TRANSFUSION TODAY

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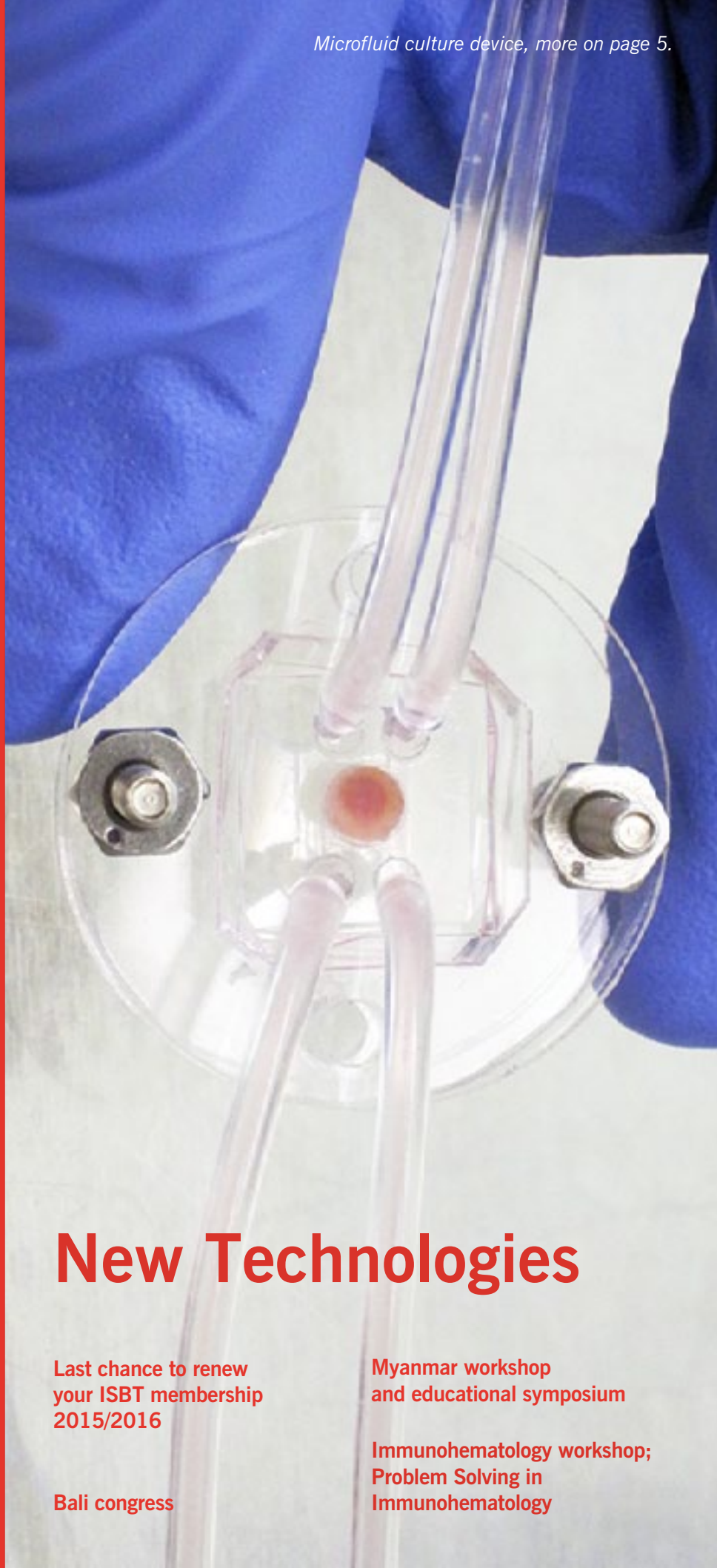

Microfluid culture device, more on page 5.

New Technologies

Last chance to renew your ISBT membership 2015/2016

Bali congress

Myanmar workshop and educational symposium

Immunohematology workshop; Problem Solving in Immunohematology

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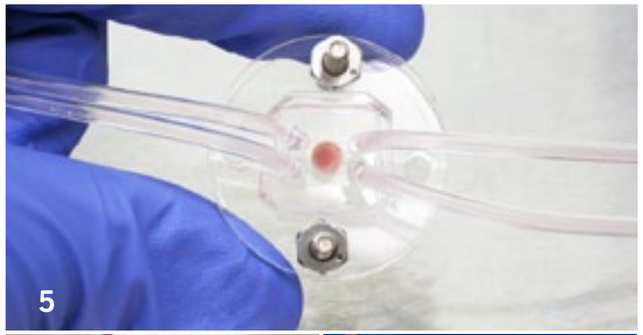

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Judith Chapman

Editorial

I have seen quite a few changes in transfusion medicine during my 40+plus years working in the field including what were considered innovations at the time but now would be considered as routine. Examples include plastic blood bags, apheresis, column agglutination technology, PCR technology. All of these innovations started life as small pieces of work in a larger jigsaw puzzle, the ones mentioned came to fruition, but there must be countless other examples of experimental research that came to nothing. Hopefully some of the innovations you will read about in this issue of Transfusion Today will come to market in the not too distant future.

Meanwhile members will be looking forward to hearing about new findings in transfusion medicine during the 25th Regional congress of the ISBT in London later in the month. A record number of abstracts for a European congress were received and 130 were chosen for oral presentation during the scientific programme. We look forward to meeting many of you at the ISBT booth. We will be on hand to guide you through the ePortal and the new website so that you can make the most of the educational opportunities that are available digitally. The exhibition will be the largest yet, those of you attending the congress are encouraged to visit the exhibition to see the latest technologies that the companies who are working in our field have on offer and what developments are taking place.

If you are unable to attend the London congress don't forget that ISBT members can view selected presentations as webcasts on the ePortal. These will be available on line from August.

Dianne van der Wal
ISBT Scientific Officer

New Technologies are the future

Over the last years, many interesting and novel technologies within the Transfusion Medicine field have been developed. Many of these promising techniques and findings are established after several years of 'blood, sweat and tears' and 'trial and error'. People from all over the world within the biochemistry, cell biology and physics laboratories work very hard to generate practical applications for our field. Today, bioengineering is an important and emerging field and many bioengineers are eager to bridge the current gaps between engineering and medicine. In this issue, we present to you some of the people behind the scenes. They are standing at the beginning of such exciting new technologies. While some are still preliminary, all technologies have the potential to become very valuable tests for the diagnosis of patients either in the laboratory or at the point of care. Below you will find a short introduction to the contributions included in the Focus section of this Transfusion Today.

With the aim of studying haematopoiesis and related disorders, the focus of Yu-suke Torisawa and his colleagues is to develop organ on a chip microfluidic culture devices that reconstitute organ-level function in vitro. There are also many challenges when it comes to finding the perfect match in haemopoietic stem cells for transplanting haemato-oncology patients. To overcome this and avoid using more ethical challenging strategies such as cloning or using embryonic stem cells, it would be ideal to proliferate these cells in vitro. Therefore, Cornelia Lee-Thedieck used cord-blood originated stem cells and created 3D scaffolds to mimic their niche.

Measuring coagulation defects in the laboratory is very time-consuming and labour extensive and current techniques have many limitations. Using a state-of-the-art laser-based approach which uses the different light-scattering properties of the blood cells, Markandey Tripathi and co-workers established a point-of-care technique in which coagulation can be measured in real time. Today, we live in a smartphone-based society and Wilbur Lam and his team developed a smart and flexible application in which haemoglobin levels could be measured inexpensively in a fast and efficient manner. Lastly, Dave Bark Jr. explains how small blood volumes can be perfused over an adapted microscopic slide to mimic blood flow conditions in vitro. In order to measure the adhesive function of certain blood cells (e.g. platelets and leukocytes); this technique might become a promising and powerful tool in the near future.

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Bone Marrow-on-a-Chip

Background
Studies on haematopoiesis are usually conducted in animals because in vitro methods for culturing blood-forming cells do not accurately model bone marrow physiology. A major focus of our laboratory is to develop 'organ-on-a-chip' microfluidic culture devices that reconstitute organ-level function in vitro using microfabrication techniques adopted from the microchip industry. The ultimate goal is to connect multiple organ chips fluidically to model organ-organ coupling and whole body physiology. Given the importance of bone marrow as the source of all blood cells, we therefore set out to develop a bone marrow-on-a-chip culture system that potentially could be used to study blood development and physiology, model blood diseases, manufacture blood cells, and serve as a platform for drug development and toxicity studies. Given the complexity of the bone marrow microenvironment and haematopoietic niche that are necessary to support blood formation, it has not been possible to recapitulate complex blood forming functions in vitro.

Experimental design
To overcome this challenge, we used a tissue engineering approach to first induce formation of new bone containing marrow in vivo, and then we surgically removed it whole and placed in microfluidic perfusion culture in vitro, as described in our recent article in Nature Methods (1 and Fig. 1). New bone formation was induced in the subcutaneous tissue of a mouse by implanting a silicone rubber device containing cylindrical space filled with a collagen gel and bone-inducing materials (BMP-2, BMP-4 and demineralized bone powder). This method produced a cylindrical shaped bone containing a boney cortex and an internal trabecular bone network that was filled with a normal appearing marrow with a blood cell composition virtually identical to that of natural bone marrow. The cylindrical bone was surgically removed after 8 weeks, perforated with a surgical needle, placed in a similarly shaped hole in a microfluidic culture device, and perfused continuously with medium for in vitro culture.

Analysis of the chip
Fluorescent-activated cell sorting (FACS) analysis of the cellular components of this engineered 'bone marrow-on-a-chip' revealed the presence of haematopoietic stem and progenitor cells, as well as all other blood cell types, in proportions that were nearly identical to those measured in normal marrow. Immunohistocytochemical analysis also confirmed that endothelial and haematopoietic stem cells were located in their normal spatial positions within the engineered bone marrow niche. Because the engineered bone marrow autonomously produces all trophic factors necessary to maintain normal haematopoiesis, we were able to maintain blood cell populations in normal proportions in the cultured chip without requiring addition of exogenous cytokines. Most importantly, the full functionality and robustness of this engineered tissue was confirmed by demonstrating that marrow cultured on-chip for days could be used to fully reconstitute the entire blood system when transplanted into a lethally irradiated mouse. In addition, we showed that the bone marrow-on-a-chip can be used to mimic complex organ-level marrow responses to radiation toxicity normally only observed in vivo, and to detect the therapeutics responses of a countermeasure agent (G-CSF) that has been shown to accelerate recovery from radiation-induced toxicity in animals; and these responses could not be replicated by conventional bone marrow culture methods.

Implications
Taken together, these findings suggest that the bone marrow-on-a-chip may offer a new platform to study haematopoiesis and haematologic diseases, and to accelerate drug discovery. It should be possible to generate a human bone marrow-on-a-chip system as well by carrying out similar studies in immunocompromised mice whose endogenous marrow cells are replaced with human haematopoietic cells. In addition, because blood cells that are produced in the bone marrow-on-a-chip can be continuously collected from the outflow, this approach could lead to new sources of differentiated blood cells, either for perfusing other organ-on-chip devices, or as cellular therapeutics.

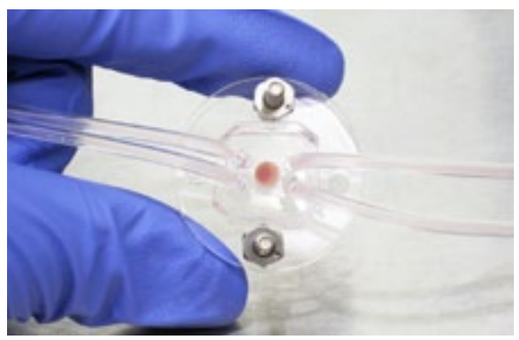

Fig. 1. Microfluidic culture device

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Optical thromboelastography (OTEG):
a new optical technology for evaluating coagulation defects in patients

Introduction
Impaired blood coagulation is often associated with increased mortality and long hospital stay following acute trauma, surgery, and chronic illness. Therefore, the early identification and management of coagulopathic patients to reverse coagulation defects is critical for saving lives and significantly improve patient recovery. Unfortunately, the delay in reporting (1-5 hours) of traditionally used laboratory based conventional coagulation tests (CCTs) have limited their reliability for informing about haemostatic therapy particularly in the context of rapidly changing coagulation conditions in critically ill or injured patients. To overcome the limitations of CCTs, devices such as Thromboelastograpy (TEG) and Rotational Thromboelastometry (ROTEM) have been developed which monitors changes in the viscoelastic properties of clotting blood via mechanical sensing. However, due to the large size and requirement for specialized operators, adaptating these devices for a clinical setting is limited for point-of-care diagnosis.

Development of the innovative technique
In our laboratory, we are developing a new optical technology, termed Optical Thromboelastography (OTEG) that can provide blood coagulation status in real-time at the point-of-care. OTEG employs a laser light to illuminate the coagulation-activated blood sample and a high-speed CMOS camera to capture back-scattered speckle patterns throughout the coagulation process. Speckle is a random intensity pattern that appears due to multiple scattering and interference of coherent light scattered from tissues such as blood. In the acquired high-speed speckle pattern time-series, fluctuation in speckle intensities is modulated with the ´Brownian motion' of light scattering particles (red blood cells, platelets etc.), and consequently related to the viscoelastic properties of the medium.
During the coagulation process, the increasing stiffness of the blood clot caused by the formation of a fibrin-platelet mesh restricts scattering particles displacements, eliciting a slower rate of speckle intensity fluctuations when compared to un-clotted blood. In OTEG, this is quantified by measuring the temporal speckle intensity autocorrelation function, g2(t), and calculating its decay rate with time constant, τ. The time trace of the speckle autocorrelation time constant τ(t) is further utilized to provide information about the viscoelastic properties of clotting blood and in turn blood coagulation status of the patient (Fig. 2).

Conclusions
The lack of point-of-care devices for coagulation monitoring have severely restricted our ability to precisely manage coagulation abnormalities in patients, and have placed a huge burden on the nation's precious blood resources. In future, we believe that OTEG can provide an essential tool in the hands of clinicians to effectively treat bleeding disorders, and manage coagulation defects in real-time at patient bedside.

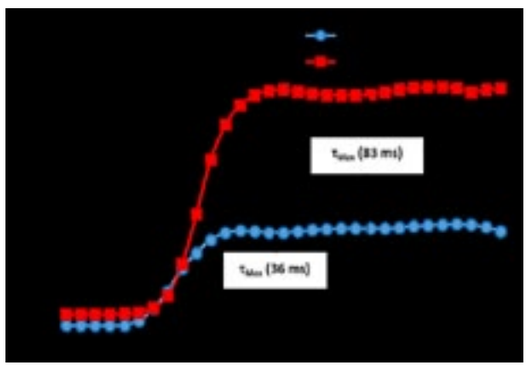

Fig.2. Maximum clot stiffness (τMax) can be estimated from the curve. Increased τMax is measured in blood from a patient with high fibrinogen levels, indicating increased clot viscoelastic modulus in comparison with the control.

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Development of Point of Care self-testing for anaemia

Background
Anaemia, defined by low blood haemoglobin (Hgb) levels, affects over 1 billion people yearly worldwide and is commonly caused by nutritional deficiencies, genetic disorders, side effects of medications (i.e. chemotherapy), severe bleeding and infections (i.e. malaria). Left untreated, anaemia can worsen and potentially lead to fatigue, neurocognitive deficits, and potentially even life-threatening cardiovascular failure. Currently, anaemia is diagnosed with a complete blood count (CBC) on a clinically based haematology analyser. In the developed world, each CBC requires a blood draw from a phlebotomist and a skilled technician to process the sample on the analyser, which is housed in a clinical, hospital, or clinical laboratory. In resource-poor areas, CBCs are cost prohibitive, leading to large numbers of undiagnosed anaemic patients who ultimately die needlessly from potentially curable causes. Although several point-of-care anaemia diagnostic systems exist, there is no accurate, inexpensive, disposable, standalone (no power or extra equipment needed), patient-operated, self-test available for diagnosing and quantitating the degree of anaemia.

Technicial design of the test
To those ends, my laboratory at the Emory University School of Medicine and Georgia Institute of Technology has recently developed a rapid and disposable anaemia test that, via a single drop of blood, outputs colour-based results that correlate with Hgb levels and can be assessed with the naked eye. Each disposable test allows patients to checking their haemoglobin levels. By a simple finger prick and drawing a single drop of blood into a sample tube, capillary action wicks in the precise blood volume. And by inserting that tube into a larger pre-filled reagent tube, mixing, waiting one minute, the solution's colour change using a reference colour scale card (included with the kit) or an optional smartphone app (Fig. 1). that enables automated analysis with data transmission capabilities, can be assessed. Mechanistically, the assay involves a redox reaction between the reagents and the catalytic and oxidative properties of haemoglobin.

Fig. 1. Images depict the smartphone application analyzing an anaemic blood sample. A picture is taken of the resultant solution colour from an anaemic sample (~8 g/dL).

Experimental outcomes and results
We recently published a clinical assessment demonstrating that results from our system correlated with gold standard haematology analyser Hgb levels (See Fig. 1, r = 0.864 and r = 0.856 for visual interpretation and smartphone app, respectively), and both test methods yielded comparable sensitivity and specificity for detecting any anaemia (n = 178) (<11 g/dl) (sensitivity: 90.2% and 91.1%, specificity: 83.7% and 79.2%, respectively) and severe anaemia (n = 10) (<7 g/dl) (sensitivity: 90.0% and 100%, specificity: 94.6% and 93.9%, respectively). These results demonstrate the feasibility of this colour-based diagnostic test for anaemia self-screening in the general population, self-monitoring for chronic anaemia patients, and most importantly, as an inexpensive anaemia diagnostic in low resource settings.

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Towards a place like home - mimicking the haematopoietic stem cell niche

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Introduction
As long as haematopoietic stem cells are used in the clinics for the treatment of haematological diseases, researchers have tried to multiply these cells outside of the body in the laboratory. Despite these tens of years of research, the big breakthrough is still not there yet. The only place, where haematopoietic stem cells are able to multiply while keeping their full stem cell capacity, is their natural home –the haematopoietic stem cell niche in the bone marrow. In this specific microenvironment haematopoietic stem cells receive all signals necessary to fulfil their stem cell functions, i.e. (i) differentiation into the different blood cell types to replenish the blood system and (ii) self-renewing cell-divisions to form new stem cells and thereby maintaining the stem cell pool size. The discrepancy between the very efficient natural system and the relatively inefficient in vitro-systems led us to ask the question, which factors are missing in state-of-the-art cell culture systems for proliferation of haematopoietic stem cells?

The 3D environment of HSCs
In their natural microenvironment, haematopoietic stem cells are not only subjected to biological stimuli such as secreted growth factors, cell-cell- and cell-matrix-interactions. At the same time they sense physical stimuli including matrix stiffness and the nanostructure in their direct vicinity, which were shown to influence haematopoietic stem and progenitor cell behaviour1-4. Besides, it is evident that haematopoietic cells experience in vivo a three-dimensional environment which is not reflected by standard cell culture in flat tissue-culture dishes. Therefore, we came up with the idea to mimic crucial factors of the haematopoietic stem cell niche including the three-dimensional architecture of the trabecular bone. These bone regions host the red bone marrow in which the haematopoietic stem cell niches can be found.

Aim and experimental design
The aim of our study was to develop a straight-forward, easy-to-use protocol for the production of 3D scaffolds for haematopoietic stem cells that can be established in any cell biology or biochemistry laboratory.

The core piece of this development was to mimic the macroporous architecture of trabecular bones with a porous hydrogel that was produced via a salt-leaching technique. Adhesive sites –in vivo offered to the cells by the extracellular matrix– were integrated into the hydrogel by incorporation of a small adhesive peptide into the hydrogel network. Supporting cell-cell-contacts were provided by culturing haematopoietic stem and progenitor cells, which were isolated from umbilical cord blood, together with mesenchymal stem/stromal cells in the three-dimensional scaffold. Soluble stimuli such as growth factors were added with an appropriate culture medium. By integrating these crucial parameters into one culture system more than 90% of haematopoietic stem and progenitor cells maintained the cell marker CD34 during the culture period–a result that could not be reached without the three-dimensional scaffold or the support by mesenchymal stem/stromal cells5.

Results and implications
The results of this study point out that not only biological but also physical parameters should be taken into account when strategies for the ex vivo-multiplication of haematopoietic stem cells are designed. Furthermore, the developed scaffold is a promising starting point for creating an artificial stem cell niche, which mimics the natural archetype as close as necessary while being as simplified as possible. With this approach we want to build a new home for donor-derived haematopoietic stem cells, which allows them to proliferate while keeping their stem cell potential.

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The use of microfluidic techniques for bed-side patient diagnostics

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Background
Platelet aggregation and finally clot formation is induced by fluidic shear forces due to changes in blood flow within the vasculature. This can be mimicked in vitro by using microfluidics-based flow technologies in which blood is perfused through a small chamber over a coated microscopic glass slide. In cells, it has been previously demonstrated that an important link exists between mechanical forces and biological response. These microfluidic devices have become a powerful tool in research labs and exhibit great potential in the clinic since they can be designed to perform many laboratory functions, but remain small enough to fit in the palm of a hand. These devices have many advantages for analyzing blood since they are relatively inexpensive, disposable, transportable, require a low volume of blood, and are mechanically simple.

Clinical implications
Due to these features, this technology is well-suited to provide point-of-care diagnostics that can be used to quickly assess patients before they receive a specific therapy, such as a blood transfusion or a drug regimen. In a specific example, microfluidics were used to analyze the biophysical response of platelets adhering to a substrate while under a flow environment typical of arteries, i.e. for a wall shear stress of 12 dynes/cm2. The flow environment produces a force on platelets traversing over the substrate, making the assay useful for analyzing force sensitive processes involved in platelet binding.

Experimental design of microfluidic device
To develop such a device, a channel on the order of 100 microns x 500 microns was created in polydimethylsiloxane (PDMS) using a mold fabricated through photolithography, a technology that was developed for the semiconductor industry. The channel was used for protein printing and for the flow assay. For the former, the PDMS channel was adhered to a coverslip and protein was incubated in the channel as protein adsorption occurred, resulting in a strip along the coverslip. After incubation, the channel was removed and a second channel was adhered perpendicular to the protein strip on the coverslip. This channel was further incubated with bovine serum albumin to block non-specific binding to the PDMS and to sections of the coverslip lacking protein. Approximately 200 microliters of anticoagulated whole blood was placed in the channel and flow was generated by pulling a glass syringe to create suction at the outlet of the channel through a syringe pump. During blood perfusion, platelet responses were monitored using differential interference contrast microscopy.

Results
Mechanotransduction is the process by which cells convert mechanical signaling into biological responses. This was clearly demonstrated in the flow channel by evaluating changes in platelet morphology. In the particular example, a discrete adhesion point was created with the protein substrate, depicted in purple (Fig. 1), while the platelet body was free to move in the flow, resulting in the formation of tether-like extensions. The drag force on the platelet caused by the flow resulted in the generation of tension through the extension and through the platelet body. The drag force produced on adhering platelets was approximated based on dimensions and the known wall shear stress1. The influence of tension on the platelet was quantified through changes in the platelet length and width using a stretch ratio of the major and minor axis of the platelet body, with results plotted in the figure. Immediate changes in shape corresponded to passive deformation of the platelet structure, while longer term changes corresponded to structural remodeling within the platelet. Alterations to these processes occur for changes in biomechanical or biochemical-based signaling, as can occur in the case of diseases.

Conclusions
There is still little known about biomechanical signaling in platelets, but the sensitivity of thrombus formation and platelet adhesion indicates that the technique described here will be increasingly useful in studying platelets and other blood cells[2]. Similar techniques have also found great utility in other applications such as in cancer diagnostics, where cellular deformation was useful in diagnosing malignant pleural effusions[3].

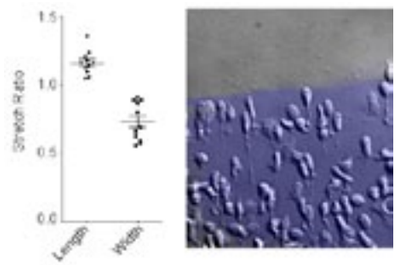

Fig. 1. Phenotypical changes in platelets following shear forces

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Celso Bianco

Since its inception, ISBT has been fostering scientific research by providing a forum for the advancement of the science and the clinical practice of Blood Banking, Transfusion Medicine and Tissue Transplantation. Its congresses promote the exchange of the latest ideas and information, and Working Party activities, educational resources of the Academy ePortal on ISBT website and our several publications, extend the congress activities to the entire year, way beyond the few days of the meetings.

The focus of this issue of Transfusion Today is “Innovation”. It is a first for the magazine. It shows to our members, to those that depend on us, and to the public at large, that blood is an evolving field. New knowledge, new devices and new information are continuously developed as part of has been called “translational research”, focused on the application of basic sciences to day-to-day activities and the solution of clinical problems, ultimately improving the quality of care of the patients that we serve.

Among the pages of this issue, the reader will find examples of products that may in the near future help further scientific developments. One of the devices promotes expansion of mouse bone marrow precursor stem cells outside the body in a culture system, while another recreates the environment of the bone marrow in culture systems, mimicking the niches were stem cells replicate. A different article describes a device that allows functional evaluation of cells and proteins of the clotting system in patients who may bleed. In addition, a different device allows patients themselves to determine whether they have anemia by measuring their levels of hemoglobin from a drop of blood. Finally, a microfluidics system allows evaluation of the clotting system by examining thrombus formation and platelet behavior on a glass slide.

We should emphasize that the articles included in this issue are examples that are not necessarily representative of our entire field. In addition, we cannot predict with certainty which of these devices will have an impact on medical practice. However, they are examples of undertakings that must be supported by blood centers, universities and by national and international research funding organizations. Unfortunately, the recent troubles of the world economy led to a marked retraction in research support. We hope that the budding recovery that is taking place will bring back funding for the research activities that are essential for our future.

Celso Bianco
ISBT President

Welcome to our new members

(February 2015 - April 2015)

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26th Regional Congress of the ISBT Bali

The 26th regional congress is one with a difference; the ISBT Academy (education) sessions will be part of the main scientific programme and there will be more plenary sessions than previously. The congress is also shorter; Saturday afternoon, all day Sunday and all day Monday. Each parallel session will be made up of three invited speaker presentations and one selected oral abstract presentation. The full programme with invited speakers is available on line; the table below gives you information on the session topics and presentation titles.

The congress opening ceremony will take place at 12.00 on Saturday November 14 and will be followed by a welcome lunch in the exhibition hall. The congress party will take place on Sunday evening in the Westin hotel.

Accommodation is available in numerous hotels covering all price ranges and shuttle buses will be provided between the hotels and the conference centre.

The congress website contains full details of registration, accommodation, abstract submission and the scientific programme.

Time	Saturday	
08.30 - 12.00	Indonesian half day	
12.00 - 12.30	**Opening ceremony**	
12.30 - 14.00	Lunch and welcome reception	
14.00 - 15.30	**Plenary 1 Overcoming Resource Limitations** - Indonesia - Myanmar - Papua New Guinea	
15.30 - 16.00	**Refreshment break**	
16.00 - 17.30	**Parallel 1 - Academy** **The What and How of Immunohaematology** Molecular applications in routine transfusion testing How do we approach dilemmas in red cell testing How do we manage patients with rare blood types	**Parallel 2 - Scientific** **Scientific Advances in Blood Donation and Components** Applying behavioural change process theory to donor donor recruitment and retention New developments in plasma derivative production Therapeutic apheresis

Time	Sunday	
08.30 - 10.00	Plenary 2 Issues in Immunohaematology Molecular blood group typing Rare blood types in the Asia Pacific Region The evolving role of platelet antigens and antibodies	
	Parallel 3 - Academy The What and How of Donors and Donations Planning donor recruitment strategies with an eye on the future Choosing the right criteria for donor health and safety Advances in blood storage bags and preservative solutions	Parallel 4 - Scientific Advances in Immunohaematology Red blood cell genotyping in China Deglycosylated human monoclonal antibody against HPA-1a and antibody mediated endothelial apoptosis Glycosylation of alloantibodies against blood cell antigens
12.00 - 13.30	**Lunch**	
13.30 - 15.00	Plenary 3 Donors, Donations and Components Updates in donor recruitment and management An ovine model of blood transfusion Recent advances in cell therapy	
15.00 - 15.30	**Refreshment break**	
15.30 - 17.00	Parallel 5 - Academy The What and How of Blood Transfusion Safety Assessing the risk of new emerging infections Role of a perfusionist in patient blood management Getting the right unit to the right patient - how can we fix the problem	Parallel 6 - Scientific New Perspectives in Blood Systems and Organisation The Australian experience in applying lean management in the blood service A fresh perspective on haemovigilance Governance and clinical transfusion
17.00 - 18.00	Poster session	
19.00 - 22.00	Congress Party	

Time	Monday	
08.30 - 10.00	Plenary 4 All About Transfusion Transmitted Infectious Diseases The problem with hepatitis Pathogen reduction technology - is it time ? The current status of NAT for TTID	
	Parallel 7 - Academy The What and How of Blood Components Automating the production of blood components What is statistical process control in component production The regulatory approach to blood and blood products in Asia	Parallel 8 - Scientific Advances in Blood Safety Malaria in the Asia Pacific Region New strategies for bacterial contamination Transfusion risk from emerging pathogens in the Asia Pacific Region
12.00 - 13.30	**Lunch**	
13.30 - 15.00	Parallel 9 - Academy The What and How of Organisation and Blood Supply Management What's the right model for the national blood programme Putting in place a risk-based decision framework for blood safety Haemovigilance - building one from none	Parallel 10 - Scientific Advances in Clinical Transfusion TBC Haemoglobinopathies in Indonesia Patient blood management and the chronically transfused patient
15.00 - 15.30	**Refreshment break**	
15.30 - 17.00	Plenary session 5 Clinical Transfusion Updates Management of haemoglobinopathies and iron overload Update on the indications for red cell transfusion Update on the indications for platelet transfusion	
17.00 - 17.15	Closing ceremony	

www.isbtweb.org/indonesia

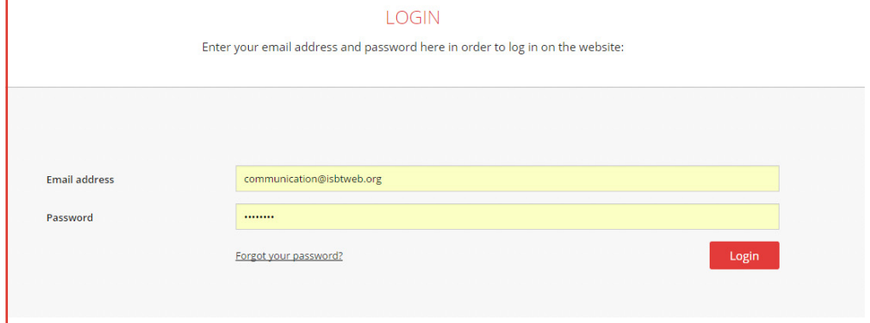
Your membership card and certificate now available online

At the end of last year we conducted a survey amongst the ISBT members about the ISBT membership card. We wanted to know your thoughts on the "paper" membership card.

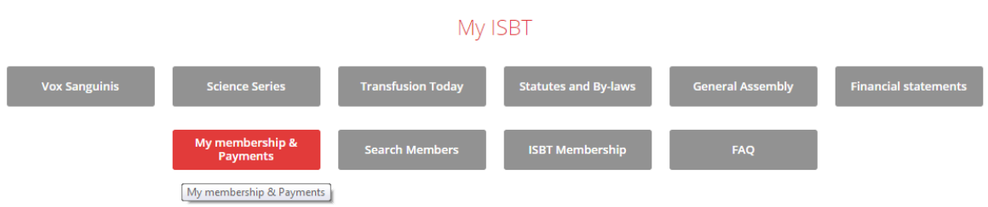
Many of you were positive towards having a membership card that you could download yourself. Therefore we have created a digital ISBT membership card and a digital ISBT membership certificate for you to download.

How to download your ISBT membership card and / or ISBT Certificate

1. Login with your ISBT password and username at www.isbtweb.org



2. Click on the block titled 'My membership & Payments' (which you can find under Profile / My ISBT)



3. Click on "Membership card" and / or "Membership certificate" to download your card / certificate

Payment methods

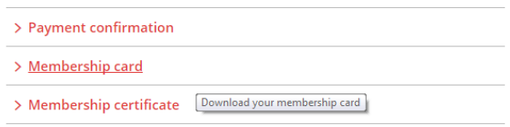
Online payments can be made using the following methods:

1. Recurring direct debit – This is new this year and available to members resident in most European countries. By using direct debit you authorize ISBT to collect the payment of your annual ISBT membership fee at the start of every new membership year.
2. Credit card – You no longer need to complete 3D-secure
3. PayPal
4. IDEAL (Netherlands only)
5. If you do not have a credit card or pay pal account you can email membership@isbtweb.org to arrange for bank transfer

Membership year is from 1 April 2015 to 31 March 2016

Please note, the current payment is for the membership year 2015/2016 (1 April 2015 - 31 March 2016). Please select the payment and click "pay the fee" to proceed. If you have any questions about your payment, please contact the ISBT Membership Department.

Membership documents



If you have any questions about your membership, please contact us at: membership@isbtweb.org

Last chance to renew your ISBT membership 2015/2016

This is your last chance to renew your ISBT membership and continue to benefit from connecting and participating in our growing transfusion medicine community. If you have not renewed your membership by June the 30th, 2015 your membership will become inactive and you will no longer receive Vox Sanguinis, Transfusion Today and access to the Academy ePortal.

Benefits of ISBT membership

- Access to the ISBT Academy ePortal (including congress webcasts and presentations)
- Subscription for Vox Sanguinis (paper + online)*
- Receipt of Transfusion Today (paper + online)*
- Receipt of the monthly E-news
- Registration discount at ISBT congresses
- Online access to Working Party material

* Online access only for 35 years and under fee

Renew your membership by June 30th, 2015.
If you have any other questions please contact the Membership Department (membership@isbtweb.org) who will be happy to assist you.

How to renew

Go to www.isbtweb.org and click on "Login" (top right). Use your current email address and password to login and pay your membership fee for 2015/2016 online.

Fees

The membership fees of ISBT are based on your age and country. Please read more about this at www.isbtweb.org. Go to About ISBT, Membership Information, Fees.

35 years and under?

People of 35 years and under can pay a discounted fee of € 55 per year. Please read more on this discounted membership at www.isbtweb.org under About ISBT, Membership Information, 35 years and under.

Payment

Once you are logged in, click on the 'My membership & payments' block and pay your membership fee. You can pay by:-

1) Credit card – You no longer need to complete 3D-secure
2) PayPal
3) Recurring direct debit – This is new this year and available to members resident in most European countries. By using direct debit you authorize ISBT to collect the payment of your annual ISBT membership fee at the start of every new membership year.
4) If you do not have a credit card or pay pal account you can email membership@isbtweb.org to arrange for bank transfer

Invoice

Once you are logged in your invoice is available on the 'My membership & payments' page.
Membership card, certificate and payment confirmation
Your membership card, certificate and payment confirmation will be available for download after payment on your personal ISBT profile when you login and go the 'My membership & payments' page.

Are your details up-to-date?

To ensure that you continue to receive Vox Sanguinis and Transfusion Today and the monthly E-news, please check that your membership details e.g. postal and email addresses are up-to-date and complete. Login on www.isbtweb.org and go to "Profile" in the top right hand corner, and click on "Edit Profile" to change or complete your details. Make sure to save the changes by clicking on "Update Profile".

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If you have any questions on our membership, for instance login, forgotten password or membership fees, please have a look at our Frequently Asked Questions at www.isbtweb.org. Go to About ISBT, Membership Information, FAQ. You can also contact the ISBT Membership Department by email: membership@isbtweb.org.

We do hope you will renew your membership and continue being a part of ISBT.

The ISBT Academy ePortal is upgraded

The Academy ePortal is the educational resource of ISBT. The portal includes:

- Congress webcasts and posters,
- clinical guidelines,
- educational book chapters
- scientific review articles (in the near future).

You can also test your knowledge by completing one of the learning quizzes linked to the webcasts. Recently, the ePortal was completely redesigned, is expanded and has become more user-friendly.

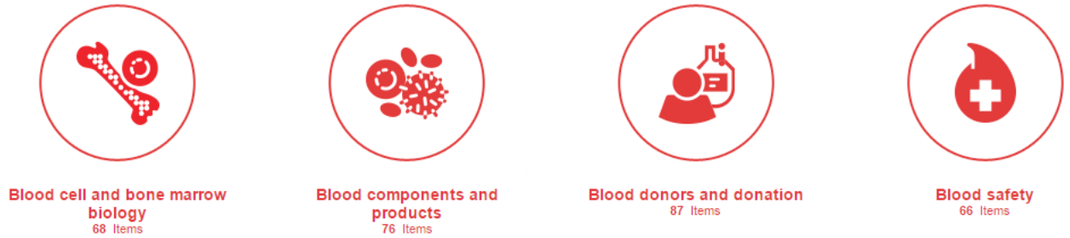

Fig. 1: Topic structure on ePortal

New structure All content is now categorized into scientific topics (from very general topics: e.g. 'Blood Safety', to very specific: e.g. 'Animal model of platelet alloimmunization') and this topic-structure will make searching for your topic of interest very easy (Fig. 1).

Fig. 2: Search in Navigation bar

Search To search efficiently go to the 'topics' tab, enter keyword and click on search in the navigation bar (Fig. 2). When you scroll further down on the webpage, all related topics and subtopics are also displayed (Fig. 3).

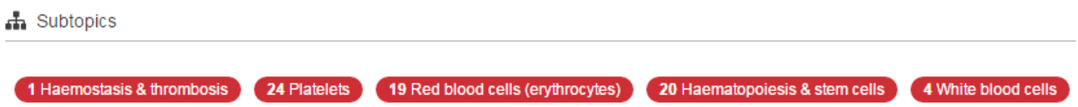

Fig. 3: Related subtopics are shown on bottom of page

If you are searching for a specific author/Congress presenter, go to the 'contributors' tab, enter the name and click on search. In addition, if you scroll down to the bottom of the page, all related topics by the same or other contributors will be shown (Fig. 3). In the very near future we will add educational review papers in the 'documents library' tab, which currently comprises highly educational introductory papers.

The ISBT Academy ePortal: A rich variety of content in one place

- **Practice guidelines**
- **Webcasts**
- **ePosters**
- **Learning quizzes**
- **Presentations**
- **Abstracts**
- **Textbooks**
- **More…**

Accessing the Academy ePortal is simple, just follow these steps:

- **www.isbtweb.org/my-isbt/**
- **Login with your email address and password**
- **Click on "Access the ISBT Academy ePortal"**
- **You will be redirected to the Academy ePortal**

Farheen Karim
Senior Instructor
Aga Khan University Hospital, Karachi

ISBT ACADEMY

Immunohematology workshop; Problem Solving in Immunohaematology

A wet workshop was organised at Aga Khan University Hospital (AKUH), Karachi, Pakistan on January 21, 2015. This workshop was fully funded by ISBT. There were 26 participants in the workshop comprising of post graduate haematology trainees and technologists belonging to different institutes in Karachi. The workshop was facilitated by a team of haematology faculty members and blood bank technologists working at AKUH.

The workshop started with a series of lectures given by haematology faculty. The purpose was to clear basic concepts of trainees with respect to immunohematology. This was followed by practical demonstration of antibody screening and identification technique and result interpretation. After tea break, the participants were provided with unknown samples for performing antibody identification and interpreting the result. The team members facilitated the participants during this session. All of the participants successfully performed the procedure. After lunch, there was an interactive session during which various cases studies relating to immunohematology were discussed. The workshop concluded with certificate distribution to all participants. The workshop was accredited by AACME and all participants gained credit hours for attending the workshop.

The workshop was appreciated by all the participants and we received positive feedback from them. I thank ISBT for supporting this educational activity and hope that this collaboration will continue in future as well.

Thida Aung
National Blood Center
Ministry of Health, Myanmar

Myanmar workshop and educational symposium

We, at the National Blood Center, Myanmar, are honored that our center was selected for the International Society of Blood Transfusion (ISBT) developing country award 2014. Blood transfusion services were first introduced in Myanmar in 1939, and we have been working ever since on the development and improvement of these services1). This award comes as excellent news for all those associated with the blood transfusion service in Myanmar, including the Ministry of Health, the staff of the National Blood Center, and voluntary donor groups.

In our application for the award, we described the history of the development of blood transfusion in Myanmar and the manner in which we reduced the risk of transmission transmissible infections (TTIs). The proportion of HIV screening-positive donors reduced remarkably from 1.02% in 2000 to 0.18% in 2013. This was accompanied by an increase in voluntary donors, along with other interventions, such as donor deferral, computerized registration, and component preparation2). The role of voluntary donor groups in this achievement was greatly appreciated.

The ISBT Award for Developing Countries provided us the opportunity for further improvement by supporting educational conferences and allowing us to organize several workshops and symposiumsonMarch13th–14th, 2015. These workshops and symposiums have been briefly summarized in the following sections.

Pre-symposium workshop on development of clinical use of blood and blood products
In recent years, the demand for blood transfusion has rapidly grown with the changing circumstances in the country. In an attempt to meet the needs of the hospitals, the number of donations in NBC has increased from 33,052 in 2010 to 50,998 in 20143). This provides a strong opportunity to try and improve the clinical use of blood and blood products as many of these donations may not necessarily need to be transfused. We organized a workshop on the development of clinical use of blood and blood products and this was attended by several international experts and clinicians from Universities of Medicine in Yangon..

Pre-symposium workshop on blood type serology
Blood type serology is another area that requires development. The National Blood Center started blood group antibody screening in 2007.However, other blood banks still do ABO and RhD systems only for blood typing. A workshop was organized for participants from the laboratory staffs in order to facilitate introduction of basic adequate level of pre-transfusion testing including blood group antibody screening in the other blood banks.

Educational Symposium on Blood Transfusion Service
This was the first symposium conducted on blood transfusion that involved clinicians, including hematologists, paediatricians, physicians, surgeons and anesthetists. The Union Minister of Health officially opened the symposium, showing high commitment of the government toward the blood safety program. The topics covered in the symposium included hemotherapy using blood components, platelet efractoriness hemovigilance, and stem-cell transplantation. International and national experts, including Dr. Peter Flanagan, the immediate past president of ISBT, delivered various lectures to the audience.

Conclusion and Way Forward
The ISBT Award for Developing Countries encouraged us to improve the services further, and this support provided for educational symposiums provided us with a good opportunity to improve the quality of services by facilitating the involvement of stakeholders. It was recognized by these stakeholders that there is a need for component blood preparation, a gradual shift toward a centralized service model from the current decentralized model of hospital blood banks and an improvement in the clinical use of blood and blood products.

Reference
1. Thida Aung, Status report of the blood transfusion services in Myanmar. Asian journal of transfusion science. 2009;3: 22-5.
2. Thida Aung, Ikuma Nozaki, NweNweOo, KyuKyuSwe, Koji Wada, Namiko Yoshihara: Reducing the risk of HIV transmission through blood transfusion in the National Blood Center, Myanmar. ISBT Science Series (in press).
3. National Blood Center, Annual Report on Blood Transfusion Service in Myanmar, 2014

Sima Zolfaghari
Clinical and Anatomical Pathologist
Deputy of Technical & Modern Technologies
Iranian Blood Transfusion Organization (IBTO)

Establishment of Centre for Innovation in Iranian Blood Transfusion Organization

On 23 February 2015, the centre for innovation of Iranian Blood Transfusion Organization (IBTO) started working. This Centre in located in the IBTO head centre in Teheran. In the opening ceremony IBTO hosted the high-ranking officials from Ministry of Health to inaugurate the first innovation center in the region.

Dr Poufathollah managing director of IBTO: In 2014, Iranian Blood Transfusion Organization celebrated the 40th anniversary of its establishment. After 40 years we got to the point that our organisation needs a centre for innovation to develop all blood service's activities as well as hospital transfusion tasks with the pace of current transfusion knowledge.
The centre is set up as a complete miniature of a "transfusion chain" from vein to vein, with all the standard operating procedures (SOPs) and equipment used by IBTO and hospitals. It has the flexibility and consequently the ability to vary any part of any of the processes in a controlled test situation.
The main activities of this centre are listed here:

1. A training centre:
   - International: IBTO has been inaugurated as the WHO Collaborating Centre for Research & Training on Blood Safety. This centre has been designed to be an international training centre especially for those who work in the Eastern Mediterranean Region.
   - National: We believe staff training is the best investment in our organisation. This centre is a training facility for different groups: the blood services employees in different departments as well as blood bank employees, nurses, midwifes and doctors in hospitals.
2. Validation of new products, processes and instrumentation
3. Conducting projects with new material or equipment which are not currently permitted for use in IBTO.
4. Establishing new methods and procedures; without affecting our clinical blood product supply.
5. A bridge between blood services and the recipients: Blood recipients can arrange a time and visit to our centre.
6. Donor satisfaction:
   The blood donors who are deferred from donation due to minor problems are recruited in this centre. The additional opportunity to donate is appreciated by potential donors. This gives us an opportunity to hear their opinions and providing blood for research purposes.
7. Creativity, Development and Innovation:
   Researchers, institutions or companies interested in developing new products, processes or technology for the transfusion medicine community are encouraged to contact this centre. The centre provides an environment for innovators and scientists to bring their novel ideas to be evaluated and be enhanced. Research and Development on transfusion medicine which is not possible to be carried out in other departments of IBTO due to strict rules on blood safety can be performed in the centre because of its flexible environment and high technology equipment.

ISBT congratulates IBTO on this new 'vein to vein' centre, a valuable asset in helping to promote safe blood transfusion practice in Iran and across the region.

IBTO
Centre for Innovation

Hasan Abbas Zaheer
Project Director,
Safe Blood Transfusion Programme, Ministry of Health, Government of Pakistan

Pakistan's National Blood Policy launched by the Minister of Health

The Safe Blood Transfusion Programme (SBTP), Ministry of National Health Services, in collaboration with German partners organised a seminar on March 05, 2015, in Islamabad, Pakistan, for the dissemination of the National Blood Policy and Strategic Framework (2014-20). The seminar was chaired by Honourable Minister of Health, Mrs. Saira Afzal Tarar and was well attended by senior officials from the Health Ministry, representatives of provincial health departments, GIZ, KfW, WHO, UNAIDS, UNICEF and technical experts from public and private sector institutions. The participants included experts from all over the country especially those who were actively involved in the development of this document.

Speaking on the occasion, the Health Minister appreciated the dedicated and committed team of the Safe Blood Transfusion Programme, for their hard work. She acknowledged the grant provided to the project by the government of the Federal Republic of Germany through its Technical and Financial Cooperation components funded by the GiZ and KfW respectively. She also acknowledged the World Health Organization for providing technical support to the Programme. The Minister informed that the government of Pakistan recognises Health as a key to the development of the great nation and the service delivery and regulation of the blood transfusion sector is among the Ministry's priority areas. The Safe Blood Transfusion Programme can truly be termed a success story as despite some serious administrative and constitutional challenges the Programme implementation was not allowed to suffer and a solid foundation of a sustainable blood transfusion system has been laid in the country.

The Prime Minister of Pakistan has recently granted special exemption on all kind of taxes and charges for this project. And the continued commitment of the government to this vital public health project will again be reiterated soon with the signing of the second phase Agreement of the project with the German partners.
The formulation of the National Blood Policy is the first exercise in the post devolution era where all provincial partners are on board and a unified policy has been drafted. The support from German technical and financial teams has been pivotal for this process.

Prof. Hasan Abbas Zaheer, Project Director, SBTP, introduced the National Policy and Strategic Framework and the systematic consultative approach adopted in the development of these documents. The Framework provides orientation for implementing blood safety system reforms to the national and provincial blood transfusion programmes. The rich experience gained during the implementation of the first phase of the project has been incorporated in the new Policy and additional deficiencies and gaps identified have also been covered. Prof. Zaheer appreciated the critical role played by the GIZ for facilitating this activity. He also thanked all the stakeholders involved in the national consultations. Furthermore he presented an update on the regulation work in the Federal Capital. A practical model of effective and efficient regulation has been developed in Islamabad which is customised according to the national needs and requirements and can easily be emulated in the provinces.

The representatives from the GIZ, Dr. Ruth Hilderbrandt and KfW, Dr. Masuma Zaidi also spoke on the occasion and appreciated the professional implementation of the project by the Programme leadership under the supervision of the Health Ministry. They also reiterated the commitment of the German government for this immensely important public health project and announced the continued support to the second phase of the project.

Jean Stanley
American International Health Alliance (AIHA)
Director of Safe Blood Programs

Miguel Lozano
University Clinic Hospital, Barcelona, Spain
Europe Regional Director

New National Guidelines on the Clinical Use of Blood Adopted as National Regulations in the Kyrgyz Republic

Kyrgyz Republic is a landlocked country in Central Asia bordering Kazakhstan, China, Tajikistan, and Uzbekistan that became independent of the Soviet Union in 1991. The estimated population is over 5.8 million people in an area of 199.951 km2 and a density of 27.4 inhabitants per km2. It is divided in seven provinces (oblast) with the capital in Bishkek. The human development index of the country in 2013 was 0.628 (medium), position 125th according to the United Nations Development Programme. In 2014 about 38,000 whole blood donations were collected in the country

In 2014, new national guidelines on the clinical use of blood were developed in the Kyrgyz Republic. The development of the new guidelines was a collaborative effort by the Ministry of Health, Republican Blood Center and a working group of domestic and international clinicians. The project was sponsored by American International Health Alliance and the U.S. Centers for Disease Control and Prevention (CDC).

Prior to the new national clinical guidelines, transfusion regulations in the Kyrgyz Republic were based on outdated, Soviet-era guidelines. In addition, HIV transmission to 155 children through blood transfusion in a province of Kyrgyzstan had been reported in 2007 due to poor transfusion practices. The Ministry of Health recognised the need to strengthen the regulatory system. The development of new national guidelines on the clinical use of blood was listed as a primary objective in the Kyrgyz government's 2012-2014 Blood Service Development Programme.

The process of developing the new clinical guidelines began in January 2014. Three international consultants collaborated with eight Kyrgyz clinicians providing expertise in different areas of clinical practice. Clinical guidelines from the United States and Europe were reviewed and adapted to a local format. A first draft was completed in June 2014 and was evaluated against the Kyrgyz Republic national regulatory requirements. Throughout the process comments and edits were exchanged between the international consultants and Kyrgyz clinicians.

The new national clinical guidelines reflect international and currently accepted evidence-based medicine. The guidelines include practical instructions to clinicians about indications, contraindications, dosage and administration, and side effects associated with each type of blood component and plasma derivative. The guidelines also included sections on pre-transfusion testing and blood administration.

In October 2014, a final draft was submitted for review by the Evidence Based Medicine Department of the Ministry of Health, and subsequently the new national clinical guidelines were adopted by the Minister of Health in February 2015 as federal regulations. The adoption of the new national clinical guidelines as a national regulatory document is significant as it requires all clinicians in Kyrgyzstan to follow the guidelines. In addition, medical schools in Kyrgyzstan will now be required to revise their curricula in accordance with the new clinical guidelines.

Regional Europe

EUROPE

In March 2015, a national training of trainers program was provided in collaboration with the international consultants, Republican Blood Center, and Kyrgyz clinicians. The newly trained Kyrgyz clinicians will train and educate other clinicians in Kyrgyzstan provinces on the new national clinical guidelines. An international consultant will mentor the new trainers with their initial trainings. Training and access to these new national clinical guidelines are a first step in assisting physicians and nurses in improving transfusion practices.

The collaboration between the international consultants, local clinical experts and the Ministry of Health in the development and adoption of the new national regulatory guidelines on the clinical use of blood is a significant achievement that approaches Kyrgyz Republic to modern Transfusion Medicine.

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EUROPE

Zhandos Burkitbaev
Director of Scientific and Production
Centre of Transfusion Astana
Republic of Kazakhstan

Blood Service developments in Kazakhstan

On April 2, 2015, the Scientific and Production Centre of Transfusion (SPCT, based in Astana, Kazakhstan) organised a scientific and practical conference on relevant blood service issues. Kazakhstan is a state with presidential regime, its population is ~17 million, 57% of which live in the major cities. Its density is about 6,3 people per square kilometre. The republic consists of 15 regions in total and 2 cities, which have a republican status; the regions are divided into 160 districts.

The blood service activities in Kazakhstan in the last 5 years and the new prospects were explained. Over the last years, over 200 departments within the blood services in Kazakhstan were closed and an optimal structure was successfully created. In accordance with international practices, these measures were taken in order to centralize and improve the efficiency of expensive technologies and tests used for donated blood. After this reorganisation, each of the regions will be led by their respective regional blood centres. Based on recommendations of the World Health Organization and the Council of Europe, national standards for all blood service activities were developed in the beginning of 2013 and approved. Part of these new standards is the two-stage screening of donor blood for transfusion infections markers, immunodetection and NAT-testing. All equipment used for screening is fully automated, validated and certified accordingly.

For the assessment of the laboratory activities in blood service, a reference laboratory performing external quality control of laboratory research using two methods was created in 2012 on the basis of SPCT. First, two times a year the laboratory shall produce and deliver a panel of control samples for immunohaematology, haematology and biochemistry testing. Second, with regard to donated blood screening for transfusion infections, every year the laboratories in regional blood centres shall re-test at least 5% of the archived donated blood samples.

Since January 2013, it is required and legislated in Kazakhstan that after each donation, blood samples are archived for 3 years.

The laboratory participates in international external evaluation programmes in order to assess their own immunohaematology, haematology and biochemistry test results. In addition, the following archived annual samples were send to other blood service laboratories for inter-laboratory comparisons:

- 200 samples to the National Transfusion Microbiology Reference Laboratory (UK in 2013).
- 201 samples to the Blood Centre of Zurich (Switzerland, in 2013).
- 960 samples to the Institute for Transfusion Medicine and Immunoheamatology of German Red Cross Society and the Paul-Ehrlich Institute (both Germany, in 2014).

In all samples tested, the results received by these laboratories were similar when compared to the SPCT reference laboratory results.

In addition, the established achievements include: i) development of voluntary unpaid blood donation in cooperation with the WHO; ii) improving the information system of the blood service and iii) transition to complete inactivation of all platelet concentrates doses issued to clinics for transfusion. Also, Eugene Zhiburt, President of the Russian Transfusionist Association and other experts reported on the issues of security of the transfused blood components.

Bhupendra Kumar Rana
Joint Director
National Accreditation Board for Hospitals and Healthcare Providers (NABH) Quality Council of India
New Delhi, India

Blood Bank Accreditation Programmes in India

Background
In India, blood banks (BBs) are regulated by the Central Drugs Licensing Authority, under the Drugs and Cosmetics Acts. In this manner, BBs are well regulated, when compared to medical laboratories. However, it was also observed that this is not sufficient in order to ensure high quality of blood and its components. There are reports on blood transfusion errors being made. Such errors may include use of donor blood of the wrong blood group, wrong patient identification or use of infected blood. To ensure that all blood and its components meet their specified requirements and to provide an opportunity for BB to improve on a continuous basis, the Quality Council of India (QCI) through the National Accreditation Board for Hospitals and Healthcare Providers (NABH) has therefore introduced an accreditation program for BBs and Transfusion Services in 2007. NABH constituted a Technical Committee (TC) in 2006, which drafted accreditation standards. The TC consisted of various experts in the field of transfusion services. The accreditation standards were outlined around ISO 15189 and technical manuals were published by various national healthcare authorities (under the Ministry of Health). The draft standards were circulated amongst several experts in India and abroad and finally, the accreditation programme was rolled out in January 2008. To ensure that standards remain current, periodic reviews are conducted and standards are revised if necessary. Reviews are gathered from assessors, BBs, and are part of the implementation programmes.

Progress made
So far, only 81 (69 accredited & 12 applicants) of the 2760 licensed blood banks (as on February 2015) have applied for accreditation, even more than 7 years have passed since the release of NABH standards on BBs and Transfusion services and the majority involve private BBs.

This highlights the lack of awareness in the government supported blood banks as well as deficient government policies for the implementation of Quality Management Systems (QMS). On the contrary, Gujarat is one such a state with equal number of both private and public blood banks getting

Status as on March 2015

Year	2008	2009	2010	2011	2012	2013	2014	Total
Number of applications received	9	7	12	16	13	15	9	81

accreditation which shows the state government's willingness and policies to implement QMS.

Efforts made
Until now, four 5-day training programmes were organized to prepare the assessors (94). These assessors are working in different BBs around the country and their assessment services are sought whenever was required. The initial accreditation process was started using the expertise available from the Secretariat, TC and assessors qualified for ISO 15189. Regular monitoring of all assessments, assessor's performances, feedback from BBs and objections are monitored closely by the NABH Secretariat. To disseminate all this information, NABH conducted over 30 1-day awareness programmes. Also, several 3-day implementation programmes for interested BBs were organized. The objective was to train the participants on understanding and implementation of the accreditation standards. So far, this programme has been useful for all BBs interested in initiating the accreditation process. Lastly, it is of great importance to have an objective assessment process.

Future plans
In order to promote the programme among the BBs, it was decided to conduct intensive awareness campaigns through printed media as well as the organisation of seminars. Several half-day awareness programmes are planned for this year. Moreover, 3-day implementation programmes are conducted in certain locations to train staff. National AIDS Control Organisation (NACO) supports many blood banks, as well as regional transfusion centres, and accreditation may therefore help NACO in facilitating support/funding. Therefore, dialogues between the licensing authorities and NACO are planned.

SOUTHERN AMERICAS

Ina Pérez Huaynalaya
Blood Bank Chief from Delgado Clinic - AUNA

Communicative Health Projects in Peru

In the last year, in our country, numerous social awareness projects were developed which are based on social responsibility, freedom of expression and an improving the status of Blood Donation.

Projects in 2014-2015:

- **"Love is all you need".** This project entails a choral piece written by two voluntary platelet apheresis donors (Diana Mandros and Kenji Ygei). Children sing the "Sounds of Soul" song. The children´s choir is a group of ex-cancer-patients and directed by Professor Jorge Villon, Musical Director and specialist in Music Therapy.

  Vocal performances by children can thereby deliver the important message to the public who in general are unaware of the need for blood. Since these children know the importance of blood donation and transfusion, in this manner they can promote and educate this. The Esperantra Civil Association, composed of musicians from the National Symphony Orchestra of Peru and Chorus Peruvian, has also joined voluntary and contributed significantly.

- **"Platelets Salvavidas (life guards) - Scale Mountain Project"** is a platelet donor club consisting of adventurous athletes who develop solidarity and embrace a healthy life style. They aim to convince more young people to donate blood and teach them how to care and protect 'your team'. They are keen on having close links with nature and promote a peace and tolerance culture regardless of political or religious beliefs. Their philosophy is to be altruistic and create a mental and physical healthy volunteer donor status.
- **"Giving-Pending":** More than 500 blood donors are united and spread the word by using social networks and solving emergencies. Vanessa Vasquez, Franco De los Rios and Celia Lian are talking about the lack of blood and are using marketing strategies for blood donation, communication and emulation.
- **"ASMET":** (Society for Advances in Transfusion Medicine) sets up educational projects and tries to actively collaborate with other associations and enhance donor network such as the Peru Meeting of Blood Donation.

Coming June 14, the initiatives described above will be presented and reviewed. And one idea will be selected and further developed and executed over time. Also, we will join all of our efforts to improve the Health of the Peruvian Blood Transfusion system.

2015

June 20 - 25, 2015

ISTH 2015
Toronto, Canada
https://www.isth.org/page/2015Microsite/

June 27- July 1, 2015

25th Regional Congress of the ISBT
London, UK
www.isbtweb.org/london

September 22 - 23, 2015

EDQM Symposium on 'Plasma for Direct Clinical Use'
Strasbourg, France
https://www.edqm.eu/en/symposium-plasma-for-clinical-use-1468.html

September 28 - 29, 2015

IPFA/BCA 2nd Global Symposium on The Future for Blood and Plasma Donations
Forth Worth (Dallas), Texas, USA
http://www.ipfa.nl/events/ipfa-bca-2nd-global-symposium-on-the-future-for-blood-and-plasma-donations

October 24 - 27, 2015

AABB Annual Meeting
Anaheim, USA
http://www.aabb.org/annual-meeting/Pages/default.aspx

November 05 - 07, 2015

2nd Congress on Controversies in Thrombosis and Hemostasis (CiTH)
Barcelona, Spain
http://www.congressmed.com/cith/

June 20 - 25 , 2015

ISTH 2015
Toronto, Canada
https://www.isth.org/page/2015Microsite/

Nov 14 - 16, 2015

26th Regional congress of the ISBT, Indonesia
Nusa Dua, Bali, Indonesia
www.isbtweb.org/indonesia

Dec 01 - 02, 2015

IPFA Workshop on Improving Access to Plasma and Plasma Products
Stellenbosch, South Africa
http://www.ipfa.nl/events/ipfa-workshop-on-improving-access-to-plasma-and-plasma-products-in-the-southern-african-region

2016

September 3 - 8, 2016

34th International Congress of the ISBT
Dubai, United Arab Emirates


ISBT
LONDON
2015
June 27 - July 1, 2015
25th Regional Congress of the ISBT,
in conjunction with the 33rd Annual Conference
of the British Blood Transfusion Society
London, United Kingdom
ISBT
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British Blood
Transfusion Society