities include high-quality scientific and education programs at ISBT and partner organisation congresses; by developing educational material and delivering practical training programs in collaboration with organisations around the world including the World Health Organization; by hosting educational resources on our website, such as the recently launched "Introduction to Blood Transfusion: from donor to recipient"; through our publications and the Wikipedia transfusion updates project, and by supporting research, to name only a few activities. The ISBT Academy coordinates these efforts, including through co-badging and financial support for partner organisations. If you are planning an educational activity, check out the Academy page on the ISBT website for more information.

We still have lots more to do as part of our strategic plan (summarised on the ISBT website). We are committed to making more digital resources available, and having these in a wider range of languages would be very useful. ISBT has members from all around the world and many language groups, so there are many opportunities for translation of existing resources and development of new ones. Please take a look at the ISBT Education webpage and consider what educational resources you would like from ISBT and how you can get involved.

I thank the Transfusion Today editors and contributors, and encourage you to read the articles and share them with your colleagues and students. We greatly value your feedback, so please do get in touch to let us know what you think.

Photo:

Erica participates in an educational video for clinical staff, part of the BloodSafe eLearning materials (available via: bloodsafelearning.org.au). Image courtesy of BloodSafe eLearning Australia.



Welcome to our new members

December 2020 - March 2021

Africa

Algeria: Lynda Antri-Bouzar

Americas

Argentinian: Carlos Cotorruelo

Brazil: Flavia L S Santos, Aldair Paiva

Canada: Gabriel Andre Leiva, Marie-Claire Chevrier, Jason Acker

Mexico: Sandra Guadalupe Robles Hernandez

USA: Cindy Marshall, James Macpherson, Karen Moniz

Eastern Mediterranean

UAE: Rene Antonio Rivero-Jimenez, Antonio Bencomo

Europe

Austria: Corina Schmiedt

Belgium: Dorien Van den Bossche, Stijn Van Landeghem

Czech Republic: Dana Galuszkova

Finland: Suvi Toivonen

France: Pascale Richard, Andrea Adlogo

Germany: Nico Greger, Max Esefeld, Stephan Kramer

Italy: Gianna Melucci

Malta: Charmain Vella

Poland: Michal Janiszewski

Slovenia: Tadeja Dovc Drnovsek

Sweden: Mirja Auvines

Switzerland: Sophie Waldvogel Abramowski

Ukraine: Mariia Babaskina

South East Asia

India: Prathibha Bharathan, Jeny George, Lavanya Ranganathan Sundaramurthy, Vilas Veerupakshappa Hiremath, Pankaj Kumar Das

Western Pacific

Australia: Kelly Winter

Japan: Noriko Namba, Hiroshi Kosugi

Philippines: Iza Mae Chamen, Maria Carla Espadero, Kresselyn Esther Avila, Diana Rose Ty, Russel James Luceno, Emly Valerie Zerna, Raymond Lutero, JC Belle Saladar, Hanna Monette Soriano, Ivy Kaila Tambalong, Catherine Masangkay, Cheska Mae Labay

South Korea: SuA Ahn





Erica Wood
ISBT President
Australia

ISBT2020 congress report

It was a great pleasure to welcome participants to the ISBT 2020 congress, held entirely online for the first time ever due to the SARS-CoV-2 pandemic. In 2020, we had to learn to do many things differently – and that included congresses! Our plans for a meeting in Barcelona, and the hard work of the Spanish National Transfusion Society (SETS) and the local organising committee under the leadership of Dr Cardenas and Dr Muniz Diaz, were up-ended by the pandemic, but we thank them for their enormous efforts in supporting ISBT and we hope to return to Barcelona in the future.

We opened the online congress with a ceremony that included presentation of the **ISBT Awards to Dr Dana Devine, Dr Susan Stramer and Ms Judith Chapman**, for their significant contributions to transfusion medicine and science and to ISBT over many years. The **Vox Sanguinis Best Paper Prize was presented to Dr Carl McDonald** on behalf of his team of co-authors. The **ISBT Award for Developing Countries was accepted by Dr Sanjiv Nandani on behalf of his team at the Life Blood Centre, Gujarat, India**. Congratulations to all of them!

The educational and scientific programs were both excellent: **1800 registrants from 97 countries enjoyed 60 high-quality scientific sessions followed by live Q&A and discussion, 600 posters and 60 sessions with content sponsored by some of our 31 exhibitors.**

Two highlights were the **ISBT Presidential Award lecture by Dr Anneke Brand, and the Jean Julliard Prize lecture by Dr Angelo D'Alessandro**. I thank all the invited speakers and abstract presenters for their outstanding work, and the session moderators for keeping everyone on track and engaged in the new online environment.

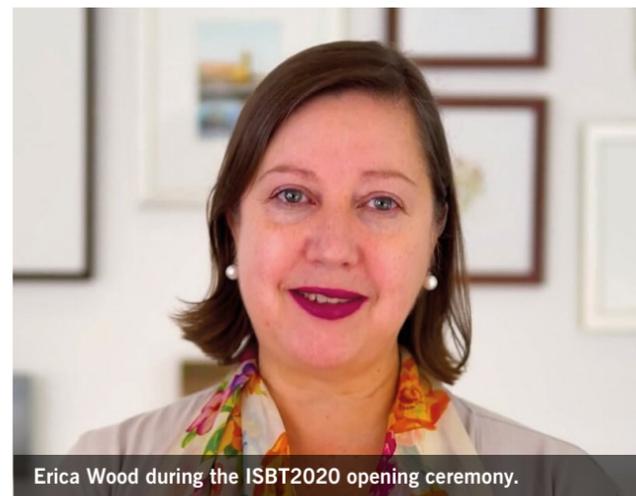
Other sessions included an **online networking session for our young professionals**. This lively event provided opportunities for a number of people attending their first ISBT congress to meet up and feel welcome. We also welcomed this year's **Harold Gunson Fellows** – doctors and scientists under the age of 40 with an abstract accepted for the scientific program. Congratulations to you all! The congress finished with a fun **online party** in the ISBT Topia World, which was a new experience for many.

There are so many people to thank, without whom this meeting would not have happened:

- Our Scientific Secretary, Dr John Semple, delivered an excellent scientific program, and our two Vice-Presidents, Dr Masja de Haas and Dr Lin Fung led the first-class ISBT Academy program.
- Ms Jenny White, our Executive Director, and the ISBT Central Office Team worked so hard for months behind the scenes, and during the congress, including welcoming visitors to the ISBT virtual booth.
- Mr Naud Becker, Ms Diane Zaleski, Ms Iris Dikkers and their whole team at MCI, our congress partners, did a wonderful job as we planned and delivered this marvellous event.
- We appreciate the great support and contributions of our 31 exhibitors, and their teams from around the world.

In closing, I want to acknowledge the many friends and colleagues who have been affected by the pandemic, and to think of all those who are suffering at this time. I hope better days are ahead. I look forward to seeing you online – or in person somewhere in the world – during 2021. In the meantime, **you can catch up on any sessions you missed, as all session are available on demand** for congress registrants.

Erica Wood
ISBT President



Erica Wood during the ISBT2020 opening ceremony.



John Semple
Lund University
Sweden



Masja de Haas
Sanquin
The Netherlands

ISBT2020 – Scientific and Academy program report

The virtual ISBT2020 Congress held between December 12-16 turned out to be a great success. Whilst being able to meet in person in Barcelona would have been perfect, COVID-19 forced us to do the next best thing, and it worked!

The virtual meeting had more than 1800 attendees and there was a great academy and scientific program with presentations in over 60 live or on-demand sessions and almost 600 e-posters. We were very pleased with the thorough preparation of all who presented particularly since it is so different to lecture behind your laptop and missing the live connection with your audience. Nonetheless, all the presentations were simply excellent and the scientific committee truly thanks all the presenters. Also a big “thank you” to all the moderators, who introduced the speakers and connected the audience with the speakers by answering the questions and also took the opportunity to make all speakers reflect on the content of their sessions. It was impressive to get an insight into the work that many are doing in all the relevant field of blood transfusion.

The Academy program had a wide variety of very good educational sessions. It was great for the starters in the field to be provided with an overview on the different types of gene therapy in sickle cell disease for example. And to get an update on the state of the art of several laboratory techniques or on new blood products. We do hope that the sessions on conducting pitfalls in clinical design of clinical studies and how to set-up, use or translate guide lines were helpful for our young professionals. We certainly will make many of these lectures part of our continuous educational program. Highlights of the Academy program certainly were the session around the work of the World Health Organization with their frame work and road map to achieve global availability of safe blood. Another inspiring session was the session moderated by Steven Spitalnik and Ellen van der Schoot on the WiRhe (Worldwide Initiative for Rh disease Eradication) showing how to start local initiatives to increase the availability of Rhlg in low resource countries.

Highlights of the scientific program included 3 excellent plenary sessions related to the gut microbiome, post-partum hemorrhage and arthropod transmitted infections. All were interesting and hit on novel and topical aspects of transfusion. In addition, the Presidential Award given to Professor Anneke Brand for her pioneering work on platelet alloimmunization and The Jean Julliard Prize presented to Dr. Angelo D'Alessandro for his seminal work on high-throughput metabolomics were both clear winners in the overall program.

All of the scientific sessions were filled with superb speakers and dealt with a wide range of interesting and relevant topics that spanned all seven themes of the ISBT including Blood Products, Blood Safety, Donors and Donations, Clinical, Cellular Therapies, Management and Immunology. There was literally something for everyone including diverse subjects ranging from new blood group antigens and genetics, emerging pathogens, climate change and infections, IVIg, sickle cell disease and extracellular microvesicles to name a few. All were well presented and laid out in a very digestible manner. The ISBT/AABB joint session was also very interesting; this year relating to pediatric clinical transfusions. Last but not least, the oral and poster sessions were simply excellent particularly the two individual sessions on COVID-19 related to virus biology, antibody testing and whether blood groups play a role in COVID-19 disease. All in all, both the scientific and educational program were a great success and really could not have been without all the great speakers and attendees. We also see that after the meeting several sessions have been visited!

Looking back, we really enjoyed this version of ISBT2020! Of course face-to-face meetings provide so much more opportunities to have discussions and meetings with colleagues all over the world and to build your network, so we do hope to have that opportunity soon again. We are now planning for two new ISBT experiences this year, and we hope to offer you all a completely different virtual format where you can participate in themed days to match your interests and keep in focus with transfusion medicine!

ISBT
2020

NOW AVAILABLE ON-DEMAND!

Stream sessions that you missed from the virtual congress!

www.isbtweb.org/isbt2020



Beryl Armstrong
South-Africa

Introduction to blood transfusion: from donor to recipient

Motivation and aim in writing this book

In 1989, I wrote a forerunner to *Introduction to Blood Transfusion Technology*. The aim was to provide information to students struggling to understand blood transfusion concepts without the benefit of formal training. Providing information that was easy to follow, in simple English, understandable even to those whose first language was not English, gave students the wherewithal to educate themselves. This manual proved invaluable over the years, but due to time constraints it was not updated.

In April 2007 I told Dr Paul Strengers (who was then the Secretary-General of ISBT) this story, and how I wished I could update the book and make it freely accessible, globally. Without hesitation, ISBT gave me the fabulous opportunity to write a professional publication based on *Introduction to Blood Transfusion Technology*. This was the start of a particularly challenging and time-consuming project, which would not have seen the light of day without the dedication of the small and select group of South Africans, specialised in blood transfusion technology, who were recruited to assist with the project.

I took on the role of Editor/Senior author/Project co-ordinator and my background is in training and development, from vein of donor to vein of recipient, plus computer skills training and the practical aspects of management skills.

Rob Wilkinson is an expert in quality, particularly within the management of a blood service, and contributed several sections, including "Quality", also providing critical comment on all chapters. **Elizabeth Smart**, an experienced immunohaematologist with international recognition, co-authored many sections; her major input being the 'Blood group systems'. **Jonathan Hardwick**, an expert in cold chain management and the preparation of blood components, contributed the sections on 'Blood processing' and 'Blood storage and transportation'. **Leesha Raman**, a practicing training officer, co-authored 'Principles of laboratory techniques' and 'Donation testing'. ISBT published *Introduction to Blood Transfusion Technology* and launched it at the Macau congress in the ISBT Science Series (vol 3 no. 2 June 2008). Besides being freely available via the internet, it was posted on the website of the ISBT Academy. Wiley has noted that since 2010, articles were downloaded more than 62,000 times, especially in 2018 with 20,000 downloads.

Education is a crucial component of lifelong learning and continuous improvement. Without education, quality and safety within a blood service cannot be attained and maintained, and professional capacity and leadership cannot be built for the future. Blood transfusion is about saving lives. We believe that *Introduction to Blood Transfusion Technology* contributed to this noble goal, and that its successor, *Introduction to blood transfusion: from donor to recipient*, will do the same.



Beryl Armstrong and Rob Wilkinson photo taken while on mission in Kigali, Rwanda, in 2016



Rob and I recognise with gratitude the role of the other original authors, who helped bring the first edition to life. The photo was taken at Westville, KwaZulu-Natal, South Africa when the team met face-to-face in 2007. (L-R): (RW), **Leesha Raman**, (BA), **Elizabeth Smart**, **Jon Hardwick**



Mindy Goldman
ISBT Publications Committee
Canada

Introduction to blood transfusion: from donor to recipient

The review process

One of the strategic goals of the ISBT is to play a prominent role in transfusion medicine education and knowledge sharing. It was therefore only fitting that the first task of the newly created ISBT Publications Committee would be to update the much loved first edition of *Blood Transfusion Technology*, written by Beryl Armstrong and four of her South African colleagues.

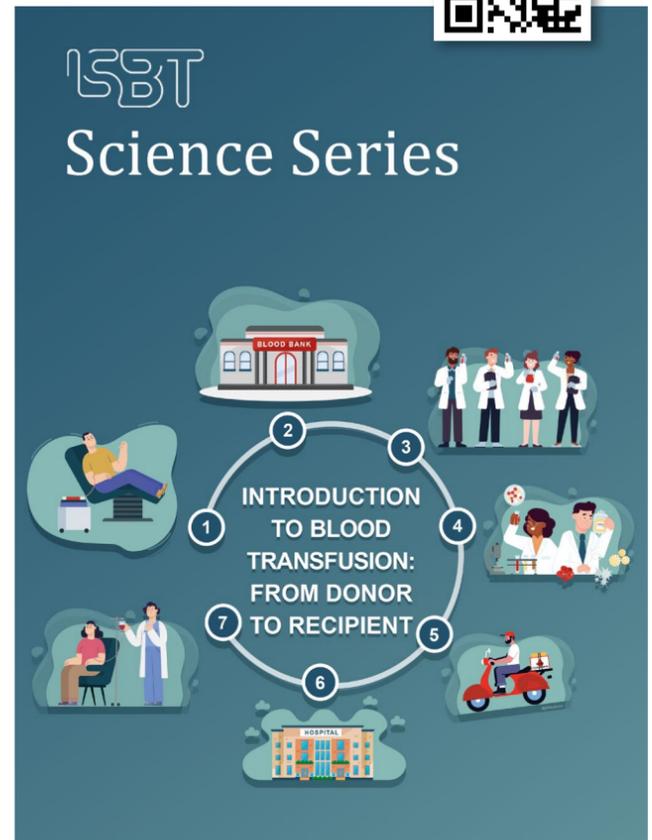
Blood transfusion science and practice have evolved considerably since the publication of *Blood Transfusion Technology*. We renamed the second edition *Introduction to Blood Transfusion: from donor to recipient* to emphasize the entire transfusion chain that extends vein to vein from donor to recipient, encompassing the expertise of the diverse professionals involved in all aspects of transfusion. Each section of the book was reviewed and updated by transfusion medicine experts, including scientists, technologists, nurses, and physicians. Reviewers are from Africa, Asia, Australia, the Middle East, Europe, South America, and North America in keeping with the international reach of the ISBT. The main challenge of working with an international team was the alternative spelling for many key words in haematology/hematology!

As in the first edition, the book covers the scientific foundation of blood transfusion: haematology, immunology, antigen-antibody reactions, genetics, blood group systems, and haemolytic diseases. This is followed by sections covering the entire transfusion chain: blood donation, collection, testing and processing, storage and transportation, compatibility testing, and risks of transfusion. A new section, *Indications for transfusion*, was added, in recognition of increased awareness of the importance of optimal utilization of blood and patient blood management. Sections address the overarching concerns of safety, health and the environment, and equipment and materials management. There is a comprehensive glossary to help readers navigate the terminology used throughout, and a general reference chapter listing other key resources to learn more about particular topics.

I hope that the text will continue to be a valuable resource to all learners and professionals who require a foundation of the basic principles that underpin good practice in transfusion medicine. It may be particularly useful in low and medium income countries where specialist education in blood transfusion may be more difficult to access.

I would like to thank the Publications Committee and our international team of reviewers from six continents for making the updated edition a reality. We owe a particular thank-you to Beryl Armstrong and Rob Wilkinson who reviewed all the sections in their entirety. In these days where it is more difficult for us to meet in person, we can always spend some time enhancing our knowledge with a good transfusion medicine book... Enjoy!

Enjoy the book





John-Paul Tung^{1,2,3,4}
 Australian Red Cross Lifeblood
 Australia

ISBT's virtual congress #ISBT2020: A summary for young professionals

Who are the Young Professionals Council members?

The inaugural ISBT Young Professionals Council (YPC) commenced in 2018 (<http://www.isbtweb.org/about-isbt/young-professionals-council/>). Our aim is to increase the value of ISBT membership and to promote active participation of the Young Professionals (≤ 40 years old) in the society's activities.

ISBT's virtual congress #ISBT2020

The ISBT 2020 congress originally planned for Barcelona in June went ahead as a virtual congress in December. It included both live and on-demand sessions, a virtual exhibition, workshops and lots of opportunities to network. As at previous ISBT congresses, there were a number of activities aimed at Young Professionals aged 40 years or under.

Harold Gunson Fellowship Awards

The Harold Gunson Fellowship awardees were Young Professionals 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 Gissel Aguilar Ocaña, Kathleen Chell, Loes Cornelissen, Arezoo Darbandi, Mehakdeep Kaur, Nicolás Daniel Mufarrije, Ouada Nebie, María Antonieta Núñez Ahumada, Roxana Saldaña Vázquez, Ahmed Sayedahmed, Greeshma Sharma, Dimitrios Stoimenis, Sadia Taj, Rifa Widyaningrum, Andawatta Kankanamge Dulaine Lawanya Wijesekara, Ying Yan, Somayeh Zare, Victoria Kulikova and Roland Willy Niyibizi.

The Virtual Young Professionals Welcome Reception and Booth

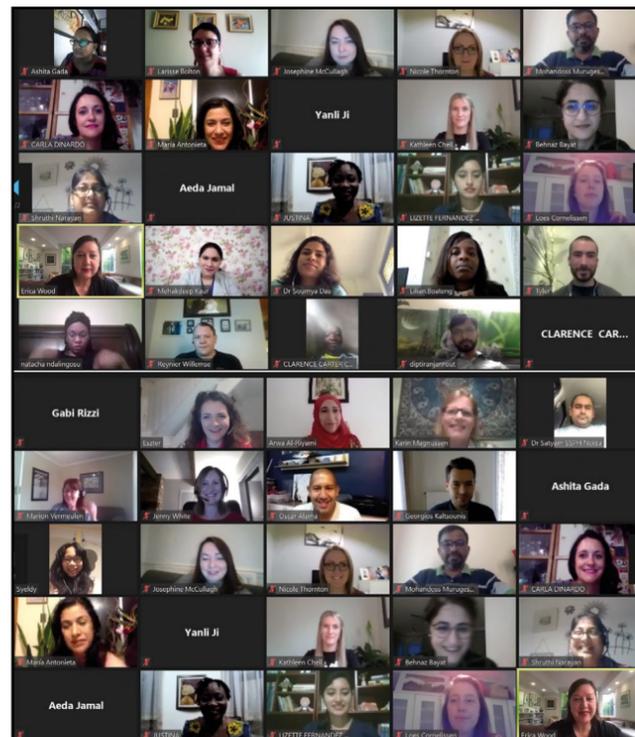
Previously the YPC has hosted a Welcome Reception and our members have been present at a booth throughout congresses. This year a Virtual Young Professionals Booth hosted the Young Professionals Welcome Reception, and provided Young Professionals with the opportunity to meet the YPC members, and to network with each other.

ISBT Fun Run

At previous congresses, the ISBT has hosted a 5 km fun run. This year the Fun Run went virtual. Participants, wearing red active wear, could walk, run, ride or complete a suitable activity during the congress. A number of photos were shared on social media with #ISBT2020.

The Virtual Young Professionals Networking Breakfast

The Young Professionals Networking Breakfast is held to facilitate an informal networking meeting between Young Professionals and Transfusion Medicine experts. This year the Breakfast was held online, and each of ISBT's Working parties had a breakout room led by a Mentor/Expert. Over 25 Young Professionals attended this session, and it was a great success



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Young Professionals Scientific Session

Previously, there has been a dedicated Scientific Session at ISBT congresses that highlights a selection of abstracts from Young Professionals. This year, with the move to the virtual congress, it was decided it would be better recognition for these talented Young Professionals if their presentations were integrated in the sessions of their topics. Congratulations to the seven Young Professionals selected: Christian Stevens, Sanne de Bruin, Sarah Makhani, Josephine McCullagh, Antoine Lewin, Maria Didriksen, and Sarah Holzwarth.

What next?

One of the benefits of a virtual congress is that materials can be made available for a period after the end of the congress. Accordingly, ISBT has made presentations, including those that formed the Young Professionals Scientific Session, available via the congress platform until March 31, 2020. Please head online to see the amazing research being carried out by ISBT's Young Professionals. Young Professionals can also log into the ISBT Forum (<http://www.isbtweb.org/isbt-forum>) to continue engaging. Also, please keep an eye out on our Young Professionals Council website for information on upcoming 2021 ISBT congresses, as well as opportunities for Young Professionals at these congresses.





Behnaz Bayat
Justus Liebig University
Germany

Granulocyte working party meeting, December 11, 2020

The ISBT granulocyte working party meeting was organized with the aim to improve the diagnostic process. The virtual meeting started with the welcome address of the chairperson, followed by five talks including the report of the international granulocyte immunology workshop 2020 (IGIW 2020).

The IGIW 2020 was conducted by the Institute for Clinical Immunology and Transfusion Medicine at University hospital Giessen, Germany. The practice was divided into 3 parts; antibody detection (four serum samples, part A), HNA genotyping (four samples, part B), and scientific analysis (four monoclonal antibodies part C). The samples were delivered to 18 reference laboratories around the world. In the scientific part of the workshop (part C), 4 monoclonal antibodies (Tagh 1-4) against HNA-1a, -1b, CD16b and HNA-2 were evaluated by 17 laboratories. Results showed 94.9% achievement by participants in part A. This achievement indicates a 5.1% decrease in comparison with the IGIW 2020. However, in part B, the participants achieved a 99.8% score that shows a 7.8% improvement in HNAs genotyping as compared to the data obtained in 2020. The report of IGIW 2020 is available at the website of the working party.

Dr. Zhang from the Department of Pathology, Immunology and Laboratory Medicine, College of Medicine, University of Florida, presented his talk entitled: Lineage-specific functions of neutrophil antigen CD177 in the tumor microenvironment. He presented a novel function of CD177 as a regulator of mammary epithelial cell proliferation and breast cancer pathogenesis [1]. His results have shown a positive correlation between CD177 and relapse-free, metastasis-free, or overall survival in breast cancer. These analyses showed hyperproliferation in mammary epithelial cells in the absence of CD177 and introduced this protein as a biomarker for predicting the patient outcomes in various cancer types.

In classical techniques (such as GIFT, GAT, and MAIGA), a well characterized positive human antiserum is necessary to evaluate the reactivity of an unknown serum sample. However, characterized human antisera have multiple limitations such as volume and co-existence of other antibodies (anti-HLAs antibodies). Furthermore, such materials are not freely and easily available in many laboratories. The group of Dr. Taniguchi developed four mouse monoclonal antibodies (Tagh 1-4) with specificities against HNA-1a, HNA-1b, CD16b, and HNA-2 [2]. Using a fusion of the variable region in genomic sequence responsible for the production of Tag 1-4 with the genomic region responsible for the production of the constant region of human IgG, Dr. Taniguchi and the group have generated humanized

Tagh antibodies. The results of the primary evaluation of four humanized monoclonal antibodies against HNAs were introduced by Dr. Mika Matsuhashi. Adding to these results, these serums have been analyzed by interested participants in part C of IGIW 2020.

Not only exposure to the fetus cells that expresses allelic variants of the antigen other than those of the mother, the alloimmunization during pregnancy is regulated by multiple factors. A study by Dr. Elyse Moritz and colleagues from the Department of Clinical Oncology and Research, Federal University of São Paulo (UNIFESP) suggested a higher rate of HNAs immunization in RBC pre-alloimmunized pregnant women [3]. These results introduced RBC alloimmunization as an indicator for the individual with better immune response upon allogenic exposure and the presence of RBC alloantibodies as an indicator for the identification of individuals with higher immunization risks.

Moving forward, the ISBT granulocyte immunology working party plans to provide an informative and friendly education platform to bridge the expertise and young scientist all over the world. The yearly workshops organized by the IGIW-committee implements a continued evaluation for reference laboratories and contribute to the improvement of diagnostic protocols.



References:

1. Kluz et al. Cancer cell-intrinsic function of CD177 in attenuating beta-catenin signaling. *Oncogen*, 2020.
2. Taniguchi et al. Influence of monoclonal antibodies to human neutrophil antigens, HNA-1a/b and HNA-2a on phagocytosis. *Rinsho Byori*, 2007.
3. Martins et al. Antibodies against human neutrophil antigens in non-transfused women with red blood cell alloimmunisation induced by pregnancy. *Blood Trans*, 2020.

“ISBT Milan” goes virtual as “ISBT in Focus”

Due to the ongoing pandemic, the 31st Regional ISBT Congress, originally planned for Milan on 6-9 June 2021 will be transformed to a virtual event. The decision was taken together with the Italian Society of Transfusion Medicine and Immunohaematology (SIMTI) and the Milan Local Organising Committee, and we look forward to collaborating again on an ISBT congress in Italy in the not too distant future.

Whilst we are all sad not to be able to get together in Milan this year, following on from the success of our first virtual congress (ISBT2020) in December last year, we are looking forward creating another virtual meeting in June.

The “ISBT in Focus” meeting will be in an exciting new format to maximise potential for engagement in a virtual environment, with six themed days. Each day (June 3-8) will include state of the art lectures, educational interactive workshops, short presentations, e-posters, and sponsored content - all focused on a specific area of transfusion practice:

- Red Cell Immunohaematology
- Platelets & Granulocyte Immunobiology and Blood Components
- Transfusion Transmitted Infectious Diseases
- Clinical Transfusion and Adverse Events
- Supporting safe transfusion and strategic management
- Donors and Donation

Each ‘day’ will be repeated to take place in two time zones enabling delegates from all around the world to experience the live event and participate in the workshops. Flexible registration options will be available to enable delegates to select relevant days to build their own programme – more information on this coming soon.

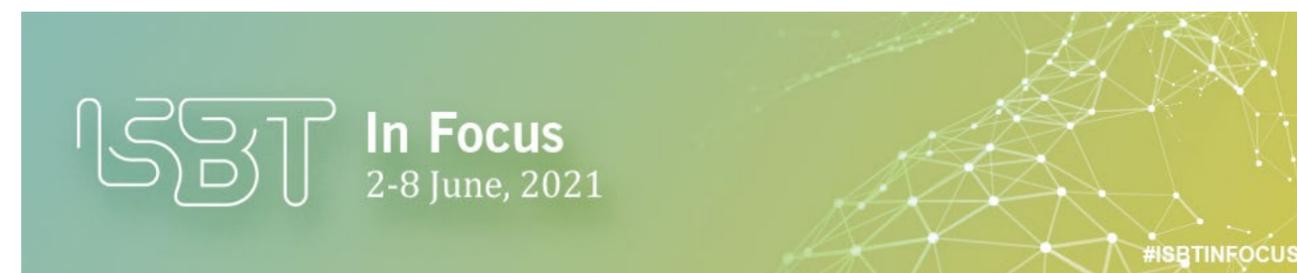
ISBT in Focus will also include an opening day on June 2, with an opening session, plenary lectures, Young Professionals meeting, the ISBT General Assembly and more. This day will be open to all registered for any part of the meeting, and a great opportunity for the entire ISBT community to get together.

Abstract submission is still open! Would you like to present your work at ISBT In Focus? Submit your scientific abstract before March 31, 2021, 23.59 CEST. All Young Professionals who are 40 years or younger can apply for a Harold Gunson Fellowship when submitting an abstract.

More information on application and procedures can be found here:



We look forward to seeing you!





Nigar Ertuğrul Özüç
Ministry of Health
Turkey



İdil Yenicesu
Hemosoft IT and Training Services
Turkey



Yuyun Maryuningsih²
World Health Organization
Switzerland



André Loua¹
World Health Organization
Republic of Congo

Patient Blood Management Symposium

A Virtual International Symposium on Patient Blood Management was held on January 11-12, 2021 by the Ministry of Health the Republic of Turkey.

A Virtual International Symposium on Patient Blood Management was organised in scope of an European Union funded Project on “Technical Assistance for Improving the Blood Transfusion Management System in Turkey (EuropeAid/139230/IH/SER/TR)” (<https://hastakanyonetimi.saglik.gov.tr/>). Ministry of Health of the Republic of Turkey is the beneficiary of the project that is implemented by a consortium which comprises GOPA Worldwide Consultants GmbH (Germany), Hemosoft Information Technology and Training Services (Turkey) and Sanquin Blood Services (The Netherlands).

Main stakeholders of the project consist of transfusion centers and transfusion committees of the hospitals, Turkish Red Crescent, scientific associations and societies operating in blood transfusion, Board of Higher Education, Board of Expertise in Medicine and Social Security Institution of Turkey.

The objective of the Project is to contribute to the improvement, thus effective functioning of the blood supply system in Turkey in line with the EU Acquis in the field of public health under the area of Consumer and Health Protection in purpose to provide quality, self-sufficient and appropriate clinical use of blood and blood components. In this scope, the Project mainly focused on Patient Blood Management (PBM). According to the WHO, PBM is a “patient- focused, evidence based and systematic approach for optimising the management of patients and transfusion of blood products to ensure high quality and effective patient care”.

By treating the underlying cause of the anemia, the need for transfusions can be prevented and the overall well being of a patient can be improved. Transfusions do save lives, but they can also lead to unavoidable complications. These complications can be decreased by reducing unnecessary transfusions, resulting in lower health costs.

The goal of the symposium was to provide education, to increase the scientific awareness and to exchange international experiences on best practices in PBM implementation from different countries and perspectives that includes the timely application of evidence-based medical and surgical concepts designed to maintain hemoglobin concentration, optimize hemostasis, and minimize blood loss in

an effort to improve patient outcomes. The target audience were medical professionals who care for anemic and surgical patients and administrators who are interested in improving patient outcomes while reducing healthcare costs.

Distinguished international speakers namely Dr. Cynthia So-Osman, Dr. Gilles Follea, Dr. José-Luis Bueno Cabrera, Dr. Shubha Allard and Dr. Kai Zacharowski shared their best practices, experiences and challenges in their home countries in implementing PBM. National speakers, Dr. Nigar Ertuğrul Özüç, Dr. İdil Yenicesu, Dr. Türker Çetin, Melih Elçin and Dr. Şahika Zeynep Akı shared their reports on technical and scientific studies related to current situation on blood transfusion and PBM in Turkey. Phd. Sr. Güçlü Ongun and Phd. Sr. Alper Çevik shared their experiences on application of information technology systems on PBM.

A total of 4041 participants from 59 countries registered for the symposium. The International Patient Blood Management Symposium brought together a wide range of stakeholders within the scope of this project and offered the opportunity to benefit from international experiences that made a very important contribution to the project and to the participants of the symposium. The virtual platform of the symposium (www.pbmsymposium2021.org/webinar) can be accessed at any time to view recorded sessions one year from February 1, 2021.



Report of the workshop on haemovigilance in WHO African Region

André Loua¹, Yuyun Maryuningsih², Junping Yu², Jay Epstein², Jean Baptiste Nikiema¹, Felicien Nzotungwanayo³, Joseph Mulenga⁴

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2. World Health Organization, Headquarters, 20 Avenue Appia, 1211 Geneva 27, Switzerland
3. National Blood Transfusion Service, Bujumbura, Burundi
4. Zambia National Blood Transfusion Service, Lusaka, Zambia

1. Introduction

Hemovigilance consists of a set of surveillance procedures and reporting mechanisms covering the transfusion chain. These mechanisms are designed to identify, collect and assess information on adverse events resulting from blood donation and use, and to prevent their recurrence.

The WHO Regional Office for Africa (AFRO), in collaboration with WHO Headquarters (HQ), and other partner organizations performed an assessment of blood systems in Africa which established the need to strengthen the capacities of national regulatory authorities (NRAs) and national blood transfusion services (NBTS) in hemovigilance system.

A regional workshop was convened by AFRO and HQ to raise awareness within the Ministry of Health, the NRAs and the NBTS with oversight of blood products, blood establishments and hospitals on the need for a nationally organized haemovigilance system. The workshop was envisioned as a pilot effort to establish a haemovigilance system in two countries in the Africa Region (Burundi and Zambia) that will serve as a model to replicate in other countries.

2. Workshop processing

A live 4-days workshop on haemovigilance hosted by AFRO was held from 20 to 23 October 2020 with support from an ISBT Academy grant. Around 200 participants attended in the workshop including 80 from the two pilot countries¹. The other participants were from nine Muskoka Project countries², four Paul Ehrlich Institut supported countries³, five other African countries⁴ and Indonesia. Participants were the representatives from NBTS, NRAs, WHO staff from AFRO including country offices; hospitals performing transfusion, and from African Blood Regulators Forum. The speakers and moderators of the workshop included experts in haemovigilance from WHO/AFRO and partner organizations from nine countries⁵. According to the agenda of the workshop, the opening and closing

remarks were delivered by the Representative of the Director of the AFRO UHC/LC cluster. All relevant topics on haemovigilance including the status and next steps for development of haemovigilance in Burundi and Zambia were presented with simultaneous translation in English and French. These topics aimed to: (i) facilitate design of the national haemovigilance system; (ii) provide training on use of tools for reporting adverse events and reactions in blood donors and recipients; and (iii) educate on methods to gather haemovigilance reports. All presentations were followed by open panel discussion with questions and responses.

The evaluation of the workshop indicated that, overall, 80% of responding participants would recommend the course to others, while 67% enjoyed the course and for 64% the course helped to see ways to improve their job performance. However, participants found that the virtual training had some limitations (e.g. absence of practical cases, number of modules delivered in record time, speed of trainers given the allocated time, etc.)

3. Recommendations

- Support countries in the region in setting up haemovigilance systems;
- Organize more in-depth training sessions with practical cases and visits;
- Convene such workshops periodically.

4. Conclusion

The workshop on haemovigilance organised with support from ISBT, (ISBT Academy grant and input from the ISBT Haemovigilance Working Party), helped participating countries to have basic elements to initiate the establishment of haemovigilance systems. A continued support is needed to implement this key strategy.

¹Burundi and Zambia

²Benin, Burkina Faso, Chad, Cote d'Ivoire, Guinea, Mali, Niger, Senegal and Togo

³Ghana, Nigeria, Tanzania and Zimbabwe

⁴Cameroon, Congo, Democratic Republic of Congo, Kenya and Rwanda

⁵Congo, France, Germany, India, Italy, The Netherlands, Norway, United Kingdom and United States of America



Akhlaaq Wazeer
Divisional Headquarters
Teaching Hospital
Pakistan

Training workshop on data and information management in blood transfusion services

The Divisional Headquarters Teaching (DHQ) Hospital, Mirpur, with support from the International Society of Blood Transfusion (ISBT) Academy, organized a training workshop on Data and Information Management in Blood Transfusion Services. The workshop reviewed the current status and identified gaps in data and information management in AJK region; updated the participants on the best practices and latest developments in data and information management, and developed an action plan to improve data and information management of blood transfusion services in the state of AJK.

The welcome address was given by Dr. Farooq Ahmed Noor, Medical Superintendent, DHQ Teaching Hospital. He appreciated the efforts of the Pathology Department for organizing the workshop on such a key topic. Technical presentations were made by the pathologists and public health experts including Prof. Zahida Qasim, Consultant Pathologist, DHQ Hospital, Mirpur, Dr. Noore Saba, Consultant Haematologist, Regional Blood Centre, Peshawar, Dr. Amnah Shaukat, Haematologist, DHQ Hospital, Mirpur, Dr. Usman Waheed, SBTP, Akhlaaq Wazeer, Microbiologist, DHQ Hospital, Mirpur, among others. The speakers shared their experience of regulation and best practices with an emphasis on data management and documentation. The discussion session identified priority actions and plan for implementation to improve data and information management for blood banks. The workshop also comprised of a visit to blood centre where the participants were able to see a functional Blood Transfusion Information System (BTIS). The workshop was successful in improving awareness about good evidence-based data management practices as evident from the evaluation of the event. The workshop also discussed the role of blood services in the ongoing COVID-19 pandemic. Two research articles published by the host institution related to COVID-19 and BTS were shared and discussed. One of the articles titled **Effectiveness of WhatsApp for blood donor mobilization campaigns during COVID-19 pandemic** was published in the ISBT scientific journal 'ISBT Science Series'.

The workshop was evaluated before the concluding session through an Evaluation Questionnaire which is an effective method to assess the learning effectiveness and continue improving the instructor's teaching ability. The results of the evaluation provided valuable information regarding the participants' learning and effectiveness of teaching. The results will be used to further improve the capacity building programmes. The concluding session was chaired by Prof. Maqsood Ahmed, Vice-

Chancellor, Mirpur University of Science and Technology (MUST). He lauded the efforts of DHQ Hospital for taking this initiative to develop the capacity of the technical work force of blood banks. He informed the participants that MUST has initiated a BS programme in Medical Laboratory Sciences and the training of students will take place in DHQ Teaching Hospital. This will be a new beginning of a mutual collaboration to support the citizens of Azad Jammu and Kashmir. The organizers highly appreciate the support provided by the ISBT Academy for this and two other workshops over the past three years. The impact of these training workshops has been very positive and considerable improvements have been seen during field visits.



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Homociencia, a brand for promoting universal Immunoematology knowledge

"Sharing knowledge of immunoematology to make it universal" was the foundational goal of the intended group and brand Homociencia on March 17, 2019. This initiative was launched in Colombia by Leidy Alejandra Toro Espinosa, Daniel Alberto Tellez Paz, and Paula Andrea Gaviria Garcia, three university professors, researchers, and immunoematology lovers. They were later joined by Ana Claudia Peron, a Brazilian colleague who brought her 30 years of experience in Latin American Immunoematology ongoing training.

Initially, Homociencia focused on the dissemination of immunoematology content on Instagram and Facebook social networks. Since then, more than 6000 Facebook and 2200 Instagram followers have joined Homociencia's virtual community. They enjoy the didactic, imaginative, and scientific content in a graphical environment designed to educate under the principles and teaching methods of andragogy. The social networks' digital contents include clinical cases, notes of interest (Hemodatos), technical tips (Hemotips), graphic summaries of scientific articles, publications promoting blood donation, and memes and comics for humorously explaining different concepts. During the COVID-19 pandemic, Homociencia was strengthened through a strategic alliance with the School of Microbiology of the University of Antioquia (UdeA) to build a high-impact educational proposal that would integrate professionals interested in transfusion medicine. As a result, the 8th of May, 2020, the "CERTIFICATION PROGRAM IN IMMUNOHEMATOLOGY" was launched with the attendance of 33 Colombian, Mexican, Chilean and Ecuadorian students; some of them were sponsored by UdeA. The participants took advantage of the challenging confinement times to improve their professional life around immunoematology. In September of 2020, the second edition of the "CERTIFICATION PROGRAM IN IMMUNOHEMATOLOGY" welcomed 22 new students.

The success of this educational program won Homociencia a special invitation from BioRad Laboratories to develop the contents of the "CERTIFICATION PROGRAM IN IMMUNOHEMATOLOGY". This program is organized in conjunction with the National Autonomous University of Mexico and Quality Academics; more than 100 Latin American health professionals are expected to participate in the first semester of 2021. Another educational activity successfully performed by Homociencia in partnership with UdeA was the "II SEMINAR ON IMMUNOHEMATOLOGY: SHARING SOUTH AMERICAN EXPERIENCES". This meeting was led by Latin American professors, who generously contributed their experience and knowledge to the more than 4,600

attendees who joined the online event through the university's digital channels.

By the end of 2020, the Homociencia teachers collaborated in several scientific international meetings with 25 lectures; five of them were given at the "XI COLOMBIAN CONGRESS AND XVIII IBERO-AMERICAN CONGRESS OF BLOOD BANKS AND TRANSFUSION MEDICINE." For 2021, Homociencia, in collaboration with UdeA and the Colombian Association of Blood Banks and Transfusion Medicine, aims to set continuing education programs and design working guidelines to promote blood donation and strengthen immunoematology in Colombia to improve the quality of transfusion medicine in the country. It also aims to launch networking with other Latin American groups for sharing experiences and strategies to promote virtualization and learning of scientific immunoematological knowledge.

The COVID-19 pandemic taught us that there are no limits to working together for the common good. We are convinced that collaborative work is essential to achieve great goals; and without a doubt, the information and communication technologies offer developing countries the adequate tools to that end. Blood is a public good, and universal knowledge of transfusion medicine is the key to improving the quality and safety of transfused blood in our countries.





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Patient Blood Management as a new paradigm in Transfusion Medicine: Latin America included

Recent times have surrounded us with great challenges in all fields of medicine, and have shown us the importance of being prepared for unexpected situations. These moments are particularly critical for developing countries, which already deal daily with important restrictions to guarantee universal access to health services. In the field of Transfusion Medicine, we were confronted with the challenge of maintaining satisfactory blood stocks in the face of social isolation, and the imminence of shortages was, more than ever, a potential reality.

This situation only reinforced the need to rationalize the use of blood, since the supply of these products tends to become increasingly fragile, whether due to events such as the pandemic, or the expected populational aging process. In this sense, Patient Blood Management programs have been gaining more and more strength around the world, and though still in their infancy in Latin America, important initiatives have appeared in recent years, which tend to further strengthen these practices here as well.

Our experience in Brazil can be included in this account. Despite the limitations in the scope and concentration in some specific regions, PBM initiatives have been adapted to the particular conditions of each hospital, and this has been an interesting experience of how to adjust, adapt and engage. Our regional meetings are now full of work on diverse practices, such as educational programs and prescription auditing processes. An expressive innovative potential has also become evident, with the development of computer systems, use of digital media, measures to expand access to medications such as erythropoietin, among others.

When innovating through new processes is not possible, reviewing the old ones can be just as important. A good example were our autologous transfusion protocols, now focused on alloimmunized patients or those with rare phenotypes, taking advantage of the additional security brought by NAT implemented in the country since 2004. In fact, with leaner and optimized processes, many services have managed to contribute with innovations precisely in the middle of the pandemic, such as the development of platforms for collecting convalescent plasma, in an effort of solidarity and rapid mobilization, with important restructuring that is now available in the event of outbreaks of new pathogens.

In the face of such urgent demands, trying to innovate in other areas as well, such as pre-hospital transfusion, appeared to be dreaming

big. Despite being something distant when we started to visualize this in 2018, in less than 2 years, we managed to make an incredible progress, in a rich construction process together with the regulatory agencies, to which this process was also unprecedented in the country. This resulted, in a pioneering way, in the availability of blood in ambulances in a city in the state of São Paulo, which may be expanded to other municipalities in the future.

The challenges are still multiple, but this kick-off is a great stimulus to continue the journey. Even with limited budgets and important structural problems, we continue to constantly learn to reinvent ourselves, adjusting financial resources to our creativity and inventiveness, which goes far beyond our football and carnival.

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SARS-CoV-2 outbreak: the response of the Italian blood transfusion network

In Italy, SARS-CoV-2 outbreak has been characterized by two epidemic waves (March-May 2020; October-December 2020) with a significant impact on the national health system, interspersed with a low-incidence transition phase (June-September 2020).

The first epidemic wave was characterized by a very rapid spread of cases (about 200,000) and deaths (about 30,000), with a higher concentration in Northern Italy. The second epidemic wave, still in progress, has significantly affected all Italian regions, although with different epidemiological scenarios. To date, the National Integrated Surveillance System reports a total of about 2,200,000 infections, 1,500,000 healed and 76,000 deaths. Although the number of positives increased in the second epidemic wave, nevertheless the mortality rate seems to be lower. Since the beginning of the SARS-CoV-2 outbreak, the Italian National Blood Centre (CNS) has introduced and regularly updated the recommendations for blood establishments (BEs) and blood donor collection sites, according to the Ministry of Health provisions, consistent with the evolution of the national epidemiological situation. The precautionary measures have been introduced in order to continue the donation activities, limiting as much as possible the risk of COVID-19 inter-human transmission among blood donors and health care professionals.

The recommendations include indications for:

- strengthening of the anamnesis of donors, with particular attention to possible close contacts with SARS-CoV-2 confirmed positive subjects, to travelling from foreign risk countries and to quarantine and home isolation procedures;
 - donor behaviours in the collection site, aimed to avoid aggregation in the holding rooms, to exclude at risk donors using a telephone pre-triage and mandatory donation booking, to perform adequate disinfection and cleaning procedures;
 - blood collection and management of blood component stocks.
- In order to assess the SARS-CoV-2 outbreak impact on blood donor population, CNS conducted a periodic monitoring of post donation information (PDI) notifications; as reported in Figure 1, PDI data show a curve in line with the general population's epidemiological trend.

Furthermore, a statistical calculation model was introduced to estimate the number of donors potentially missing due to SARS-CoV-2

positives. The model is based on the cumulative incidence of SARS-CoV-2 positivities in the general population. The results showed that the estimated number of donations potentially missed would have been negligible in both epidemic waves. Therefore, episodic reductions in blood component stocks occurred during the first epidemic wave may be not considered directly related to the impact of SARS-CoV-2 on the donor populations, but to other indirect causes, such as the containment measures (limitation of mobility in specific at risk areas) or the donor's fear of contracting infection.

In addition, CNS performed the regular monitoring of the hyperimmune plasma collection in order to support the national randomised clinical study TSUNAMI (TranSfUtion of coNvaleScent plAsma for the treatment of severe pneuMonia due to SARS.CoV2), and other COVID-19 therapeutic purposes as well as to support immunoglobulin fractionation programmes.

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Blood donors and the hidden cases of SARS-CoV-2

When infections of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus responsible for COVID-19 disease, started to surge like wildfire, Australian blood donor samples provided a valuable resource to help public health authorities map its spread.

What makes SARS-CoV-2 particularly challenging is that it is highly infectious. However, for many people who contract the virus, the symptoms may be so mild that they may inadvertently spread it in the community. Looking for antibodies to SARS-CoV-2 is one way to determine if someone has been infected but was asymptomatic. Serological surveillance data can help inform public health responses by reporting community transmission patterns. To determine the spread of SARS-CoV-2 in the population, a large number of anonymous samples that broadly reflect the community need to be tested. Blood donors provide one source of appropriate samples.

In Australia, during the first epidemic wave of COVID-19 in late March, most reported infections were in the greater Sydney area. We collected residual blood donor samples from different regions of Sydney from April 20, 2020 to June 2, 2020 (total notified case numbers in Sydney up to April 30, 2020 was 2118). These were tested for SARS-CoV-2 antibodies to estimate the proportion of individuals exposed to the virus during the 'first' wave. A SARS-CoV-2 IgG 'in-house' immunofluorescence assay (IFA) developed by the Institute of Clinical Pathology and Medical Research, Westmead Hospital was used, and a titre ≥ 10 was considered positive [1]. SARS-CoV-2 IgG seropositive specimens were then re-tested using IFAs for IgA and IgM, which assist with determining the timing of infection, and also via a microneutralisation assay which tested for SARS-CoV-2 specific neutralising antibodies. Of the 1548 blood donor samples analysed, fewer than 1% tested positive [2]. Most of these samples had low titres suggesting these individuals may have been asymptomatic or had mild symptoms. The donors who were seropositive were also younger, 20-29 years old. This seroprevalence estimate indicated limited community transmission of SARS-CoV-2.

It is very difficult to compare seroprevalence studies across different countries due to variations in the type of test conducted, sample collection timing, antibody kinetic profiles, titre classification criteria and blood donation selection criteria. However, studies of seroprevalence in UK blood donors ranged from 1.5% to 17.5% based on 1000 donor samples per week from 7 regions within the UK [3]. In the US, the 2

largest blood collection agencies, American Red Cross and Vitalant, found seroprevalence ranging from 2.0% - 7.65% [4].

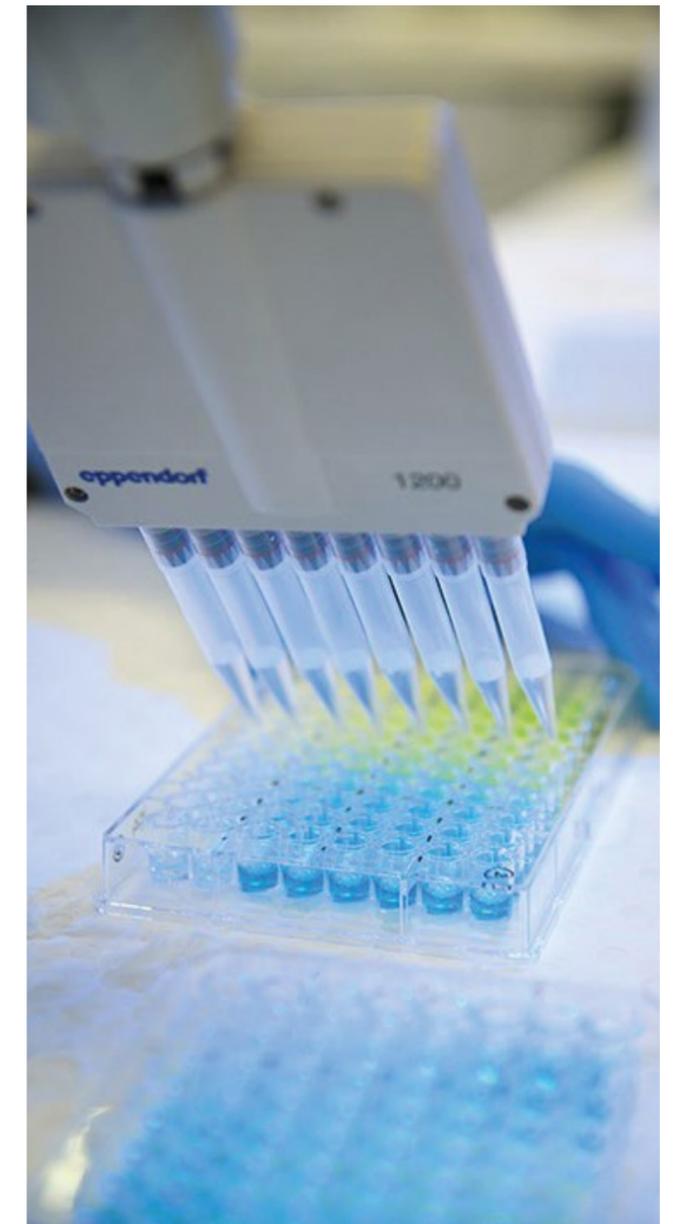
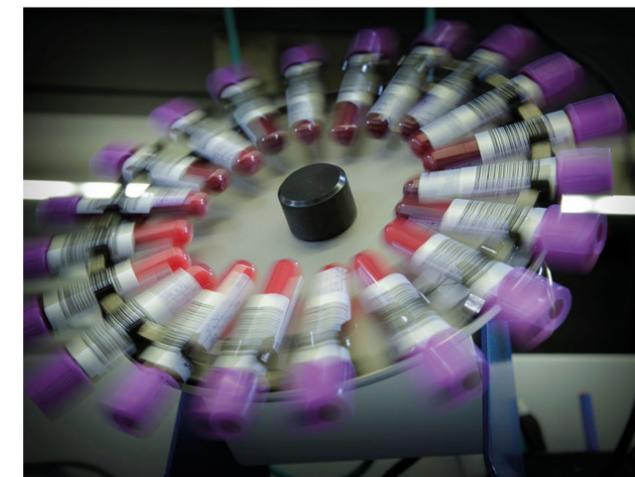


These studies also indicated that SARS-CoV-2 seroprevalence was affected by blood donor age, testing methods, cultural background and socio-economic status. The seroprevalence of SARS-CoV-2 antibodies appears low, even in populations intensely exposed to the virus, thus administration of safe and effective vaccinations will be critically important for immunity.

In Australia, we have conducted a national serosurvey, with results expected early next year and are currently conducting a follow-up serosurvey during the 'second' wave experienced in the state of Victoria. The data generated will provide baseline information which can be used by local health authorities for future vaccine monitoring.

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Australian governments fund Australian Red Cross Lifeblood to provide blood, blood products and services to the Australian community.





JOSEPH MULENGA
Zambia National Blood
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Africa

Haemovigilance Program in Zambia

Introduction

The Zambia National Blood Transfusion Service (ZNBTS) is a Statutory Body under the Ministry of Health mandated to implement the Blood Safety Strategy. It was established under SI 147 Of 1977 and is the sole National Blood transfusion Service provider for Zambia.

ZNBTS operates as a nationally coordinated system based on the World Health Organization (WHO) integrated strategy for blood safety. There are ten (10) Provincial Blood Transfusion Centres in the country supplying blood and blood products to a total of 200 Hospitals throughout Zambia.

Recently, the (WHO) has put emphasis on “Regulation” of Blood Establishments and has recommended the implementation of Haemovigilance as one driver program to monitor the vein-to-vein process, the transfusion value chain and outcomes in the patients.

Evolution of Haemovigilance program in Zambia

The WHO contracted the Paul Erlics Institute (PEI) of Germany as Technical experts to help formulate and actualize the Regulation and Haemovigilance program in Zambia. PEI identified the Zambia Medicines Regulatory Authority (ZAMRA) as Regulators for the Blood Establishment in Zambia and ZNBTS as Blood Transfusion Services provider. The regulator, transfusion service provider and hospitals which serve as transfusion outlets form a triangular partnership with clear roles and mandates.

Activities done so far:

1. Workshops on Haemovigilance and Regulation of Blood establishments in the WHO AFRO region. ZNBTS participated at various times through representation by the Medical Director, the Laboratory Operations Manager, the Donor Affairs Manager and the Quality Assurance Manager.
2. Formation of in-country joint task force: ZNBTS and ZAMRA are working together through a country joint task force with membership from both ZNBTS and ZAMRA to ensure that Haemovigilance is implemented as well as advocating for Blood regulation in Zambia.
3. ZNBTS launched a haemovigilance programme starting with four (4) Lusaka Hospitals and later to extend to the rest of the country.
4. With sponsorship from ISBT and PEI, ZNBTS successfully participated in a Virtual International Haemovigilance workshop from October 20 - 23, 2020. Zambia enlisted representation from all ten (10) provincial Blood Centers in the country.
5. Other activities undertaken: Are highlighted in Tables 1, 2 and 3 in the appendix.

WAY FORWARD

1. PEI has offered to sponsor a planning meeting to be spearheaded by the joint task force in Zambia. The general objective of the upcoming meeting is to formulate a National action plan for scaling up Haemovigilance to cover all hospitals in the country.
2. The ZNBTS and ZAMRA will engage the Ministry of Health to accelerate the process of regulation of Blood Services in Zambia.

Conclusion

Haemovigilance program has been incorporated into the ZNBTS key activities as it is providing opportunity for ZNBTS to monitor intra organizational primary processes and the clinical outcomes of the products transfused into patients.

As legislative process is underway, ZNBTS has embarked on Haemovigilance program at operational level and in Hospitals.

Tables 1:
Haemovigilance structure in Zambia.



Proposed Haemovigilance Structure			
	HOSPITAL	PROVINCIAL BLOOD CENTRE	ZNBTS HQ/ZAMRA
Governance Structure	HTC or Clinical Governance Meeting	Clinical Governance Meeting	National Blood Safety Group
LEAD	Clinical Superintendent / Transfusion Safety Officer	Haemovigilance Lead	Medical Director/ZAMRA DG
Reporting Expectation	1 WEEK	SAR or SAE using report template submitted to ZNBTS HQ and Provincial Blood Centre	Investigation coordination to any SAR or SAEs to hospitals or Provincial Blood Centre
	MONTHLY	Monthly report. Discussed in internal meeting and shared with ZNBTS	Monthly report. Discussed in internal meeting and shared with ZNBTS
	QUARTERLY		Collated monthly report Discussed in internal meeting and shared with stakeholders
	YEARLY	Annual report. Discussed in internal meeting and shared with ZNBTS	Annual report. Discussed in internal meeting and shared with ZNBTS
			Electronic quarterly report circulated to all partners
			Annual meeting held and collated report circulated to all partners

Table 2:
Proposed Reporting mechanism.



Proposed Reporting Mechanism			
	Hospital	PROVINCIAL BLOOD CENTRE	ZNBTS HQ
Reporting Expectation	DAILY (local records)	<ul style="list-style-type: none"> Record all blood transfusions Record all adverse reactions SUBMIT MONTHLY TO ZNBTS	<ul style="list-style-type: none"> Record of all donors Record of all donor reactions Record of all blood issued Record all adverse events SUBMIT MONTHLY TO ZNBTS
	MONTHLY	<ul style="list-style-type: none"> Total number of patients transfused Total number of units received Total number of units transfused Total number of units discarded (?above by component) Number of adverse events (serious and other) Type of adverse event Any local learning points following incidents 	<ul style="list-style-type: none"> Total number of donations Total number of units distributed to hospitals Total number of units discarded (?above by component) Number of adverse events (serious and other) Type of adverse event (equipment failure, human error, etc) Any local learning points following incidents
	YEARLY	Collated report of all the monthly items.	Collated report of all the monthly items.

Table 3:
Incident Management Format.



Proposed Incident Management			
	HOSPITAL	PROVINCIAL BLOOD CENTRE	ZNBTS HQ
Reporting Expectation	Within 1 week of SAR	Report SAR or SAE within one week of incidents to ZNBTS	Coordinate investigation response with blood establishment within 1 week
	Within 4 weeks of SAR	<ul style="list-style-type: none"> Full investigation to be carried out, using ZNBTS template Corrective actions to be identified, with timescales of implementation highlighted 	<ul style="list-style-type: none"> Report and corrective action plan to be agreed Learning to be shared with other hospitals
	MONTHLY	<ul style="list-style-type: none"> Updates against any corrective action plans Incident data to be fed into main transfusion report (previous slide) 	<ul style="list-style-type: none"> Updates against any corrective action plans Incident data to be fed into main transfusion report (previous slide)

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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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