TRANSFUSION TODAY

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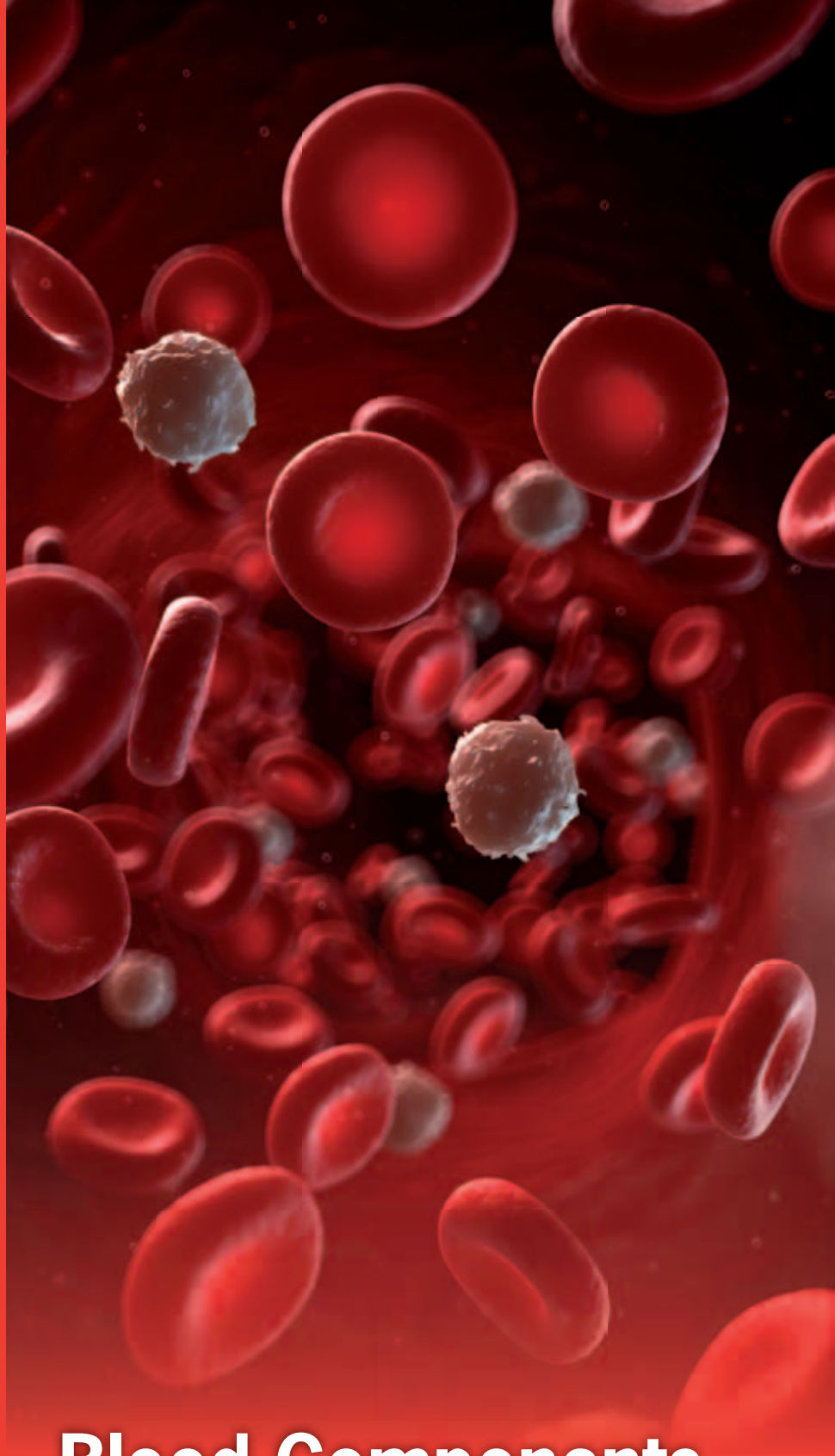

Blood Components

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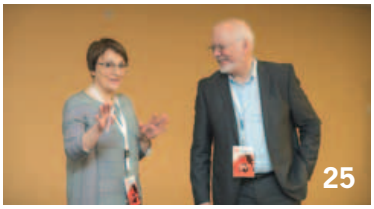

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Judith Chapman

Editorial

Blood transfusion has come a long way since I first started working in the transfusion laboratory many years ago. I recall preparing leucocyte depleted blood using an elaborate dextrin sedimentation method and much discussion in the laboratory about artificial blood; it seemed to be a real possibility back then over 40 years ago. The first article in the focus section by Ashley Toye describes the real possibility of growing red cells but the recognition that it is highly unlikely that they will replace conventional blood units. The section contains a wide-ranging selection of articles including developments in platelet and red cell storage, therapeutic apheresis and ISBT 128 coding of novel blood components.

However, as Ravi highlights in his 'from the President' column the recently published 2013 WHO global database survey on blood safety shows big differences between high and low income countries in relation to blood availability. There is a marked difference in the level of access to blood between low- and high-income countries. The whole blood donation rate is an indicator for the general availability of blood in a country. The median blood donation rate in high-income countries is 32.1 donations per 1000 people. This compares with 14.9 donations per 1000 people in upper-middle-income countries, 7.8 donations per 1000 people in lower-middle-income countries, and 4.6 donations per 1000 people in low-income countries. The report can be found at www.who.int/bloodsafety/global _ database/.

This issue of TT also contains information about the procedure for nominations for the ISBT 2018 Awards and Prizes. I encourage you to read through the three awards and prizes that are available this year. In particular, if you are a well published young investigator do think about nominating yourself for the Jean Julliard Prize and if you are reading this and working in a developing country I highly commend you to apply for the developing country award.

Ashley Mark Toye
Reader in Cell Biology and
NHSBT Principal Investigator.

So you want to grow a red cell?

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3) National Institute for Health Research (NIHR) Blood and Transplant Research Unit in Red Cell Products, University of Bristol. BS8 1TD

In England, the NHS Blood and Transplant service collects 1.6 million units of blood annually to meet transfusion needs. Each therapeutic unit of adult donor derived red blood cells (RBC) consists of approximately 2 x 1012 cells. Generating even a unit of cultured RBCs (cRBCs) in the laboratory under good manufacturing practice (GMP) currently represents a significant scientific and bioengineering challenge. This article will briefly discuss the necessity for, and the benefits of cRBCs and the variety of approaches currently used to generate them. The manufacture of cRBCs is a goal for multiple blood services and research laboratories worldwide to secure blood supply and in particular, for the provision of rare blood types for patient groups; such as sickle cell patients who may develop an alloimmune reaction due to multiple transfusions. Over the last 10-15 years, multiple laboratories have developed liquid culture systems that reproduce the process and stages of human erythropoiesis. Two studies have succeeded in manufacturing enough cRBCs to be considered a transfusable dose, albeit still a mini-transfusion. The first by Giarrantana et al. produced 2.5ml cRBCs from mobilised adult CD34+ stem cells provided by a volunteer treated with granulocyte-colony stimulating factor [1]. The second study conducted by Griffiths et al., generated 5ml cRBCs from normal donor CD34+ stem cells harvested from a single apheresis cone [2], which has recently been increased to 10ml of packed cells upon further optimization [3]. The cRBC produced by both studies were actually reticulocytes, which like normal reticulocytes in the body matured when in circulation, for example, when tested in a mouse model [1, 3]. These cRBCs have also been tested in an autologous setting in a single human volunteer [1]. In the United Kingdom, we are preparing for a larger scale clinical trial called RESTORE (REcovery and survival of Stem cell Originated REd cells), which will test the efficacy and safety of cRBC in more human volunteers.

One issue with using donor derived CD34+ stem cells to produce cRBC is that using current culture methodology, there is limited self-renewal, and therefore the stem cells are used up producing progenitors, necessitating starting the culture from the beginning each time with freshly harvested donor material. An alternative strategy is to use immortalised erythroid progenitor cell lines which theoretically offer a continual supply. Current options include induced pluripotent stem cells (iPSC) which are cells that have been reprogrammed to a pluripotent state or erythroid lines produced by inducing cellular transformation. Both techniques are theoretically capable of providing an unlimited supply of reticulocytes, but there are technical challenges that need to be overcome before these sources reach the clinic. Erythroid lines have been generated from a number of different sources, but arguably the most used in laboratories around the world are human induced pluripotent stem cells (HiDEP) and cord blood progenitors (HUDEP) made in the laboratory of Prof. Yukio Nakamura Riken BioResource Center, Japan. Both HiDEP and HUDEP were made by inducible expression of the human papilloma virus 16 proteins HPV16-E6/E7 [4] and had become an extremely useful research tool for studying erythropoiesis. However, HiDEP and HUDEP express fetal or embryonic globin and minimally enucleate. The same immortalization technique has recently been used on adult bone marrow CD34+ cells to produce the Bristol Erythroid Line Adult (BEL-A), the first human immortalised line that has an adult phenotype and does enucleate (up to 30%) generating reticulocytes [5].

The challenge now is to improve the culture conditions and increase the enucleation efficiency so that the cells can be grown at scale. It is important to remember though that any suitable cell line for therapeutics would eventually need to be produced under good manufacturing practice. The reward for developing erythroid lines is the possibility of providing a sustainable source of rare blood group cells; either by deriving rare cells direct from donors or by using gene editing to generate the desired phenotype.

It is difficult to imagine cultured red blood cells ever replacing the current blood donation system, but it would be feasible to generate a niche product for a small number of specific patient groups who are difficult to match or where blood is problematic to the source. Considerable investment will be required in the future to scale up the process to an industrial scale; achieving higher yields will also need collaboration between research groups, blood services, and media/reagent manufacturers. Initially it is easier to envisage first generation blood products cultured ex vivo being generated from adult stem cells or cord blood. However, immortalised cell lines and iPSC cells produced under GMP conditions will likely follow as second or third generation products once technical hurdles are overcome and their safety and efficacy are proven.

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Dana V. Devine
Chief Medical & Scientific Officer
Canadian Blood Services

Recent Developments in Red Blood Cell Concentrates

Red blood cell concentrates are under renewed focus as our understanding of the importance of RBC quality grows. One overarching theme has been the improvement in blood product quality including improved characterization of units. The application of molecular typing tools continues to improve the degree of matching between donor and recipient as well as sorting out the basis of unusual blood groups. Molecular analysis of the recipient's blood group antigens is becoming an important tool to minimize alloimmunization in chronic transfusion recipients. To optimally use this information, it is necessary to increase the percentage of regular blood donors who have an extended phenotype or genotype.

Over the last decade, there has been ongoing effort to improve the storage conditions for RBC concentrates especially as it relates to the length of storage. While randomized clinical trials have shown that transfusing fresher blood is not better than routine practice, an increasing amount of literature suggests that levels of free or microvesicle-encapsulated iron in the last week of storage may exceed the recipient's ability to bind the iron. Some voluntary reduction in storage time from 42 to 35 days has occurred in some centres.

Other issues that potentially impact RBC quality include the increasing drive in some jurisdictions to ban the use of DEHP as a plasticizer. This is problematic for RBC storage as DEHP provides some of the membrane stability required for six-week storage, and while there are other candidate plasticizers in development, these are compounds about which little is known concerning product quality or recipient safety. In tandem with the development of new materials for storage containers, research has continued on the development of better RBC additive solutions. New solutions include PAGGSM, an isotonic storage solution which shows improved storage over SAGM. Unfortunately, the commercialization of AS-7, an improved storage medium developed under the name SOLX appears to have stalled.

Interest has also grown in the role that donor characteristics may play in both product quality as assessed by laboratory measurements, and in the outcome of transfusion. Several studies have recently appeared that have used large databases of transfusion recipient outcomes linked to databases on donors. These studies have suggested that donor characteristics such as sex and age may influence transfusion outcome; however, other studies using different databases have not seen such associations when aspects of data confounding are accounted for. Thus, while there are clearly donor characteristics that affect the storage quality of RBC concentrates, their significance to transfusion outcome is unclear.

Two new technological improvements are on the horizon for RBC concentrates. The first of these is pathogen inactivation, with two companies expected to have marketing approvals soon (Cerus and TerumoBC). One technology treats the finished RBC concentrate, and the other is used on whole blood from which an RBC concentrate may subsequently be made. Both treatments cause a reduction in product shelf life although not to equal degrees. The availability of processes to pathogen inactivate RBC concentrates means that we will be able to offer patients a full spectrum of pathogen-reduced components. A novel strategy to improve RBC quality has been developed by New Health Sciences that depletes the oxygen in the stored RBC to reduce oxidative damage to the cells. Laboratory quality parameters of RBC concentrates stored in this manner are superior to standard storage, and clinical studies are underway to assess the in vivo function of cells stored using this new technology.

In summary, there is much new in the world of RBC concentrates. A continued focus on quality and safety has brought us new options and advances with more on the horizon.

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Platelets, small but important!

Background
Platelets are crucial to prevent bleeding. In 1905, Bizzozero described that small 'blood fragments' adhered to injured blood vessel walls forming a thrombus1. In 1951, Harrington put his own life at risk when he transfused himself with platelets from a patient suffering from an unknown bleeding disorder: his platelet number fell very rapidly but recovered within a week in hospital[2].

Platelet transfusion is life-saving for (onco)-haematology and actively bleeding patients. Platelet efficacy after transfusion is monitored by their ability to circulate for an appropriate length of time and participate in thrombus formation. Therefore, researchers are investigating the clinical benefit of platelet transfusion and comparing the outcomes of different patient platelet count thresholds, numbers of platelets transfused and different ratios of platelets vs. red cells.

Platelet collection practices
Platelets can be obtained from whole blood or plateletpheresis and are usually leukocyte-depleted. In Australia, most platelets are pooled, after isolation from ABO-identical buffy coats from four different donors, stored in 30% plasma and 70% platelet additive solution. The more costly single donor platelets are collected by apheresis, which separates platelets and plasma while returning red cells to the donor; the platelets are then stored in 100% of donor's plasma. Platelet donors are requested not to take aspirin (or other NSAIDs) seven days before donation since these drugs inhibit cyclo-oxygenase-1 and therefore platelet function during their circulation time (10 days)[3].

Research has shown that platelet responsiveness in a patient who receives a platelet transfusion may depend on characteristics of the platelets they receive, which could be influenced by the donor's genetic background, diet, health and NSAID intake. Factors such as processing, manufacturing and storage practices (transport, agitation or its interruption, temperature excursions, storage time and modifications such as irradiation and washing) might affect the platelet's responsiveness post-transfusion in the case of vascular injury in vivo. The response of apheresis platelets to physiological stimuli in vitro varies between platelets from different donors. Hyperactive (prothrombotic/procoagulant) platelets might be ideal for bleeding while less reactive platelets may be better suited for cardiovascular patients. Therefore, new transfusion approaches might involve (pre-)selection of the right donor for the right patient, depending on the transfusion indication.
Platelet storage methods

Platelets for Transfusion are conventionally stored at 20-24°C, with constant agitation. Although these conditions support an acceptable circulation time following transfusion, the shelf-life is limited to 5-7 days. At this temperature, bacterial growth may occur, increasing the risk of transfusion-associated sepsis; and as platelets are metabolically active, they experience a progressive deterioration in quality during storage, which affects their function and clearance once transfused3. Strategies to mitigate these problems are actively being investigated. Pathogen inactivation technology has been implemented in many blood centres to improve platelet safety by inactivating bacteria and other pathogens; however, this treatment may also affect platelet quality and function. New generation platelet additive solutions and storage bags are being developed in an effort to support platelet metabolism and prevent platelet activation. Alternative storage temperatures such as refrigerated4 and frozen5 storage of platelets are being (re-) investigated as they may improve supply and transport logistics and enhance haemostatic efficacy in the bleeding patients. Identification of the optimal storage conditions, which maintains them in a resting state and promote optimal functionality when transfused, continue to be pursued.

Australian governments fund the Australian Red Cross Blood Service for the provision of blood, blood products, and services to the Australian community.

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1. Bizzozero G, Le Opere Scientifiche di Giulio 1905.
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3. Kreuger AL, Vox Sanguinis 2017:112.
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Catherine Howell
Chief Nurse Diagnostic and Therapeutic Services
NHS Blood and Transplant

The Role of NHS Blood and Transplant in Delivering Therapeutic Apheresis Services

NHS Blood and Transplant (NHSBT) is a major provider of Therapeutic Apheresis Services within the National Health Service (NHS) in England. A national team delivers approximately 7000 treatments for over 1,500 patients each year. NHSBT has the largest installed therapeutic apheresis equipment base in the whole of the NHS.

Adults and paediatric patients have access to a portfolio of therapies using technology that exchanges, removes, or collects certain components within the blood. Apheresis treatments support patients from a wide range of clinical specialities including; Haematology, Neurology, Dermatology, Oncology and Cardiology. The main apheresis procedures in the portfolio are:

- Extracorporeal Photopheresis: For the treatment of patients with chronic and acute Graft vs. Host Disease as a result of haematopoietic stem cell transplantation
- Therapeutic Plasma Exchange: For the treatment of clinical conditions spanning multiple clinical specialties including hematological disorders such as Thrombotic Thrombocytopenic Purpura and certain inflammatory diseases of the central and peripheral nervous system e.g. Guillian Barre Syndrome and Auto Immune Encephalitis
- Peripheral Blood Stem Cell Collection: Autologous and allogeneic collection for patients requiring stem cell transplantation due to malignant blood cancers such as Leukemia and Myeloma
- Automated Red Cell Exchange: To prevent crisis and complications relating to Sickle Cell Disease by rapidly removing red blood cells containing Hemoglobin S whilst simultaneously replacing them with donor blood
- Low Density Lipid Removal: For patients with hereditary high levels of cholesterol who do not respond adequately to cholesterol lowering drugs and low fat diet

Services are delivered from eight sites based within acute NHS Trusts. Delivering services from within an acute setting enables outpatients to be treated in a dedicated therapeutic unit whilst also providing a peripatetic outreach model for paediatrics and treatment for acutely unwell patients at the bedside.

NHSBT is ideally positioned to provide Therapeutic Apheresis Services through its regional and national delivery model that consolidates volume across hospitals and generates scale that:

- Allows us to deploys high levels of nursing and medical experience
- Enables staff to maintain competence in all procedures (especially important for low volume and more specialist procedures)
- Provide a 24/7, 365 day per year service
- Facilitates provision of a comprehensive range of patient treatments
- Provides economies of scale/ leverage in procurement.

Therapeutic Apheresis Services is the only area of NHSBT where treatment is provided directly to patients and therefore patient safety and quality is always the number one priority for the organisation. The team has a longstanding exemplary performance in both patient satisfaction and regulatory compliance.

NHSBT recognises the importance of research and development to support advance therapy medicinal products and subsequently provides apheresis support to a number of NHS and commercial clinical trial companies to support future patient vaccine and drug development projects.

There is increasing recognition within the NHS that delivery of specialised services should be consolidated and are best delivered by centres of excellence. NHSBT is uniquely positioned to improve equity of access for therapeutic apheresis treatments for patients in England. Demand for services are increasing each year with the most notable increase in Extracorporeal Photopheresis and Automated Red Cell Exchange. Building on its strengths as a national provider, and the economies of scale that this generates, the strategic aim for NHSBT is to become the preferred provider and supplier of choice for Therapeutic Apheresis Services in the NHS.

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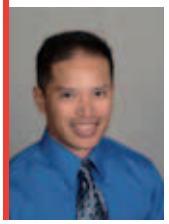
Plasma

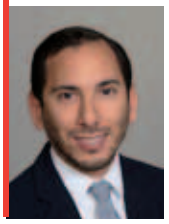
Of the human blood that flows through arteries and veins, plasma is the liquid in which the cellular components are suspended, and that is most abundantly present. Fifty-five percent of blood is plasma of which 89% water, 2% salts, 3% lipids and 6% proteins. The plasma proteins (60 g/L) consist of 2,000-4,000 different proteins in a concentration range from ng/ml (hormones) to ± 40 mg/ml (albumin). Each constituent has a specific function in the homeostasis of the human body, and a deficiency of a protein might be life-threatening. Plasma is used in clinical care as plasma for transfusion or fresh frozen plasma, and indicated for general clotting factor deficiencies, isolated clotting factor deficiencies in case a purified or recombinant product is not available, correction of hyper fibrinolysis in case of thrombolysis, and substitution of clotting factors or deficient factors caused by a disease in case of plasmapheresis. To prevent transmission of blood borne transfusion transmitted infections, safety measures, additionally to donor exclusion and donation screening, such as a quarantine period and/or pathogen inactivation are in use.

Plasma is a rich biological material, and about 20-25 plasma proteins can be isolated from plasma for concentrated therapeutic plasma protein products. The presence of proteins in plasma differs between albumin (64.3%), immunoglobulin G (20.3%), fibrinogen (5%), α2-macroglobulin (4.4%), α1-antitrypsin (2.5%), fibronectin (0.5%), ant thrombin (0.3%), plasminogen (0.3%), c1-esterase (0.3%), and prothrombin (0.25%). Between the other proteins (1.7%), von Willebrand factor, Factor XI, Factor IX, Protein C, Factor VII and Factor VIII are traceable. As a result of the plasma fractionation process, a variety of plasma derived medicinal products has been made available. Units of plasma recovered from whole blood (recovered plasma) or obtained by plasmapheresis (source plasma) are pooled and processed through a process called “fractionation” that employs time, temperature, pH, and ethanol concentrations to extract the specific therapeutic proteins. These proteins are subsequently subject to various purification methods and pathogen-inactivation and -removal processes to further ensure their safety and efficacy.

Preparing a therapeutic product often takes from seven to twelve months between donation and final product release. This sets the production of plasma protein therapies apart from chemical pharmaceuticals and other biologics whose manufacturing processes are much more condensed and whose direct manufacturing costs are a significantly smaller portion of the overall cost. Coagulation factor I-, factor VII-, factor VIII-, factor IX-, factor XI-, and factor XIII-concentrate, activated prothrombin complex concentrate, prothrombin complex concentrate, anti-thrombin III, Protein C, von Willebrand Faktor (vWF), fibrin sealant, albumin, alpha-1 proteinase inhibitor, C1-esterase inhibitor concentrate, polyvalent immunoglobulins, and hyper-immune globulins or specific globulins against hepatitis A or B, rabies, varicella, tetanus, pertussis, and CMV are used in clinical therapy. Many patients with a variety of diseases and disorders, in particular immunological disorders, infectious diseases, coagulation and bleeding disorders, metabolic diseases and trauma, benefit from treatment with plasma products. In particular patients who need replacement therapy because of primary or secondary protein deficiencies such as patients with haemophilia or immune deficiencies are dependent on plasma protein products. In 1969, the immune modulatory effect of high dose immunoglobulin was discovered in patients with ITP. Since then the need for polyvalent immunoglobulin has grown significantly for the treatment of an increasing number of haematological, neurological and dermatological auto-immune and inflammatory diseases. The vitamin K-antagonist function of prothrombin complex concentrate (PCC) and the anti-factor inhibitor function of activated PCC are also lifesaving.

Unfortunately based on epidemiological data, many patients worldwide lack essential treatment based data on the percentages of diagnosed and treated patients. According to the World Federation of Haemophilia, only 30% of the patients with haemophilia A or B have been diagnosed and only 25% receive treatment. Other patient’s organizations present similar or even worse data: of patients with primary immune deficiency, worldwide, less than 10% is diagnosed and only 6% receives treatment with immunoglobulin. Due to the increasing number of patients who are suffering from diseases and disorders that can effectively be treated with plasma products, the need for these products will continue to grow and the demand for plasma, the source material for the production of these products, will increase equally.





Erwin Cabana
Technical Manager, ICCBBA

Matthew Delgado
Global Development Director, ICCBBA

Coding of Novel Blood Components with ISBT 128

Advances in modern medicine have led to an increase in the need to code blood component products beyond the traditional Red Blood Cells, Plasma, and Platelets. With novel blood components, as with traditional blood products, there is a need to identify and code products uniquely to allow for traceability from donor to patient. However, before a product can be coded into ISBT 128, proper terminology first needs to be established and defined so that medical professionals understand characteristics of the product they are handling.

To ensure a common understanding of terms, ISBT 128 utilizes internationally standardized terminology. This serves as the foundation for the unique identification and coding of blood products. Obtaining agreement on standardized terminology at the necessary level of detail involves careful analysis and robust consensus. Care is taken to ensure that internationally agreed standardized terminology is defined at the required level of granularity. This provides confidence in the consistency of both the information being transferred and the quality of the product described. Once standardized terminology is defined, combinations of terms are combined in a hierarchical format to give a formal description of the product. For example, broad high-level Class names (such as Convalescent Plasma, see table) can be combined with lower level Attributes that provide further details about the specific disease history of the donor who donated the Convalescent Plasma (e.g., Ebola). Reference tables are built to map each Product Description to a suitable code. Such tables can be large and complex, and it is essential that they are managed properly. ICCBBA utilizes procedures to ensure that tables can be modified to meet the changing needs of clinical practice in a manner that maintains their integrity and avoids ambiguity or redundancy. ISBT 128 Product reference tables combine a tightly defined structure with the flexibility to accommodate expansion and change in ways that cannot be anticipated. Successful management of ISBT 128 standardized terminology and reference tables requires continuous input from both clinical experts and information specialists. Tables are often published and in such a way that allows users of the standard to access the most up-to-date versions promptly.

Two Class names have recently been developed for new types of plasma products. International ICCBBA Technical Advisory Groups were consulted, and the following Classes and definitions were established through international consensus.

Class Name	Definition
IMMUNE PLASMA	Plasma that meets requirements of, and is intended for, further manufacture into immune globulin products. Unless otherwise specified, the product has been obtained from Whole Blood and frozen.
CONVALESCENT PLASMA	Plasma collected from a donor who has recovered from a disease. It is collected with the intent of providing passive immunity for other patients and intended for direct transfusion. Unless otherwise specified, the product has been obtained from Whole Blood.

Further additional Attributes were established in order to differentiate the different types of Immune Plasma and Convalescent Plasma.

Attribute Name	Definition
Hepatitis A	Hepatitis A antibody is present at a concentration suitable for Hepatitis A hyper immune globulin manufacture.
Ebola	The donor has a history of infection with Ebola virus.

These Class names were combined with Attributes to build a formal ISBT 128 Product Description. Each unique Product Description was then assigned a unique Product Code. An example is shown below:

- E8767 = CONVALESCENT PLASMA|CPD/XX/<=-25C|Ebola

There are now over 15,000 Product Codes within ISBT 128. The Standard's flexibility ensures that the growing demand for new product codes can be accommodated utilizing ICCBBA's wide network of expert volunteers and professional support coupled with an ISO 9001:2015 accredited quality management system. More information can be found on the ICCBBA website at www.iccbba.org.

References:

- ISBT 128 Standard Terminology for Medical Products of Human Origin (ST-002)
  - o https://www.iccbba.org/tech-library/iccbba-documents/standard-terminology
- ISBT 128 For Blood Components, An Introduction (IN-003)
  - o https://www.iccbba.org/subject-area/blood-transfusion/blood-documents/in-003
- ICCBBA website
  - o www.iccbba.org

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MACOPHARMA

BY YOUR SIDE FOR 40 YEARS

The ISBT in Copenhagen was the occasion to celebrate our 40th anniversary by your side. You has been welcomed on our brand new booth where you had the possibility to discover who we are through our new video made of our testimonials. Check it out on our website (www.macopharma.com). We also celebrate our anniversary during the traditional Maco Evening in which many people took part of this event.

We want to thank you for being part of this anniversary. We spent a wonderful moment by your side and the most important is that you all are by our side for 40 years. Our goal is to keep being with you for the next 40 years.

Come continue celebrating our anniversary to the SFTS congress in Bordeaux (booth #36) and BBTS congress in Glasgow (booth #9) in September, and AABB congress in San Diego (booth #2819) in October.

macopharma

DESIGNED FOR LIFE

Ravi Reddy

The 27th Regional Congress took place from 17 to 21 June in Copenhagen and from the feedback received from delegates, this was a very successful congress. The success was largely due to the considerable amount of work done by the Local Organising Committee, the Scientific Secretary, MCI – the professional congress organizer, management and staff of ISBT and not to forget the contributions of scientific content by the invited speakers and delegates. I am sure that the attendees will have fond memories of Copenhagen for a long time and we look forward to the next Regional Congress in Guangzhou, China from 25 to 28 November 2017.

The ISBT Board met for two days and some of the key outputs were:

- The presentation of the revised ISBT Code of Ethics to the General Assembly which was adopted by the members
- Finalization of the revision of the MoU with AABB and signing this off in Copenhagen
- Appointment of John Semple as the Scientific Secretary for a 3-year term from 2019 to 2021
- Review and revision of membership categories and fees which will become effective from April 2018
- Confirmation of Barcelona as the hosts for the 36th International Congress in 2020

The focus of this edition of Transfusion Today is on Blood Components and those working in Blood Services will be all too familiar with the red cells, platelets, fresh frozen plasma and cryoprecipitate products that are produced from a unit of whole blood. In most well developed blood centres, processing, storing and quality systems are well developed and almost 100% of whole blood is processed into components for therapeutic use. Additional plasma may be supplied to fractionators for the production of a wide range of plasma derived medicinal products. Apheresis procedures may also be utilized to collect platelets, plasma for fractionation and other specialized components such as STEM cells for cellular therapies.

In less developed countries, universal preparation of components from whole blood is still in various stages of development and there are a number of reasons for this. These include lack of appropriate infrastructure, increased costs associated with component preparation and inadequate demand for components such as frozen plasma and platelets leading to significant wastage. In many countries the logistics and quality systems have not yet developed to the stage where fractionators will accept excess frozen plasma for fractionation. As a result, a significant portion of blood in these countries is still transfused as whole blood.

The 2013 survey of blood availability in the WHO Afro region indicates “a total of 39 countries (84.8%) out of 46 reported preparation of blood components. Red cell concentrate (RCC) was developed in 34 of the 39 countries while platelets concentrate, fresh frozen plasma (FPP) and cryoprecipitate were prepared only in 28, 30 and 11 countries respectively”. While advances continue to be made in maximizing the yield of therapeutic blood components from whole blood and apheresis procedures, we also need to focus and support the many regions of the world that are still struggling to process the basic components from a unit of whole blood.

Ravi Reddy

Welcome to our new members

(june 2017 - august 2017)

Americas

- **UNITED STATES:** Christine Bales, Elaine Williamson-Moellers, Claudia Cohn, Tamara Busby, Palani Palaniappan, Oliver Oliver Karam, Lori Daane
- **BRAZIL:** Flavia Bandeira, Ana Paula Cozac
- **CANADA:** Aboubakar Mounchili, Colleen Young, Donna Wall, Abdullah Hussain
- **MEXICO:** Jorge Enrique Trejo
- **URUGUAY:** Nilo Bentancor
- **ARGENTINA:** Mauro Fernandez Roscano

Eastern Mediterranean

- **PAKISTAN:** Muhammad Bukhsh
- **QATAR:** Reagan Newton
- **TUNISIA:** Slama Hmida

Europe

- **NORWAY:** Barbora Dybvik
- **IRELAND:** Aine Fitzpatrick, Seamus McAuley
- **DENMARK:** Flemming Bogh-Sorensen
- **BOSNIA AND HERZEGOVINA:** Aida Djozo, Elma Catovic Baralija, Alma Ljuca
- **SWITZERLAND:** Sofiane Taleb, Annika Eriksson
- **BELGIUM:** Kristin Thiabaut
- **RUSSIA:** Aleksandr Chenysh
- **SWEDEN:** Jesper Bengtsson, Yan Quan Lee, Nicholas Holthuis, Elisabeth Semple, Linda Larsson, Hanna-Stina Ahlzen
- **UNITED KINGDOM:** Jennifer Allen, Michelle Ray, Ahmad Ghanbari, Bernard Fox
- **ROMANIA:** Turculeanu Adriana, Craciun Adriana-Cleopatra
- **NETHERLANDS:** Ghinda Adriana, Bas Romeijn, Daniella Horbach
- **GERMAY:** Behnaz Bayat, Larisa Bukreeva
- **ITALY:** Mottola Maria
- **FINLAND:** Jaana Matto, Pia Niittymaki

South East Asia

- **INDONESIA:** Andry Gunawan
- **INDIA:** Manish Raturi, Ruhi Mehra
- **NEPAL:** Mrigendra Amatya

Western Pacific

- **CHINA:** Yan Liu, Cuihua Tao
- **JAPAN:** Shinichi Eda
- **MALAYSIA:** Ummi Mohlisi Mohd Admawi
- **SINGAPORE:** Sonu Bhatnagar
- **AUSTRALIA:** Danielle Clucas, Linda Saravanan, Jun-ho Kim, Marie Anne Balanant

Welcome to our Affiliate Members

Starting this new membership year ISBT introduced a new Affiliate Membership programme. With a fee that takes the location and size of the organisation into account, we reach out to smaller organisations to benefit from the ISBT network. All Blood Centers, Blood Services, and National Blood Transfusion Societies are welcome to apply for Affiliate Membership.

As an Affiliate Member of ISBT you receive various benefits. All members or employees of the affiliate will receive access to a suite of material on the ISBT Academy ePortal. A named representative will receive Vox Sanguinis and Transfusion Today, have access to the full ISBT Academy ePortal, have voting rights in the ISBT general assembly, and receive a discount on ISBT Congresses registration. All Affiliate Members will receive a membership certificate.

Currently we have 13 Affiliate Members. We would like to thank all of our Affiliate Members for their contribution to our mission of spreading knowledge and improving transfusion practice worldwide.

Africa
Regional Society for Blood Transfusion Kenya - Kenya

Europe
DGTI - Germany
DSKI - Denmark
Hellenic Society of Blood Transfusion - Greece
Norwegian Society for Immunology and transfusion medicine - Norway
SETS - Spain
Welsh Blood Service - Wales, UK

Americas
CSTM - Canada

South East Asia
Macau Blood Transfusion Service - Macau
Taiwan Blood Services Foundation - Taiwan
Society of Transfusiologists - Kazakhstan

Eastern Mediterranean
Pakistan Society of Blood Transfusion - Pakistan

Western Pacific
ANZBST - Australia/New Zealand

ISBT Awards and Prizes 2018

Your opportunity to apply or nominate

ISBT Presidential Award

All ISBT members are invited to propose candidates for the ISBT Presidential Award
which will be granted in 2018 at the 35th International Congress of the ISBT in Toronto, Canada.
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 h.w.reesink@amc.nl. 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 20th, 2017.

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 €5000 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 35th International Congress of the ISBT in Toronto, Canada. 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.
Candidates should forward a copy of their submission to the ISBT Office (office@isbtweb.org) with Jean Julliard Prize as the subject heading. Regulations for the format of submissions are provided on the ISBT website.

The closing date for submission is December 17, 2017.

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/Service to attend the 35th International Congress of the ISBT in Toronto, Canada, June 2018 (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 35th International Congress and will be expected to give a presentation in one of the scientific sessions.
Applicants should forward a copy of their submission to the ISBT Office (office@isbtweb.org) with Developing Country award and the name of the country as the subject heading.
The Award regulations, the procedure for applying, and the application form can be found on the ISBT website.

The closing date for applications is December 17, 2017

27th Regional Congress of the ISBT June 17 - 21, 2017

Bella Centre, Copenhagen

The people of Denmark are amongst the happiest in the world, so it was no surprise that blue skies and sunshine greeted delegates on Saturday June 17th for the first day of the ISBT congress. The scientific programme for the local day was prepared by the organisation of transfusion centres in Denmark and the Danish Society for Clinical Immunology. There were four sessions which mainly looked into the future of many aspects of transfusion medicine. On Sunday, the ISBT Academy day was busy with delegates getting down to the basics or learning about new aspects of transfusion medicine. They also savoured new features of the ISBT congresses – voting using the ISBT App and questions and answers via the App. Working Party meetings also took place on Saturday and Sunday and these were well attended.

The main scientific programme consisted of 8 different tracks as well as the daily plenary session. The science was of a high quality with many speakers who were new to ISBT. Included were first-time invited speakers from Iceland and a particle physicist who in the final plenary session shared fascinating facts about big data in the area of atoms. Young scientists had their own session where they were able to showcase their work. They were also able to attend the Young Investigators breakfast and discuss their work with experts.

The opening ceremony included speeches and awards, and the entertainment was provided by a flash mob of singers and musicians. One of the songs was 'Happy' by Pharrell Williams, very much related to our happy Danish hosts. Delicious Danish food was served during the Welcome Reception which took place in the exhibition hall.

The highlight of the social programme was as ever the congress party which took place in Øksnehallen. Over 800 delegates attended the party and found games areas, cool lounge seating, street food, drinks and music. The DJ was one of the best, and dancing went on until we were thrown out at 23.30!
ISBT thanks Morten Bagge Hansen and Jørgen Georgsen for all their hard work in ensuring that the congress was a great success.

New features in Copenhagen
With the new congress App, we also introduced new, interactive features in the scientific programme. During selected sessions, the audience was able to use the app to participate during the presentation or in the question-and-answer time after each presentation. Some presentations enabled delegates to engage directly with the speaker through questions that were presented by the speaker during the presentation. The answers were collected at that moment and discussed by the speaker, integrating the results into the presentation on the spot. After the presentation, a question-and-answer moment is typically included. Besides the traditional microphone-asked questions, delegates were also able to submit questions via the congress app. These questions were then received by the moderators who posed the questions to the speaker. An overview of the interactive sessions can be found on the App's main menu under 'Interactive Sessions'. We believe it has been a positive experience, and we look forward to include it in sessions in future congresses.

Facts and figures
- 2889 delegates from 100 countries
- 78 exhibitors filled 2334 m2 of exhibition space
- 8 satellite symposia
- 49 scientific sessions
- 2 workshops
- 914 abstracts were received and 111 abstracts were accepted for oral presentation

The ISBT Transfusion Practitioners Forum in Copenhagen
The London 2015 ISBT Congress saw the first Transfusion Practitioner (TP) session. From this very first session, the ISBT Transfusion Practitioner (TP) Forum was established, with Linley Bielby becoming the Chair and Rachel Moss the Vice-Chair. Fast forward two years to ISBT Copenhagen, via the 2016 Congress in Dubai and the TP Forum is now well established, thanks to the support of ISBT Executive and the Clinical Transfusion working party. Two engaging TP sessions were held in Copenhagen. The first included three very relevant topics pertinent to anyone involved in clinical transfusion, whether or not they were a Transfusion Practitioner. Dr Astrid Norgaard shared the experiences of establishing a patient blood management (PBM) programme in Denmark, including the pitfalls and successes. Rachel Moss shared insights about reducing iatrogenic anaemia (sometimes called hospital acquired anaemia) and how there is not one single solution to the problem, but many small changes (incremental gains) that add up to making a difference to patients, and reducing their iatrogenic anaemia risk. Linley Bielby talked about the issues facing many countries in relation to the management of O negative red cells. She highlighted how the TP role could help with maintaining a sustainable supply through investigating, reporting and actioning issues around appropriate use, storage, and handling.

What makes the TP sessions most interesting is that they are attended by people from a number of different professional groups; Transfusion Practitioners, Registered Nurses, Medical Scientists and Doctors. The Transfusion Practitioner has a central role in supporting safe and appropriate practice, but they work very much as part of the team, and this is reflected in the diverse audience attending the formal sessions.

It has become a tradition now for the TP Forum to have a networking session. this year it was “Ask the Experts”. Rozemarijn Deelen and Amanpreet Dhesi moderated the session fielding questions to the experts in the room or the audience. There were very lively discussions on a number of topics including transfusion training for clinical staff (doctors and nurses), advice on getting other non-transfusion colleagues engaged in PBM, including audits, and patient involvement in PBM programmes. Interactive voting technology on smart phones was used. The audience was able to respond to, or ask questions. This interactive element was very well received, and definitely something we will use again in Transfusion Practitioner sessions. To continue networking, the online ISBT TP forum was promoted with a “how to” session, thank you, Bodine. Everyone is encouraged to visit, post questions and provide feedback. We look forward to interacting with you through the online forum.

28th Regional Congress of the ISBT Guangzhou, China

November 25 - 28, 2017

Key dates
Deadline Early Registration Fee: October 5, 2017
Deadline Late Registration Fee: November 9, 2017
Onsite fee applies as of November 10, 2017

Key Features Scientific Programme

Plenary sessions
- How different models help us to understand TRALI
- Therapeutic possibilities for Thalassaemia - Optimising iron chelation therapy, stem cell therapies and red blood cell genotyping for haemoglobinopathy patients
- Platelets - Clinical impact of CD36 antigen, multifaceted regenerative lives of expired platelets and clinical trials of frozen platelets
- TTID - Pathogen reduction, vector borne infections and NBV infection in young Chinese donors

Parallel sessions scientific
- Haemovigilance, managing haemorrhage, blood screening programmes and strategies, blood donation in emergency situations, hepatitis, and next generation sequencing

Academy (educational sessions)
- Young donors, leadership in transfusion in the hospital and blood centre, the role of the transfusion practitioner, quality management and haemovigilance

Workshops

Donor and Blood Donation in Different Cultural Settings
The Asia Pacific Blood Network (APBN) is a network which is committed to voluntary non-remunerated blood donation. One of its strategic objectives is to strengthen the ability to secure a sufficient and sustainable donor panel to meet the patient demands on blood product based on scientific and ethical principles.

At present, parts of this region are facing the challenge of blood supply. APBN, in conjunction with the ISBT Donor and Donations Working Party and the Management Committee of the Chinese Society of Blood Transfusion (CSBT-MC) are pleased to hold a joint workshop as part of the Regional ISBT Congress in Guangzhou. The workshop, will explore donor management, donor complications and education strategies from different cultural backgrounds.

The workshop is scheduled to take place on the afternoon of Sunday 26th November, providing an opportunity for participants to learn about good practice examples and share experiences of donor recruitment and management.

We are looking forward to your participation. For more information about the workshop, please contact the APBN Secretariat at: apbn@redcrossblood.org.au

Writing a scientific paper and getting it accepted
The workshop is for everyone from early career to experienced scientists who wish to learn, improve or refresh their writing skills. The workshop will help you to learn more about how to structure a manuscript, how to develop the sections to ensure a final paper that will be accepted for publication. The workshop will also cover the submission process. Further details are available at isbtweb.org/Guangzhou

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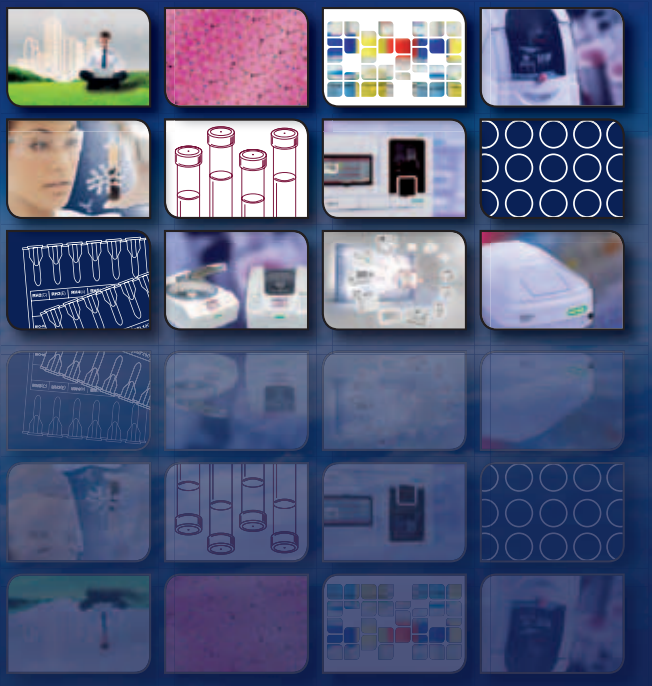

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BIO-RAD

News from the ISBT Central Office

ePortal: Single-Sign-On and New Design
The ISBT Academy ePortal has been undergoing some developmental changes over the past months. A new layout was launched in June, and in August the Single-Sign-On (SSO) mechanism was launched. With the SSO it is now possible to go directly to the ePortal and log in with your MyISBT username and password. You no longer need to log in on the ISBT website to access the ePortal. If you would like to access the ePortal from a mobile device you are now also able to use the Single-Sign-On mechanism.

App
Before the Copenhagen Congress ISBT was proud to launch a new app. Formerly, a new congress app would be released for each ISBT Congress with all the information you need to successfully navigate the congress. The new app is essentially an umbrella app with information about the society in general, and within the app you can download different apps for each congress event. Currently only the Copenhagen congress app is available, as the event app for Guangzhou is still in development. Feel free to download the Society app to discover our new mobile platform. In this way, once the Guangzhou congress app is available you will be the first to know.

Forum
At the Copenhagen Congress, we received a lot of questions about the ISBT Forum and how to access the Working Party subforums in particular. The WP-subforums have a WP-member section and a general section for all members of ISBT. If you are a member of a Working Party please contact your chair to receive the members-only password. All other members are welcome to join and interact on the forum. Visit the forum at forum.isbtweb.org and feel free to explore.

ISBT Award
Every year two people who have contributed significantly to blood transfusion and transfusion medicine, especially in the field of education, receive the ISBT Award. This year the ISBT Awards were presented to Jill Storry and Anne Husebekk. Unfortunately, Anne was not able to attend the Copenhagen Congress to receive the award on stage.

Jill was given the award in recognition of her longstanding chairpersonship of the ISBT Working Party on Red Cell Immunogenetics and Blood Group Terminology and her participation in the ISBT Rare Donor Working Party. She has spoken at numerous ISBT congresses and has also contributed reviews and original articles to Vox Sanguinis and the ISBT Science series.

Anne was offered the award for her oversight in the establishment and early implementation of the ISBT Academy when she served as Vice President on the ISBT board. She supported and fostered the ISBT's educational efforts and introduced a structure and function which is continuing to provide educational programs and opportunities worldwide.

The next ISBT Award will be presented in Toronto at the 35th International Congress of the ISBT.

ISBT signs Memorandum of Understanding (MoU) with AABB
ISBT and AABB have signed a new MoU which will be in effect for the next five years. Both organisations recognise that their missions, aims, memberships, and activities have common elements, and while these may partially overlap, they acknowledge that this provides a potential for synergy. The organisations will work together to use their respective strengths and resources to pursue mutual and common interests. Outcomes of the MoU will include joint scientific sessions at each other's congresses, a link between the AABB and ISBT websites, and identification for AABB and ISBT to collaborate on activities that will promote the international outreach efforts of both organisations.

ISBT awarded statuette by AABB
During the 27th regional congress of the ISBT in Copenhagen, AABB presented ISBT with a statuette during the opening ceremony. The gift is intended as a symbol of AABB's recognition and appreciation of ISBT's work to promote and strengthen the practice of transfusion medicine worldwide.

ISBT at AABB San Diego
If you are visiting the AABB annual meeting in San Diego come and visit the ISBT booth (2205) to find out more about the 35th International congress to be held in Toronto, Canada, June 2 – 6 2018 and other Society news.
ISBT and AABB will host a joint session on Saturday October 7, 2017 from 2.00 – 3.30 p.m. with the title Men Who Have Sex with Men: Is Individual Risk Assessment on the Horizon.

35th International Congress of the ISBT Toronto, Canada

June 2 - 6, 2018

Key dates

- Abstract deadline: Thursday February 22, 2018
- Notification to authors: Friday March 23, 2018
- Deadline early registration fee: Thursday April 26, 2018
- Deadline late registration fee: Thursday May 24, 2018
- Onsite fee applies as of May 25, 2018

Scientific Programme

Saturday June 2 is the Local Day put together by the Canadian Society of Transfusion Medicine. Sunday June 3 will be the ISBT Academy (educational) day with topics including apheresis donations, patient blood management in obstetrics, immunohaematology case studies, transfusion therapy including TACO and ECMO. Monday June 4 - Wednesday June 6 - the main scientific programme.

The Scientific programme for the Toronto congress is being compiled by the ISBT Scientific Secretary and the Local Organising Committee, and will be available when the website is launched at the beginning of October 2017. Once again ISBT is striving for new topics and new speakers.

Topics for the plenary sessions include Arboviruses, Platelets, and the Past, Present and Future of blood transfusion (celebrating the 200th anniversary of the first known blood transfusion).

Topics for the parallel sessions being considered are donor base models (volunteer, replacement, or mixed), blood safety in resource limited countries, transfusion of neonates, TACO physiology, immunoglobulins in transfusion medicine, and lowering transfusion thresholds in hematopoietic stem cell transplantation.

There will also be transfusion practitioner sessions for those who have the role at the interface between transfusion and the patient and who strive to improve practice, and a number of workshops.

EDUCATION

Webcasts of the Copenhagen Congress

One of the benefits of ISBT membership is access to the ISBT Academy ePortal where you will find a wealth of educational material including webcasts from our congresses.

A selection of webcasts of presentations from the 27th Regional Congress of the ISBT in Copenhagen is published every two weeks on the Academy ePortal. If you were unable to attend the congress this is a great way of catching up on the presentations. If you attended the congress but missed a session because there was so much good science going on you may be able to catch the session you missed.

Release Date	Session
July 12, 2017	Organisation and quality/clinical governance
July 26, 2017	Challenges of terrorism and catastrophes, too much or too little blood
August 9, 2017	Patient Blood Management
August 23, 2017	Major bleeding
September 6, 2017	TTID
September 20, 2017	Plasma supply management
October 4, 2017	Blood components and supply management
October 18, 2017	Metabolomics in blood banking and TM
October 31, 2017	New developments
November 14, 2017	Blood donor studies and Big data
November 28, 2017	Immunobiology of blood cells: Platelets

Financial support or support by use of the ISBT logo for educational events

Are you aware that you can apply for financial support or use of the ISBT logo for an educational event? In 2016 ISBT awarded support to 17 events which took place across the globe. The support is usually for €5000 but in exceptional cases more support may be awarded.

ISBT supports educational activities through the ISBT Academy. There is an online application form which you must complete and information on supporting documentation which must be provided.
There are two application deadlines during the year:
1. April 1 for events to be held in June-November
2. October 1 for events to be held in December-May.

Endorsement of educational courses

A new form of support for educational courses has been recently introduced. Two courses have been successful with their application and have been endorsed with use of the ISBT logo.
For more information, please go to http://isbtweb.org/knowledge-education/

CSTM annual meeting in Ottawa, Ontario, Canada

Gwen Clarke
Past President of the CSTM

The Canadian Society for Transfusion Medicine, in partnership with Canadian Blood Services and Héma-Québec held our annual meeting in Ottawa, Ontario, Canada from April 20-23, 2017. The conference theme was "Transfusion for All Ages". CSTM was pleased to receive ISBT endorsement for the conference.
There were 427 attendees from across Canada including Physicians, Clinical and Scientific researchers, Medical Laboratory Technologists, Nurses and Transfusion Safety Officers. Many staff, scientists, and physicians from Canada's blood suppliers (Hema-Quebec and Canadian Blood Services) and representatives from corporate sponsors also attended. Thursday was a bilingual workshop day covering topics such as:

- Patient Blood Management
- Serology and Genotyping
- Travel Related Donor Deferrals
- Platelet Utilization
- Transfusion therapy in Renal Disease and for Bone Marrow recipients
- Quality Improvement
- Ethical Issues in Blood Shortages

Some presentations within the scientific program included new approaches to transfusion related topics including:

- Newborn Screening for Sickle Cell Disease by Dr. Pranesh Chakraborty
- Reducing Blood Product Requirements Using Point of Care (POC) Coagulation Assays by Dr. Keyvan Karkouti
- The potential of skeletal stem cells within the mesenchymal stromal cell population to treat osteoporosis by Dr. Bill Stanford
- Screening Volunteer Blood Donors for Cardiovascular and Diabetes Risk by Dr. Merlin Sayers

Our annual awards were presented to Dr. Jason Acker, CBS and University of Alberta Scientist (the Ortho Award) and Melanie Tokessy, Medical Laboratory Technologist at The Ottawa Hospital, General Campus (the Buchanan Award). Dr. Acker's presentation was entitled "Product-Focused Research, Personalized Transfusion Medicine and the Role of the Development". Melanie Tokessy's award presentation was: "A time to look back while going full speed ahead".

The scientific program also featured 126 abstracts. Twenty were presented as oral abstracts, and 106 posters were displayed. Abstracts are available on the CSTM website with the top four abstracts published in Transfusion Medicine Reviews.
New in the last few years at the CSTM conference is the inclusion of a talk about patients and their journey. "Haya's Transfusion" presented by Wala Azimi, her mother, expanded the understanding of transfusion therapy to include the perspectives of a recipient and her family. It presented the vital importance of regular transfusions for some patient groups.

An exciting addition to the conference was the keynote speaker: David Usher. This Juno award-winning musician supported the use of creativity as a means of process development and meeting goals. He encouraged attendees to take risks and to learn from projects – even those not successful in the first attempt.

As always, the conference brought together Transfusion Medicine professionals to learn about new and exciting research, to expand their existing knowledge and to network with colleagues. It allowed for discussion of several new and controversial topics.

The presentations on Point of Care testing to optimize blood product requirements and on simulation to teach management of massive hemorrhage and transfusion reactions were well received and innovative.
The conference also highlighted research and clinical activity in the Ottawa region both in hospital settings and at Canadian Blood Services and Héma-Québec.
Many companies who support transfusion medicine in Canada sponsored the event. Eighteen exhibitors purchased booths to display their products and interact with attendees.

The conference was a great success for the transfusion medicine community in Canada as well as for a few international attendees.
Visit our website to learn more about transfusion medicine in Canada and consider contributing your experiences and comments through our social media accounts. You can even become a member!
We invite you to join us in Toronto, Canada in 2018 for the International ISBT Congress June 2 to 7. We hope to see many of you there!

Website: transfusion.ca
Facebook: facebook.com/transfusion.ca
Twitter: @CanSocTransMed
Instagram: cstm _ transfusion

ISBT ACADEMY

So-Yong Kwon
Director
Jungbu Blood Laboratory Center,
Korean Red Cross
Director for Scientific Affairs,
KSBT

1st Asian Session during the 36th Annual Congress of the Korean Society of Blood Transfusion (KSBT), Daegu, June 2 2017

The Annual Congress of the Korean Society of Blood Transfusion (KSBT) attracts around 400 participants involved in blood services and transfusion medicine in Korea. This year, an Asian Session dealing with the management of rare blood donors was organized for the first time. The KSBT thanks the ISBT Academy for supporting this session.

Since the rare donor program is at an early stage here in Korea, this session was organized to raise awareness on the importance of a national rare donor program, to update participants about the current status of rare blood donor programs in the region, to update participants about current technologies used to identify donors with a rare blood type, and to initiate collaborations in the management of rare blood donors in the Asian region.

Speakers from four countries shared their expertise. Dr. Ziyan Zhu (Shanghai Blood Center) gave a presentation on the rare blood donor program in China which was implemented in 2008. He gave a detailed overview of rare blood group antigen frequencies found in the region and explained the complementary roles of serological and DNA-based testing methods. Dr. Ubonwon Charoonruangrit (National Blood Centre, the Thai Red Cross Society) gave an overview of the rare blood donor program in Thailand where donors are phenotyped for red cell antigens using various serological methods, and select donors are genotyped using PCR:SSO Luminex method. Thailand experiences supply problems for Rh negative, H-, P- and Jk(a-b-) blood types. To cope with this problem, freezing of rare blood was introduced this year. Platelet supply system for patients with platelet refractoriness or neonatal alloimmune thrombocytopenia was also presented. Dr. Yoshihiko Tani (Japanese Red Cross Osaka Blood Center) talked about HLA-matched platelet transfusion in Japan. Methods for HLA class I genotyping and HPA typing were presented as well as HLA antibody testing methods performed for patients and platelet cross-matching procedures. Dr. Yeongbin Kim (Blood Transfusion Research Institute, Korean Red Cross), the last speaker, gave a talk about the current status of the rare donor registry operated by the Korean Red Cross. The rare donor registry started as a study project in 2013. So far about 5000 donors have been genotyped, and 96 donors with a rare blood group were identified. In this system, genotyping is routinely performed, and serological investigation is used for confirmation. All speakers agreed that there is a strong need for cooperation between countries in Asia in rare blood exchange.

The Asian Session was held concurrently with two other parallel sessions. Among 450 participants who attended this year's congress, 96 participants attended this session. An overwhelming majority of the participants gave positive feedback and expressed the need to continue the Asian Session in future congresses.

We hope that the 1st Asian Session on rare blood donors will lead to actual collaboration in the field of the rare donor management among neighboring countries. We also hope that this initiative will lead to future Asian Sessions dealing with other areas of blood transfusion and transfusion medicine that will foster knowledge sharing in the region.

The VIII Baltic Transfusion Medicine Congress and the I Latvian Congress in Laboratory Medicine

Dzintars Ozolins
The I Latvian Congress in Laboratory Medicine Congress President, Docent, University of Latvia

The first Latvian Congress in Laboratory Medicine was held in Riga, Latvia from May 11 to 13, 2017 – Radisson Blu Latvia Hotel & Conference Centre. This congress was co-organized along with the VIII Baltic Transfusion Medicine Congress, helping in change to promoting in a fruitful exchange of opinions and visions among the Latvian, the European and the International colleagues.

The scientific program, containing an interesting combination of presentations, symposia, discussions, sessions, and workshops, described the real situation and the recent innovations in Transfusiology and Laboratory Medicine in the 21st century, was carefully finalized in collaboration with the European Societies such as ISBT, EFLM, and IFCC.

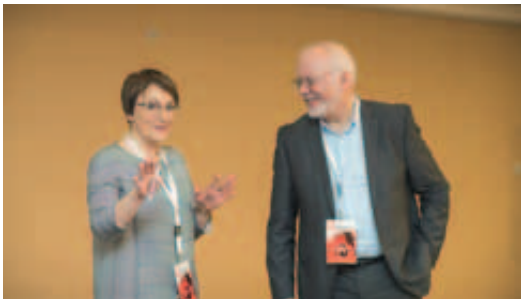
We prepared an interesting educational program that included:

- Comprehensive reviews of significant areas such as monitoring the optimal use of blood and blood components,
- Haemovigilance,
- Prevention and control of transmission infection diseases,
- Safety and quality of blood and blood components,
- The role of doctors, governments, and institutions for blood donors,
- Monitoring the optimal use of blood and blood components; role of hospitals and clinicians,
- International projects with Latvian laboratories - current and in the future,
- How do laboratories help to control infection diseases in Latvia?
- Why are oncological diseases on the rise in Latvia?
- Laboratory testing for haematology; screening economic issues,
- Economy of laboratory: the role of laboratory tests in Latvian medicine.

During this meeting a large, interesting and detailed exhibition of IVD industry products, as well as Industry Sponsored Workshops, were organized. Several hundred square meters were allocated to offer space for the latest innovations in the field of clinical chemistry, molecular diagnostics, cell counting,

Eszter Herczenik, Scientific Officer, ISBT Central Office (The Netherlands) with presentation "Pathological mechanisms of haemophilia and why it is important for blood transfusion"

Mart Janssen (The Netherlands), University Medical Center, Utrecht Division, Julius Center Transfusion Technology Assessment Department with presentation "Cost-effectiveness of targeted screening"



Vita Scepetova (left, Latvia), Head of laboratory, Health center 4 and Prof. Michael Neumaier (right, Germany), University Medicine Mannheim, Medical Faculty Mannheim of the University Heidelberg, Vice Dean, Chair for Clinical Chemistry, Director, Institute for Clinical Chemistry, Mannheim during discussion

Pourfathollah, Ali Akbar
IBTO Managing Director
& Head of Disaster Committee of IBTO

Maghsudlu, Mahtab
Vice president for Research and Education & Member of Disaster Committee of IBTO

Blood management in the disaster of the burned down Plasco Building; Iran Experience 2017

On Thursday, Jan 19, 2017, the nation was shocked as the high-rise 17-floor Plasco building burned down and collapsed with many brave martyr firefighters entangled under the debris: many casualties and much socioeconomic harm. All hospitals and medical centres were informed to be on alert and poised to react appropriately to the disaster. The debris removal was accomplished after nine long days. In total, 235 causalities were reported by the head of Emergency Medical Service. Out of them, 180 received outpatient treatment, 55 were hospitalized with 46 being subsequently discharged; 1 more stabilized and well-treated and about to be discharged soon. Unfortunately, one brave fireman hospitalized with more than 70% TBSA burn lost his precious life. After the debris removal, 19 more sacred dead bodies were discovered at the site including 15 brave firefighters and 4 more citizens. According to the Iran Chamber of Guilds, 560 business units were ruined with more than 40 million dollars of damage.

Immediately, the community started donating blood; social networking had an important role to support and spread this idea. Though very inspiring, it was not a reflection of the urgent need for blood since Tehran Blood Centre (TBC) has the adequate RBC storage (5 days) to meet hospital demands. The risk assessment was conducted that indicated for the limited blood demand; it was consequently followed by the announcement of Iranian Blood Transfusion Organization (IBTO) assuring the public for blood adequacy. Nevertheless, a long line of potential voluntary blood donors was made and extended out of the blood centre area. Therefore, the staff of the donor recruitment department tried to encourage volunteers to postpone their blood donation. They could convince a lot of them to make appointments for the following weeks and days. However, there was still an increase of 12.3% (with the total 1388 units) in blood donation on January 19 and 20 compared with the similar days a week earlier (with 1216 units). During the two days after the disaster, the total 1747 potential voluntary blood donors registered and were processed with 359 (20.5%) deferrals. The earlier ordinary days registered the figure of 1443 as potential blood donors out of whom 227 (15.7%) were deferred. What is notable is the percentage of first-time blood donors during the disaster with an increased rate of 62.7% (520 units of whole blood versus 194 on the two ordinary days). However, the rate of regular blood donors conversely decreased by 25% (508 units of whole blood compared to 678 on the two ordinary days). Similarly, the percentage of female blood donors in the disaster period reached 17%. That shows an increase of 12% compared to the two ordinary days a week earlier. In total, there were no significant changes in hospital requests, and the safe blood components were available and distributed to all the injured.

IBTO, the only authorized national blood system in Iran for blood collection, processing, and distribution, is responsible for meeting the demand for safe and adequate blood across Iran. In 1974 and following the establishment of IBTO all blood transfusion

Plasco building on fire prior to the collapse- Tehran

The long line of voluntary blood donors aftermath the disaster- Tehran Blood Center

activities from donor recruitment to production of blood components and delivery of blood and blood products were centralized. The activities of IBTO with its provincial blood centres affiliated to the central headquarters follow the laws and regulations of Ministry of Health and the criteria of Iran National Regulatory Authority. With improving the pool of voluntary donors, IBTO has been successful in excluding "family replacement" donation since 2007 and reached 100% voluntary and non-remunerated blood donation. 1, 2

Blood centres play a vital role in disaster management. So preparedness of blood centres for disaster response is very important. One of the main preparedness programs of IBTO for disaster is to implement the inventory management program. Inventory management is a balance between shortage and wastage of blood products. However, Iran is located in a disaster-prone area with 31 types of natural disasters out of the 40 identified in the world.3 So maintaining a 5-7-day supply has been approved to address potential disasters by IBTO. The available local blood inventory is the first source to meet hospital demands in disasters.4 The Plasco building disaster has provided some opportunities for more practice in some areas and on how to better manage the blood donors to minimize blood wastage, how to inform the public and communicate with volunteers in queue for subsequent appointments aftermath the disaster, how to retain the first time donors as regular blood donors in future, and how better to coordinate with the Emergency Medical Service and hospitals to wisely meet blood demands with the abidance by the appropriate blood management approach.

Although the Plasco building collapse was a small-scale disaster, it reminds us again that disaster preparedness is imperative in all blood centres especially in this millennium.

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The long line of voluntary blood donors aftermath the disaster- Tehran Blood Center

WESTERN PACIFIC

Cake cutting at Gala dinner at NIHBT

So-Yong Kwon
Director
Jungbu Blood Laboratory Center,
Korean Red Cross
Vice President
ISBT

Global Launch of World Blood Donor Day 2017 in Vietnam

Every year, World Blood Donor Day (WBDD) is celebrated on June 14 to raise awareness of the importance of blood donation to save millions of lives and to thank blood donors for their unconditional gift of life. This year's campaign focused on blood donation in emergencies with the campaign slogan: "What can you do? Give blood. Give now. Give often" The host for this year's WBDD events was Viet Nam through its National Institute of Haematology and Blood Transfusion (NIHBT). Representatives of the four founding partners, World Health Organization (WHO), International Federation of Red Cross and Red Crescent (IFRC), International Federation of Blood Donor Organization (IFBDO) and International Society of Blood Transfusion (ISBT) were present for the launch of the WBDD event. Along with the founding organizations, delegates from nine countries participated in the event together with local delegates.

Honoring ceremony for Vietnam's 100 outstanding blood donors

The day before the launch of the WBDD, a Gala dinner was held on the premises of the NIHBT. Blood donors and international delegates were welcomed by live shows performed by volunteers.

On WBDD, an international workshop on "Development of a blood donor program to ensure safe and adequate supply" took place. Following an introduction about the current worldwide needs and challenges by WHO, delegates of IFBDO, Thai Red Cross Society, Korean Red Cross, Indian Society of Blood Transfusion and Immunohaematology, NIHBT, and Iranian Blood Transfusion Organization shared their experiences on strategies to promote regular blood donations, the use of social media for promotion and retention of voluntary non-remunerated blood donors, the role of volunteers/ youth associations in donor recruitment, and ways to get prepared for emergency situations. Participants agreed that although having a preparedness plan for increased blood demand in disaster situations is important, in most cases it is not lack of supply but rather the lack of coordination of the blood supply system that poses the greatest difficulty. Participants emphasized that a well-coordinated blood service programme is important for disaster management and that blood programmes should be part of a broad national health policy. Because an adequate inventory level during regular times is sufficient to meet the needs in emergencies, regular blood donation and sufficiency of blood supply is of utmost importance to save lives in times of crisis which is in line with this year's WBDD slogan.

International delegates

An honoring ceremony for Vietnam's 100 outstanding blood donors was held on the evening of WBDD at the Viet Xo Friendship Labor Cultural Palace in Hanoi. Every blood donor was acknowledged for their contribution in saving patients in need of blood transfusion, and the ceremony was broadcasted live on television. The ceremony ended by handing over the WBDD flag to Greece, the hosting country for 2018 WBDD.

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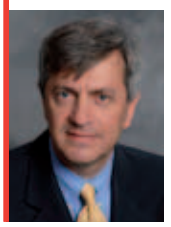


Richard J Benjamin
ISBT Regional Director for North America

Men who have Sex with Men (MSM): An evolving pathway to blood donation in the US

In June 2016, thousands of gay men stepped forward to donate blood following the Orlando, Florida shootings in a gay nightclub that left 49 dead and 58 wounded. Almost all were turned away, as they fell foul of the one year ban on MSM donation enacted by the Food and Drug Administration (FDA) in December 2015, or because blood centres had not yet instituted the new policy. Following a public outcry, the FDA issued a formal Federal Register request for comment specifically asking about the feasibility of moving from the existing time-based deferrals related to risk behaviours to alternate deferral options, such as the use of individual risk assessment. The FDA committed to obtaining the needed scientific evidence to move to alternate donor assessment strategies. On April 4, 2017, the FDA* reported back to the Blood Products Advisory Committee (BPAC) on the comments received.

Of 670 responses, 517 were against further change, many as a part of a single write-in campaign. The rest supported MSM donation but in many forms. These covered a broad spectrum from no further change (or return to an indefinite deferral) to no deferral for low-risk MSM and a 2 to 3-week deferral for MSM determined to be at high-risk. Many recognized the need to differentiate between low-risk MSM donors with stable monogamous relationships and those at higher risk. Multiple commenters noted the need for an improved donor questionnaire for all donors that more accurately assesses risk. Note was made about the need for privacy and the potential benefit of electronic responses or specially trained staff. Several commenters called for continued improvement in donor testing technology to reduce the window period. Some commenters suggested additional interventions by blood collection establishments, for example, implementation of rapid HIV tests or of pathogen inactivation technologies, where available.

The need for regular male donors is growing in the US with the implementation of the AABB TRALI mitigation standard 5.4.1.2.1 in October 2016 that effectively deferred many multiparous female donors from apheresis platelet donation, and the FDA Final Rule in May 2016 that increased the haemoglobin requirement for allogeneic blood donation by males to 13.0 g/dL. The MSM population may provide a novel source of eligible donors in the setting of regular, repeat apheresis platelet donation where risks can be carefully monitored and FDA-approved pathogen inactivation technologies are available to provide an additional layer of safety while the effectiveness of behavioural questions are being assessed.

The United Kingdom has announced its intention to move to a three month MSM deferral, and it seems likely that the US will eventually follow. A further change to the MSM policy is supported by data from Australia and Canada showing little change in the donor risk profile with the move to a 12 month deferral period, and data from the US Transfusion-Transmitted Infections Monitoring System (TTIMS) should be forthcoming. One constraint, however, needs to be considered: these deliberations are complicated by the increasing use of HIV pre-exposure prophylaxis (PrEP), which may severely disrupt the window-period paradigm on which our current concept of blood safety is based. These medications suppress HIV viremia and seroconversion, and some patients may serorevert to a negative status. PrEP is medically recommended for both male and female individuals at risk for HIV exposure. The US has yet to fully consider whether our current donor questionnaire will effectively differentiate potential donors who may not consider themselves as high risk, even while on prophylactic medications.

*https://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/BloodVaccinesandOtherBiologics/BloodProductsAdvisoryCommittee/UCM554820.pdf

WBDD Celebrations in Pakistan

Hasan Abbas Zaheer
National Coordinator
Safe Blood Transfusion Programme Government of Pakistan

Voluntary blood donations are not as common in Pakistan as they should be, essentially due to the lack of a proper blood donor management system but more specifically due to the lack of a nationally coordinated blood transfusion system. However, during natural and man-made calamities overwhelming turn-out of common people is witnessed at the blood centers for donating blood to help the unfortunate victims. At the same time there exists a very strong family value system in the society whereby in case of any health issue in the family the patient is invariably swarmed by a huge number of the well-wishers - the extended family members. In addition, an equally more extended network of the patient's and the family's friends also come in the equation.

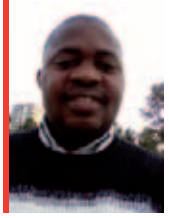
In the presence of so many sympathizers with any single hospital admitted patient the fragmented healthcare system has conveniently outsourced its responsibility of managing a sustainable voluntary blood donor pool to the patient's family members and friends, hence the reliance of the system on 'Family Donors'. Many of these 'Family Donors' are also otherwise fit to become regular voluntary donors but due to lack of attention this very valuable potential national resource remains untapped and presents itself to the system only when they themselves are in need.

With the establishment of the government's 'Safe Blood Transfusion Programme' in Pakistan in 2010, blood safety and especially promotion of voluntary blood donation become a national health care priority. Supply of blood has special significance for a developing country like Pakistan where there is a high prevalence of Hepatitis infections and an unchecked growth in the number of transfusion dependent thalassaemia patients.

The Programme has thus developed country specific strategies to promote the culture of voluntary non-remunerated regular blood donations. The main strategy is to convert the suitable 'Family Donors' into regular voluntary donors by providing them counseling and donor friendly experience during their one time visit to the blood center as a 'Family Donor'. The other main strategy is to harness the true potential of the Blood Donor Organizations that exist in all the universities and many colleges in Pakistan. In a country where the average age of the national population is 21 years this is a huge national resource which needs thoughtful handling and care to unlock it for sustaining the blood transfusion system. The Programme's sustained endeavors to implement these strategies, especially around the WBDD celebrations, have begun to yield encouraging results gradually.

Since the inception of the national blood programme in 2010, the celebrations of the World Blood Donor Day have become the main focus of the year long efforts to promote voluntary donations. The Day is celebrated by the public and private sector stakeholders with ever increasing participation and enthusiasm and has been receiving widespread coverage in the electronic, print and social media. The sensitivity about the significance of blood safety has appreciably increased and the patient groups and healthcare personnel have started to raise their voice and the demand for safe, efficacious and affordable blood as a basic human right is now gaining momentum. These changes in perception and behavior are indeed a testament of the success of an indigenous national consensus strategy promoted by the Safe Blood Transfusion Programme, Pakistan.

AFRICA



Israel Chipare
Manager: Technical Division
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The road to Sustainability after PEPFAR: The Namibian story

The Blood Transfusion Service of Namibia (NAMBTS) is a non-profit organization; the only institution licensed to collect, test, and distribute blood in Namibia. NAMBTS collects 35 000 donations from voluntary non-remunerated donors annually with a donation rate of 13.1 per 1000 population, and about 70% of all donations made are from repeat donors with a donation frequency of 2.1. All whole blood donations are processed into components and tested for Human Immunodeficiency Virus 1 and 2 (HIV 1/2), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) using Individual Donation-Nucleic Acid Test (ID-NAT) and serology. NAMBTS received PEPFER funding of about US$10,4 million between 2005 and 2014 which added about 6-44% to our annual operating income. PEPFAR funds were utilized as shown in figure 1 below, where the biggest user was testing which includes NAT, followed by blood bags, and then equipment.

There were many notable achievements with PEPFER which includes the following;

- Development and maintenance of a Quality Management System (QMS) which led to the accreditation of NAMBTS by Africa Society for Blood Transfusion (AfSBT) in 2013 and acceptance of our surplus plasma by Natal Bio-products Institute (South Africa) to be fractionated, the revenue generated contributes 4% to the total budget
- Introduction of ID-NAT in 2005 to improve blood safety
- Development of a national haemovigilance system
- Whole blood collections increased by 67% while adequacy increased from 9.1 to 13 per 1000 population
- Compatibility testing was expanded from 6 out of 46 hospitals to 31 out of 50 hospitals

Figure 1: Utilization of PEPFAR funds

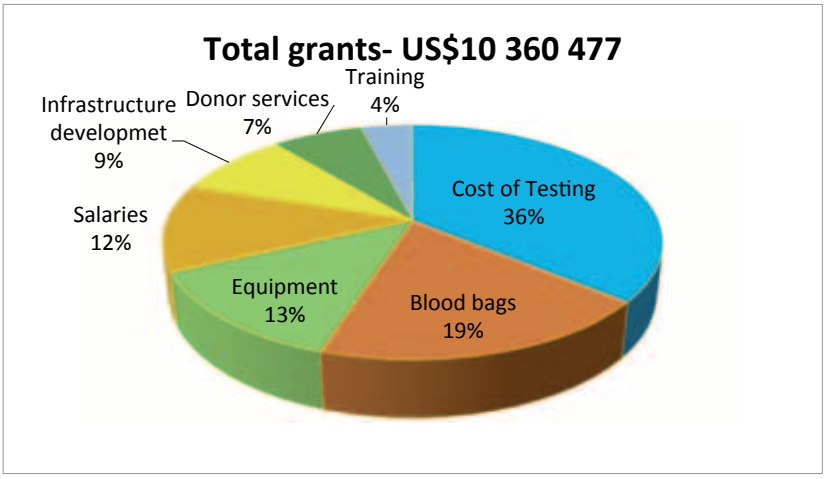
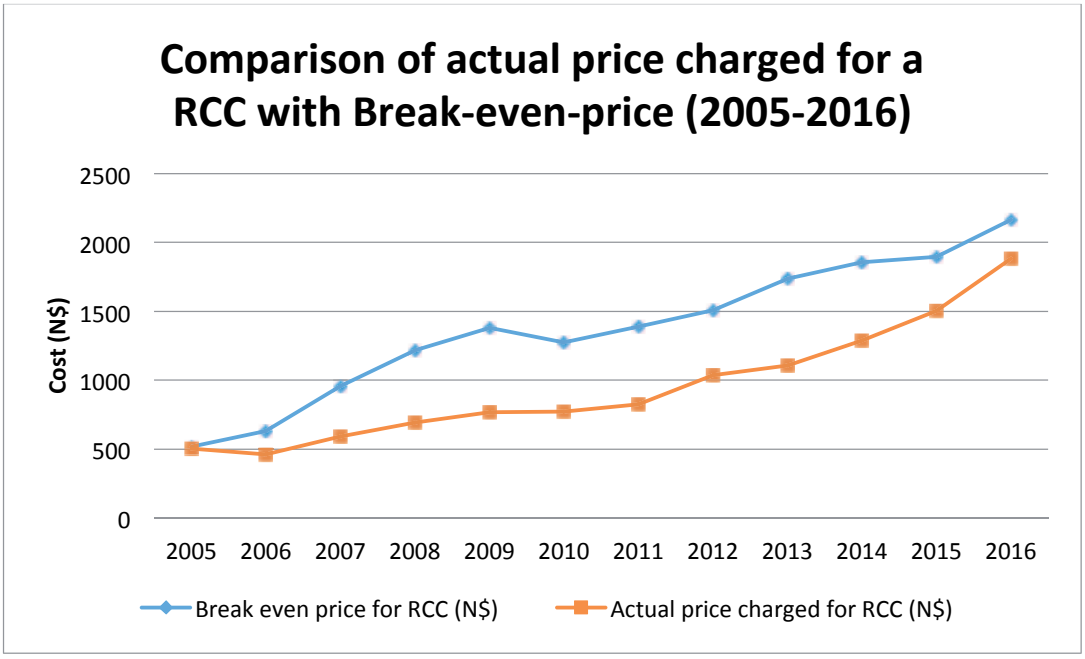


Figure 2: Cost of RCC during PEPFAR funding



- NAMBTS managed to construct a new head office housing laboratories, donor clinic, and administration offices
- PEPFAR funding made blood more affordable as the cost of blood was kept significantly lower than the break- even price as shown in figure 2 above

The current operating expenditure is US$6 million, and the main cost driver is ID-NAT, which constitutes 27% of the total budget. NAMBTS operates on a cost recovery system by billing the recipients of blood; the government pays for state patients who consume 85% of the blood while health insurance pays for the remainder of the blood which is consumed by private patients.
The cessation of PEPFAR funding in 2015 created a huge budget deficit which almost crippled service delivery. To make matters worse, our currency weakened by more than 50% against the US dollar and this made recovery difficult, slow and painful. As a result of the deficit, some key programmes had to either be temporarily suspended or delayed by at least a year. These include equipment replacements, hospital audits, and training of health care workers. Renovations of the main blood bank had to be delayed, staff salaries could not be increased leading to loss of some key staff, and replacements had to be delayed by a year.
To address the deficit and close the financial gap left by PEPFAR funding, NAMBTS's only option was to increase blood products prices gradually between 2014 and 2017. The total increase to date is 65%, and the current deficit now stands at 5%. This, however, made blood more expensive and future increases not sustainable. NAMBTS is exploring other ways of generating more income and continue to lobby the private sector in Namibia to fund its blood programs or/ and continues appealing to corporate organizations to provide funding towards ID-NAT testing enabling the Service to break-even and yet meeting all its obligations.

2017

September 20 - 23, 2017
XV Congress of the Mexican Association of Transfusion Medicine
Guadalajara, Mexico

October 24 - 27, 2017
50. Jahrestagung der Deutschen Gesellschaft für Transfusionsmedizin und Immunhämatologie (DGTI)
Cologne, Germany

October 26 - 28, 2017
2nd Congress of Hematology and Transfusiology of Bosnia and Herzegovina
Sarajevo, Bosnia and Herzegovina

October 27 - 28, 2017
Development of transfusion medicine in Armenia 2017
Yerevan, Armenia

October 29 - November 1, 2017
Annual Scientific Meeting of the HAA (Haematology Society of Australia and New Zealand, the Australian & New Zealand Society of Blood Transfusion and the Thrombosis and Haemostasis society of Australia and New Zealand)
Sydney, Australia

November 3 - 5, 2017
6th Annual Conference of Indian Society of Transfusion Medicine (TRANSMEDCON 2017) and ISBT Workshop on Cellular Therapies
Lucknow, India

November 16 - 18, 2017
XIIIth annual congress of Asian Association of Transfusion Medicine and one-day ISBT session
Dhaka, Bangladesh

November 17, 2017
Blood Donation and Transfusion Medicine VIII International Congress
Naples, Italy

November 25 - 28, 2017
28th Regional Congress of the ISBT
Guangzhou, People's Republic of China

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1. Swiss medic Haemovigilance Annual Report 2015.
2. Based on imputability of suspected septic transfusion reactions reported to Cerus Corporation's safety program.