

TRANSFUSION TODAY

Transfusion Today | Number 121, December 2019



Transfusion in the military

Elections for Board
of Directors 2020

Military blood transfusion

Barcelona congress

Education course in Peru

ISBT



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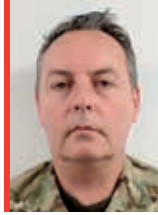
Judith Chapman

Editorial

The focus section of this issue of Transfusion Today is on the military. Usually the focus section has contributions from a global perspective but for this issue the section is written by members of the British Army defence pathology unit at the royal centre for defence medicine. The first article describes the establishment of the army blood unit in the UK from very small beginnings in 1938 to a big operation of 500 staff and 20 blood collecting vehicles by 1945. Today much research goes on in military defence establishments across the globe on transfusion of blood to trauma patients, on preservation of blood and blood components and carriage of blood to remote military units. The series of articles makes interesting reading.

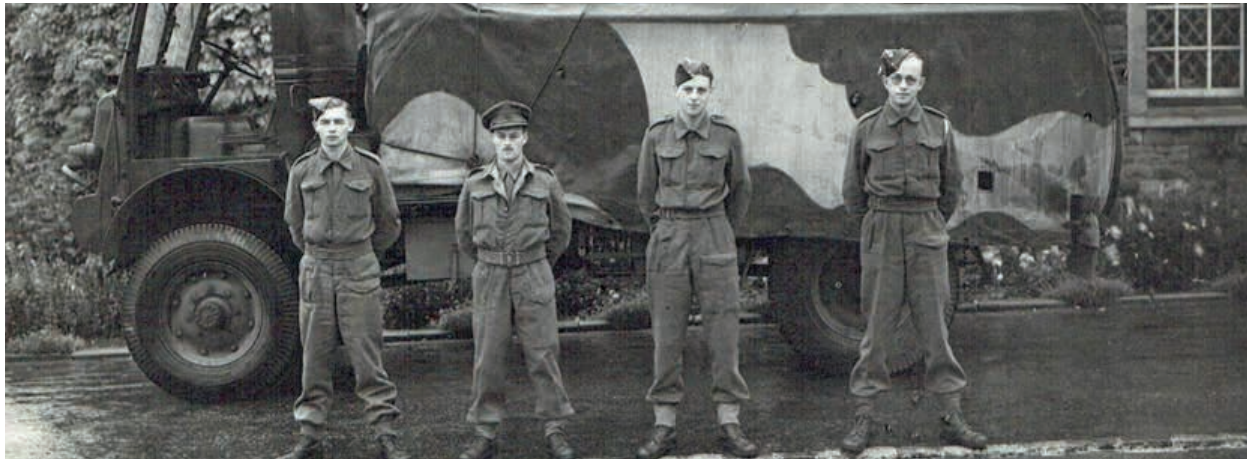
There is a lot of activity related to transfusion medicine going on in South America. In this issue there are reports of the Mexican Association conference and a transfusion course in Peru, both supported by ISBT. There has recently been a rare donor conference in Uruguay where there was a commitment to start a rare donor programme in South America. I am currently attending Hemo 2019, the conference of the Brazilian Association of Haematology and Haemotherapy. Over 5,000 participants are at the conference and on the first day ISBT supported the Highlights of ISBT day. The Society intends to hold more of these days in countries and regions that are not hosting an ISBT congress so that more transfusion medicine professionals have the opportunity to learn about the latest advances in transfusion medicine first hand. The next Highlights day will be in association with the Indian Society of Transfusion Medicine.

We are already looking forward to the 36th International congress of the ISBT in Barcelona in June. All invited speakers have been invited and the Academy day programme is almost complete. Our young professionals council is busy working on ideas for young professional participants including a number of workshops and there will be a one day workshop directed at transfusion practitioners/nurses. Make sure to share your work by submitting an abstract and attending the congress. I wish you an enjoyable festive season and a happy new year!



Maj Andrew Miles
Responsible Person (Blood)
Centre of Defence Pathology
Royal Centre for Defence
Medicine

The British Army transfusion service in World War II



Following the Munich Crisis of 1938, the British Army began urgent preparations for war, including Transfusion support. A dedicated Home Depot was established at Southmead Hospital (Bristol), where blood from civilian donors could be processed and bottled for dispatch to military units in Europe freeing up, military medics to deploy to the front line.

The first blood donations were within days of the outbreak of War on 3rd September 1939 and by 6th October the first 40 units of whole blood, collected into glass bottles, were delivered from the aerodrome in Filton to Dieppe. The first transfusions were carried out within a week of delivery, and deliveries continued even during the Dunkirk campaign. Initially blood was stored for 10 days in glass with Citrate additive, but as demand increased the need to improve the life of blood became paramount. Techniques to exclude an air gap, together with the introduction of transport boxes which allowed for ice to be inserted in the wooden packing crates extended the life of blood to three, then four weeks by 1940. The introduction of lyophilised grouping reagents (1942-43), and parachute delivery in 1944 assisted the process.

By 1945 the Depot had grown to 500, mainly female, technicians, and managed 26 vehicle borne collection teams. Over 1200 units were collected per day. The facility was replicated in Egypt and India to support the campaigns overseas. Following the experiences of the Dunkirk campaign it became

apparent that plasma was required to manage traumatised casualties, and so by 1941 a facility was built in Filton to provide freeze dried plasma in great quantities. By the time of the D-Day Campaign in 1944 this was capable of producing 2000 bottles per week.

Deliveries to the frontline were complicated, and initially involved a journey by air, lorry, and motorcycle dispatch rider, and so specialist Field Transfusion Units were formed. The teams comprised a doctor, driver/fridge mechanic and two medical orderlies who collected blood in refrigerated vehicles from the airfields and delivered direct to the hospitals, sometimes under enemy fire. As the war progressed these 'FTU's took charge of emergency transfusions and became adept at managing traumatised casualties.

The British Army's Transfusion Service was unrivalled in its scope and ultimately was able to support military operations globally "No force has ever been vitally short of transfusion supplies or equipment and the Transfusion service has built a fine esprit de Corps and exercised an ingenuity for exploiting local resources."¹

¹Army Blood Service Depot Report 1945 'The Pattern for an Organised Transfusion Service after the War' (Internal report).



Col Tom Woolley
Defence Professor of Anaesthetics
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Royal Centre for Defence Medicine



Lt Col Gary Fitchett
Officer Commanding Centre for
Defence Pathology
Defence Specialist Advisor Pathology
Royal Centre for Defence Medicine

The future of military blood transfusion

The aim of modern military resuscitation is that **"No service person shall bleed to death without access to blood products."**

Recent evidence from the battlefield suggests that early blood based resuscitation is a critical enabler in the survivability of the bleeding casualty. Therefore, the aim is to provide blood based resuscitation within 30 minutes of injury and had been termed "Blood Far Forward".

Military deployments vary in size from small teams operating in discrete, austere locations to large formations spread over a wide area and medical support will vary greatly from a single medical professional to a multi bedded field hospital with a dedicated blood bank. In an ideal world every bleeding casualty would have access to blood components such as Red Cell Concentrate (RCC) and Fresh Frozen Plasma (FFP) within 30 mins however this is unachievable due to the logistical challenges associated with the cold chain and storage, which can affect the mission.

The use of lyophilised plasma products to provide a source of clotting factors and fibrinogen offer a way forward for small teams with no ability to hold blood components. These are simple to prepare and can be available within 15 mins, however their current worldwide availability is limited, and many countries are looking to ways of providing additional capacity, through 3rd part processing of plasma or direct manufacture.

In emergency, and in particular when availability of blood products are limited, it is possible to use Emergency Whole Blood donations. Pre-screened Emergency Donor Panels (EDP) with multiple blood groups have been in use within the UK military for many years. This provides a source of whole blood and is supported and maintained by Biomedical Scientists (BMS) who select the most appropriate donor for the patient. Whole blood can be used for a direct clinical requirement or to provide additional stock levels.

The recent introduction of the Group O, Low Anti -A and Anti B Titre (OLO) programme allows small teams, without a deployed BMS, to have access to Group O whole blood from volunteer donors without the risk associated with intra-venous haemolysis caused by an ABO incompatibility. With the introduction of smaller highly accurate molecular technology there is the ability to undertake in-theatre blood borne virus screening of new unscreened donors to a level equivalent to that required by the UK Blood Safety and Quality Regulations 2005, which would increase availability of blood to the deployed force.

Logistics is key to any military operation and the provision of blood components and blood products form a central hub on deployment is vital to provide the right transfusion product at the right location at the right time. The UK military are developing a Blood Troop associated within a Logistic Regiment that will provide bulk storage for chilled and frozen blood components, lyophilised blood products and an apheresis capability for the production of platelets. Movement from the Blood Troop logistics hub to the end user requires a robust cold chain integrated with innovative delivery systems such as using drones and air delivery.

The Observant amongst you will notice that the Future of Military Blood Transfusion looks very much like that delivered in WWII and reflects the trend in trauma resuscitation in the last 50 years, where avoidance of transfusion was the driver. In both military and the civilian world, transfusion is back to being the mainstay of treatment for a bleeding trauma casualty.

1. Shackelford SA, del Junco DJ, Powell-Dunford N, Mazuchowski EL, Howard JT, Kotwal RS, et al. Association of Prehospital Blood Product Transfusion During Medical Evacuation of Combat Casualties in Afghanistan With Acute and 30-Day Survival. JAMA. 2017 Oct 24;318(16):1581-91.

2. Strandenes G, Berséus O, Cap AP, Hervig T, Reade M, Prat N, et al. Low titer group O whole blood in emergency situations. Shock. 2014 May;41 Suppl 1:70-5.



Maj Andrew Miles
Responsible Person (Blood)
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Blood and cold chain management in the military

It is rightfully expected by military clinicians that their patients have access to the best possible transfusion support available, even in remote and austere conditions. Recent UK experiences in Iraq and Afghanistan demonstrated once again that early provision of transfusion support is vital.

Military Biomedical Scientists (BMS) face the unique challenge of ensuring that blood components, whether RCC, plasma or platelets are delivered in the right mix, at the right time, and in a safe state, to deployed colleagues wherever they may be. National guidelines are adhered to – blood must be transported at the same temperature at which it is to be stored. The components must be physically stable even after lengthy road and air movements which may span intercontinental distances.

The Army Blood Transfusion service started in WWII and delivered bottles of whole blood in wooden crates with ice block inserts. However, spoilage was an issue when transporting over long distances, even if refrigerated trucks were used. Experiences of delivering bulk supplies to the Gulf War in 1990-91, and again at the start of recent conflicts suggested that novel systems were required to move blood in bulk from the UK, and have it distributed and stored at the correct temperature.

Portable blood banks capable of storing 40 units of RCC have been in use for a number of years. These are augmented by freezers which allow for FFP to be held in bulk to support massive transfusion. Today efforts are underway to prove the potential of even smaller units which can hold 8-10 units of blood, even if running on internal batteries. This would allow medics greater freedom to move in response to a crisis. Blood is needed 'far forward' beyond the reach of a conventional blood bank.

FFP has traditionally been shipped in containers packed with dry ice. This system may not be valid beyond 48 hours, and places H&S problems for freight handlers. Therefore, passive, phase change systems are being validated to improve transit times and reduce handling issues. Phase change containers include panels which are prepared in freezers, which when thawed and assembled into cubes sit within a vacuum insulation chamber, maintain components at the appropriate temperature for an extended period of time.

The UK military uses CREDO Cubes of various sizes to allow blood to be carried by prehospital teams (two units each of RCC and Thawed FFP may be carried in a 2L box), while larger 16L containers allow 25 units of blood to be shipped at appropriate temperatures direct from the UK. Typically transit times of 48-72 hours are experienced. And CREDO containers have been proven to maintain temperature even when exposed to the heat of the desert.

Temperature loggers are included in every shipping container and are augmented by simple disposal warm and cold indicator strips. At every stage all involved in the movement of blood must be trained appropriately, and the whole process is coordinated by a dedicated team of specialist BMS at the Centre of Defence Pathology who have become adept at 'blood logistics'.

¹Phase Change cooling systems contain material which when changing from solid to a liquid phase can maintain a constant temperature. Because thermal energy is stored over time this technology is highly applicable to cold chain management.



Col Giles Nordmann
Consultant Advisor (Army) Anaesthetics
JMG South West

Pre hospital blood components

The use of Pre-hospital blood component (PHBC) in the resuscitation of bleeding trauma patients was championed by the UK Defence Medical Services in Afghanistan in 2008, it has subsequently been widely adopted by other pre-hospital providers.

Blood component use in damage control resuscitation (DCR), in hospital, to address the coagulopathy of trauma and stabilise the damaged endothelium, has been shown to improve survival of trauma casualties. In Afghanistan DCR principles were taken forward of the hospital onto the evacuation aircraft (the Medical Emergency Response Team; MERT) and the natural evolution was to add forward blood transfusion. However its use was not conventional at the time, and was not evidence based.

Unfortunately the evidence to support the use of PHBC did not rapidly follow, as data collection was a challenge. Initial reports were discursive or descriptive. In recent years the evidence supporting early transfusion has increased. Pre-hospital PRBC use has been associated with an overall reduction in blood component consumption and improved coagulopathy and 30-day mortality. Pre-hospital plasma resuscitation has also been associated with improved survival (30 day) and coagulation. The MERT transfused PRBC and FFP in equal ratios following the evidence from the in-hospital setting, 1:1 ratios for DCR have been shown to have an improved survival and fewer deaths from exsanguination at 24 hours. One study of its use in the pre-hospital environment revealed patients had improved base deficit and a reduced volume of fluids required compared to crystalloids.

Two significant recent papers address the key question of the impact of PHBC (PRBC and FFP in a 1:1 ratio) weighed against the potential safety and logistical challenges required to pursue this resuscitation strategy. The first, an animal model, demonstrated improved coagulation profiles in animals resuscitated with blood products in a 1:1 ratio as compared to saline. The second paper is a retrospective cohort study of pre-hospital blood product transfusion, compared to crystalloid resuscitation, in of over 500 military combat casualties in Afghanistan, they were able to show that pre-hospital blood product transfusion was associated with a greater 24-hour and 30-day survival. In this study, subgroup analysis showed that those who received blood transfusion less than 15 minutes vs greater than 15 minutes of the arrival of the evacuation aircraft had an improved survival. This equated to a median time of injury to transfusion of 37 minutes.

Coupled with evidence that the peak of prehospital, bleeding deaths is at 30 minutes, this provides the basis for proposing a pre-hospital blood based resuscitation for all bleeding trauma patients within 30 minutes of injury.

1. Brohi K, Singh J, Mischa H, Coats T. Acute traumatic coagulopathy. J Trauma 2003; 54(6): 1127-1130.
2. Frith D, Goslings J, Gaarder C, Maegele M, et al. Definition and drivers of acute traumatic coagulopathy: clinical and experimental investigations. J Thromb Haem 2010; 8: 1919-25.
3. Holcomb J, Jenkins D, Rhee P, Johannigman J, et al. Damage control resuscitation: directly addressing the early coagulopathy of trauma. J Trauma 2007; 62: 307-10.
4. Holcomb J, Junco J, Fox E, et al. The Prospective, Observational, Multicenter Major Trauma Transfusion (PROMMT) Study, Comparative Effectiveness of a Time-Variable Treatment With Competing Risks. JAMA Surg 2013; 148(2): 127-136.
5. Holcomb JB, Tilley B, Baraniuk S, Fox E, et al. Transfusion of Plasma, Platelets and Red Blood Cells in a 1:1:1 vs a 1:1:2 Ratio and Mortality in Patients With Severe Trauma, The PROPPR Randomized Clinical Trial. JAMA. 2015; 313(5): 471-482.
6. Watts S, Nordmann G, Brohi K, Midwinter M, Woolley T, Gwyther R, Wilson C, Poon H, Kirkman E. Evaluation of pre-hospital blood products to attenuate acute coagulopathy of trauma in a model of severe injury and shock in anaesthetised pigs. Shock (2015); 44(1): 138-48.
7. Shackelford S, del Junco D, Powell-Dunford N, et al. Association of pre-hospital blood product transfusion during medical evacuation of combat casualties in Afghanistan with acute and 30-day survival. JAMA 2017; 318(16): 1581-1591.



CH-47 (Chinook) in Medical Emergency Response Team (Enhanced), pre-hospital physician led medical team configuration.



Maj Andrew Miles
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Air delivery of blood

Recent technical advances allow for the potential of parachute and drone delivery of blood.

Demand for blood components in times of armed conflict is a priority for military medical personnel, and logisticians face challenges in ensuring that components can be delivered safely into a war-torn environment. Inevitably conflicts tend to occur in regions where logistical infrastructure is already under pressure, and the delivery of blood can be compromised.

The UK military faces the problem of ensuring that it is delivered from airfields in the UK to remote users across the globe. The problem is compounded by a highly mobile 'frontline'. Consider the problem that a military surgical team may face if they deploy on a naval ship, where they may be moved daily – and face extreme resupply issues.

The concept of parachuting a box of red cell poses technical challenges. The shear forces experienced when a parachute canopy opens may damage red cell membranes. Aircraft and parachutes vary – and with that the 'G-Shock' experienced by the blood may vary. Blood Bags themselves are not intended for the shock of impact associated with a parachute landing. In recent years the British military has attempted to address these and provide a capability which allows for blood to be dropped safely.

In 2017 Meli et al explored the potential for air delivery at sea. The 'dropped' blood was delivered from a gantry into the sea at a fixed impact. Biochemical markers were assessed over a 43-day period and comparisons made with a control group of RCC. The air dropped blood was packed into a passive storage container (CREDO cube) which itself was packed into a foam lined watertight plastic case. This study followed a previous simulation of parachute delivery carried in Canada by Boscarino which suggested the feasibility of a paratrooper carrying units of blood in their medical pack.

More recently the UK Military has developed the concept still further by conducting a series of air drops onto land (where impacts are greater than at sea). Again, a control group of conventionally delivered RCC was assessed against air delivered blood. Whole Blood was also assessed, as it may be that this product type will be of interest in the future. It was shown that blood was intact and safe to use and so can be dropped by parachute, when appropriately packaged, even under the most extreme physical conditions.

Future developments may involve using drones to deliver blood. The Zipline organisation already does this in small scale throughout Rwanda, and researchers have proposed logistical models which would allow for widescale use of drones in disaster relief and in times of conflict. Mainly these are a few units delivered by low level drones, unlikely to be the case in military use where larger shipments would be required. To date the only restrictions are imposed by national air authorities which prohibit unrestricted drone use, however this may potentially change in the future.

- 1 Meli et al. (2017) Investigation of the quality of stored red blood cells after simulated air drop in the maritime environment. *Transfusion*. 58(2) November 2017
- 2 Boscarino et al (2014) Feasibility and transport of packed red blood cells into Special Forces operational conditions. *The Journal of Trauma and Acute Care Surgery* [01 Apr 2014, 76(4):1013-1019]



Dear ISBT members,

An intense and interesting year for ISBT is drawing to a close. After having organised two successful regional congresses in Basel and Bangkok plus a highlights meeting in Sao Paolo in October and with another one planned in Mumbai for January 2020, I think we can feel quite proud. In addition, the ISBT Foundation has supported an impressive number of educational efforts around the globe, all prioritized and quality assured by the ISBT Academy. We have pledged to be the go-to Society for transfusion medicine professionals around the world, and we deliver. As a token of the special ISBT family feeling we offer, both our individual and affiliate memberships are growing. Currently, we have close to 2,000 individual members and can reach out to another 10,000 professionals with our educational efforts thanks to our more than 30 affiliate members. Don't forget to tell your colleagues why they should join, too!

The recently concluded congress in Bangkok exceeded our expectations regarding the number of delegates and presented a great educational offering alongside a top-of-the line scientific program with a regional touch, featuring local and regional speakers as well as international thought leaders. The meeting was inaugurated by a very special guest, namely High Royal Highness, the Princess Maha Chakri Sirindhorn of Thailand, who is also the Executive Vice President of the Thai Red Cross Society. As a bonus and to the joy of the ISBT Board, she accepted our offer to become an Honorary Member of ISBT.

Before the congress, we had a Board meeting during which we finalized the last details of the new ISBT strategy, which will be rolled out early 2020. Furthermore, a decision was taken to implement a Conflict of Interest policy for officers and staff of the Society. I would like to thank the Standing Committee on Ethics, and particularly its Chair Dr. Peter Flanagan, for providing us with a solid and well thought through document, which aims to safeguard our credibility and integrity going forward. More details on this will follow in the next issue of *Transfusion Today* when our Central Office has worked out the details of how this process shall be handled from a practical point of view.

With this, I would like to close the year by thanking you for supporting ISBT. Please join our efforts towards a world of safe and sufficient blood!

Best wishes for the holiday season,

Martin L Olsson
ISBT President

Welcome to our new members

(September 2019 - November 2019)

Africa

- **NIGERIA:** Ejike, Felix Chukwura
- **SOUTH AFRICA:** Russell Cable, Charlotte Ingram
- **UGANDA:** Archbald Bahizi
- **TANZANIA:** Lelo Baliyima

Americas

- **ARGENTINA:** Nadia Ahmed,
- **BRAZIL:** Antonio Clement De Araujo, Samara Prado, Ruston Lievore, Bárbara Simoes
- **COSTA RICA:** Juan Manuel Urena Diaz
- **PERU:** Alvar Chavez
- **USA:** Ninette Robbins, Jay Driggers, Lisa Poor, Sadie Arnold

Eastern Mediterranean

- **EGYPT:** Azza Sadek Eldanasoury
- **PAKISTAN:** Muhammad Hasan
- **QATAR:** Chama Chama, Eileen McBride, Graciela Inton-Batang, Ammar Daraghmi, Roisin Bradley
- **SAUDI ARABIA:** Fede Valdevieso
- **TUNISIA:** Sarra Fekih Salem

Europe

- **BELGIUM:** Inge Verschraegen
- **FRANCE:** Eya Hamdi
- **GERMANY:** Angel Vockel
- **ITALY:** Edmondo Ferretti
- **LITHUANIA:** Daumantas Gutasukas
- **NETHERLANDS:** A Albersen
- **POLAND:** Monika Pelc-Klopotowska
- **PORTUGAL:** Joana Marques
- **RUSSIA:** Elena Ladygina, Alfiya Levashova
- **SWEDEN:** Mehmet Uzunel
- **UNITED KINGDOM:** Heli Harvala, Shane Grimsley

South East Asia

- **INDIA:** Suman Routray, Shasikant Patil, Lakshita Varshney, Yazdi Italia, Shatakshi Jindal, Pandeep Kaur, Sumit Bharadva, Ripal Jasmin Shah, Suresh Arumugam, Vasanthakumar Karumannan, Alexander Sadagoppan, Sanjay Kumar Tripathi, Ranjan Murkherjee, Girish Singh Kshatriya
- **INDONESIA:** Diah Puspita, Bima Tigana Komatahsi, Idah Wanangsih, Mega Octavia, Septiana Veronica, Aripin Aripin, Dian Afmareta, Lenny Dewanti, Mahdi Mahendra, Eka Destianti Edwards
- **MYANMAR:** May Myat Khine, Nan Ei Khin, Moe Lwin
- **SRI LANKA:** Pavithra Arewatte, Champika Priyadarshanie Gamalath Palle Malle Gamlath Ragale, Tennage Samanth Rohan Blaise De Silva, Arjuna Thilakarathna
- **THAILAND:** Suriphong Thaksinsampan, Phandee Watanaboonyongcharoen, Krittiya Yam-iam, Saranpat Asavapuriyothin, Wanlaipan Wongprom, Pitipat Jamnarnweij, Pitchaya Poomnikon, Araya Chaowanakul

Western Pacific

- **AUSTRALIA:** Shaun Roberts, Natasha Modica, Rachel Brazier, Alexis Perros, David Mahon
- **BRUNEI:** Noorainum Mohd Yusof
- **HONG KONG:** Yin Mei Lam, Ka Lok Chan
- **JAPAN:** Tokiko Nagamure-Inoue, Rie Onodera, Takahiko Tsuchida, Takeshi Kassai
- **MACAO SAR OF CHINA:** Agostinho Antonio Leong
- **MALAYSIA:** Mohd Fahmi Aziz, Syazana Akmal Binti Shrifudin, Ailin Mazuita Mazlan, Ahmad Nor Hafizah, Nurul Asyikin Nizam Akbar, Sarojini Maniam, Wan Salleh Wan Nor Azma, Rosnizah Awaluddin, Siti Noorfahana Hamdan, Hairunnisa Arshad, Nurul Shairah Shahidan, Juwaini Mohd Yusoff, Siti Aishah Wan Mohd Hasni, Azhanazura Binti Abdul Rahman, Mohd Hilmi Mohd Nor, Sakinah Ahmad, Siti Farhah Mohd Isa, Affendy Janang, Harun ABD Rahman, Wan Nurul Husna Wan Alkamar Shah, Afif Alam Faizli
- **NEW ZEALAND:** Aous Al-Ibousi
- **PHILIPPINES:** Gil Bryan Galvan, Hans Francis Ferraris, Nena Lingayon, Paulo Enrico Belen, Francis Dematera, Ernesto Miralles, Melani Sionzon, Paula Bianca Nuqui, Jennifer Torres
- **SINGAPORE:** Wooi Seong K., Wei Wei Chey, Pei Wen Teo, Yu Matsuura, Tianting Zhang
- **SOUTH KOREA:** Minam Lee, Jin Hyuk Yang, Jin Hak Jeung, Ka Yeon, Jae Gyun Shin, Yu Changsun, Kim Jaesoo, Tae Yeul Kim, Jay Chai, Yongcheol Kim
- **TAIWAN:** Ko Ming Hou, Lin Yi-hui, Lei Fang Tsai, Yun-Yuan Chen, Chia-Wen Wu, Ya-Chun Wang, Jenwei Chen, Hui-Fei Tang

Elections for the ISBT Board of Directors 2020

Call for nominations

Would you like to be involved in the governance of ISBT? This is your opportunity to put yourself forward for nomination to the Board. The ISBT Board of Directors is entrusted with the management of the Society including strategy, policy and objectives and ensures that the Society acts in accordance with the Statutes and resolutions adopted by the General Assembly. The Board of Directors generally meets face to face twice a year. The Board works closely with the staff at the ISBT Central office.

According to the statutes of the ISBT, elections for the Board of Directors will be held prior to a General Assembly (Article 16.1). The ISBT Secretary General must notify all members of the elections at least six months in advance of the relevant General Assembly and call for nominations to fill vacancies on the Board of Directors (Article 16.3(a)). The next General Assembly will be held in Barcelona, Spain on Tuesday June 9, 2020.

Nominators - Individual, Honorary or the designated representative of Affiliate members who are accepted members of ISBT on **Tuesday December 10, 2019** at 17.00 Central European Time are invited to nominate candidates for the following positions on the Board of Directors and the Executive Committee:

President Elect
Vice President
Treasurer
Regional Director Africa
Regional Director Europe*
Regional Director South East Asia
Regional Director Western Pacific*

* Nominations cannot be accepted for members resident in Germany or Malaysia because there is already a member from each of these countries on the Board. Article 13.3 (f) does not permit two Regional Directors from the same country. For Regional Director positions you must reside and work in the region.

Nominees can only be Individual members of the Society and must be accepted members of ISBT on **Tuesday December 10, 2019** at 17:00 Central European Time.

Please read the call for nominations notice which can be found on the Elections 2020 page of the ISBT website. The nomination process will be online only and details and a link can be found on the Elections 2020 page of the ISBT website.

The official deadline for receipt of nominations is **Tuesday February 18, 2020 at 23.59 Central European Time.**

Save the date for Barcelona!

June 6 - 10, 2020



Barcelona

Join us for the 36th international congress of the ISBT in Barcelona. Barcelona has plenty of cultural highlights and is perfectly situated between mountains and sea. Take some time to explore the centre of Barcelona during your congress visit. Admire the rich history and come across unique architecture. Discover La Rambla, La Sagrada Familia, Park Güell or the charming Gothic Quarter, Barri Gòtic, which has narrow medieval streets filled with trendy bars and Catalan restaurants. If you consider yourself a food lover, there is definitely something for you, the streets are filled with restaurants. Have a taste of classic Spanish dishes or find other authentic hot spots in the city.

Key dates

Abstract Submission deadline February 11, 2020

Please note the early date

Early Registration deadline	April 23, 2020
Late Registration deadline	May 28, 2020
Onsite registration	May 29, 2020

Register

Attending this international congress in Barcelona will give you the opportunity to network with other transfusion medicine professionals, participate in interactive sessions and gain new knowledge on your own specific topic. Save money by registering before the early or late registration deadline or by becoming an ISBT member and registering for the congress at the ISBT member rate. Further information about ISBT membership can be found on www.isbtweb.org.

Harold Gunson Fellowships

If you are under 40 and are submitting an abstract as the first author you can apply for a Harold Gunson Fellowship. Your travel, registration and accommodation will be covered by the congress. Application deadline: February 11, 2020. Further details on the website.

Congress venue

The 36th International Congress of the ISBT will take place at the CCIB in Barcelona. CCIB is a leading European location for event organisation and is equipped with the very latest technology. The Convention Centre was built by the famous Spanish architect Jose Luis Mateo and has been designed to allow light to play a central role within the space. It is a short travel to many hotels in the city. The location is 20 km from the airport, 6 km from the city centre and 500 m from the beach.

CCIB

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The Scientific Programme

As always, Saturday will be the local day with a programme composed by the local organising committee. The Academy day will take place on Sunday, covering many different topics in transfusion medicine. Some of the sessions will be interactive which means you can interact with the speaker or moderators by using the ISBT society App. The main scientific programme will take place Monday to Wednesday and will include five plenary sessions with topics including 'whats new in post partum haemorrhage, the gut microbiome in transfusion medicine and those nasty parasites and how to eradicate them.' The ISBT Presidential Award and Jean Julliard Prize plenary sessions will take place on Wednesday morning. New this year will be two



educational sessions in the main scientific programme; the first looking at all aspects of guideline development and the second on eradicating Rh HDN.

Young Professionals

A variety of activities will be organised for young professionals, for example the young professionals breakfast. Young professionals who are 40 years or younger can meet and discuss their work with transfusion medicine experts. Besides you can follow workshops designed with young professionals in mind or attend the Best of the Best Young Professional session. More information on this will become available on the Barcelona website in due course.



Social programme

The opening ceremony will be held on Sunday, June 7 at 17:45 hrs. This will include opening speeches, award presentations and local entertainment. The opening ceremony will be followed by the welcome reception in the exhibition hall where drinks and a hot buffet will be served and you will have the opportunity to meet colleagues from past congresses and mingle with exhibitors.

The congress party will take place on Tuesday, June 9 at the Poble Espanyol. At the Poble Espanyol you can observe popular architectural richness, discover the culture, traditions, scenery, folklore and gastronomy of the different regions of Spain. Tickets can be purchased for €50 during the registration process.

Exhibition

An industry exhibition will run alongside the scientific programme. In the exhibition hall you can find out about all the latest transfusion medicine technology.

Visit www.isbtweb.org/barcelona

Expressions of interest sought for hosting the ISBT international congress in 2024

Expressions of interest are invited from National Blood Transfusion societies or National Blood Transfusion institutes for hosting a congress in conjunction with ISBT. This is an exciting opportunity for you to work with ISBT on providing a state of the art, inspirational congress for blood transfusion professionals. ISBT international congresses go around the world and congresses will have taken place in Dubai in 2016, Canada in 2018, Spain in 2020, and Malaysia in 2022.

ISBT congresses are organised by the ISBT Core Professional Congress Organiser and the ISBT Central Office. The Local Organising committee will have some responsibilities including proposing topics for the scientific programme and making suggestions for the social programme.

If you are interested in hosting the congress please carefully read the instructions at www.isbtweb.org. The closing date for expressions of interest is January 27, 2020.

Membership year 2020-2021

Thank you for your support of ISBT in 2019 in its mission of sharing knowledge to enhance transfusion practice. Together we can increase our impact on Transfusion Medicine and thanks to our members ISBT is growing.

The new membership year will run from April 1, 2020 to March 31, 2021. Membership renewal will start from March 1, 2020. Make sure you renew your membership from then to qualify for the Barcelona congress fee discount.

Have you have seen the latest content on ISBT Education? You can also use the Education app to access the content 24/7 on your mobile device. More information about membership can be found on the website: isbtweb.org/my-isbt/join/ or email membership@isbtweb.org.

"Sharing the ideas with a group of like-minded friends from all over the world always lights the inspiration and pushes you forward. So join us and enjoy it!"

- Ji Yanli, China

"Being an ISBT member, affords me great learning and sharing opportunities at congresses. ISBT Education helps me increase my knowledge and is a great source for teaching material"

- Shirley Owusu, Ghana

ISBT Education for Dummies

ISBT Education is the online educational portal, where members of ISBT can find a rich content of (accredited) congress webcasts, interactive segments (Fainting module), webinar and Live Journal Club recordings, eBooks, I TRY IT content, guideline links and more.

Here is what you need to do to access the content of ISBT Education:

1. Log in with your membership credentials, authorize the request.
2. Click on the tab of interest (Home, Accredited content, affiliate suite, topics, webcasts, guidelines, contributors).

3. In case you have something specific to search for, type your keyword in the search bar and hit enter.
4. You will see a list of items associated with your keyword.
5. Use Deep Search: this option will provide you with detailed information on the content: contributor, type of content, year of publication etc.
6. If you click on Matching Slides within Deep Search, you will see a list with matching slides where your keyword has been mentioned (see explanation figure using example keyword immunology).



Webinars of 2020

ISBT Webinar

Session for and by Young Professionals

January 8 2020

3:00 CET

Graphic Medicine for Better Interprofessional Education & Collaboration



Justin Kreuter
Rochester, US

ISBT Webinar

February 5 2020

3:00 CET

Blood Transfusion Safety in Sub-Saharan Africa



Claude Tagny Tayou
Yaoundé, Cameroon

EDUCATION

The ISBT Young Professional's Council (YPC)

The ISBT Young Professional's Council (YPC) organized a number of activities at the 29th Regional Congress held in Basel. The aim of the young professional's breakfast was to give youthful transfusion scientists and practitioners an opportunity to meet up with the experts in the field of transfusion. The 1-hour event brought together 42 transfusion researchers/scientists from 19 countries.



We held round table discussions led by experts in the field of key transfusion areas including immunohematology, donors and donation, transfusion transmitted infectious diseases, blood supply management, hemovigilance, clinical transfusion, novel technologies and cellular therapy. The breakfast provided a networking opportunity for the young investigators amongst themselves and with the experts in the various fields. The participants had a chance to share experiences from their countries and their work. Challenges were shared and participants found that they faced similar situations. Around the tables career progression from diverse backgrounds was also discussed. At the end of the breakfast selfies were taken and email addresses exchanged. The breakfast is a great way to meet and keep in touch with colleagues from around the world.



Sophie Uyoga
Research Scientist
KEMRI Wellcome Trust Research Programme
Young Professional Council member



Special thanks to Brian Custer, Christian Erikstrup, Jo Wiersum, John Semple, Jill Storry, Henrik Ullum, Ljiljana Vasovic, Masja de Haas, Ruchika Goel and Mickey Koh who attended the breakfast meeting as mentors.

Below are the feedback comments from attendees; *"I think the Young Investigator's breakfast is a great initiative to discuss young researcher's work with experts, besides the speed-date session as the perfect networking initiative. Both sessions encourage young investigators to get connected and be involved in transfusion medicine research."*

"Thank you for the time you spent organizing the different events for the congress and throughout the year. It's nice to feel that there is some space for YI in ISBT."

"It was my first ISBT congress and I enjoyed the congress and the initiative to encourage the young professional investigators. I hope to have other opportunity to participate to the ISBT congress. Thank you!!"

The YPC team looks forward to having an even more engaging meeting next year. We intend to give the young investigators more time to interact with the experts and have more in-depth discussions on career paths in transfusion science. We look forward to meeting more young transfusion scientists and practitioners at the ISBT European congress in Barcelona next year.

Follow the Council's hashtag #ISBTYoungBlood on Facebook, Twitter, Instagram and LinkedIn for updates on the council activities. Your participation and engagement matters!



Lucia Zamudio Godínez
President
Mexico

Asociación Mexicana de Medicina Transfusional A.C. AMMTAC

AMMTAC is a Mexican Society of Transfusional Medicine that includes physicians, scientists, nurses and allied health professionals dedicated to the activities of blood collection, transfusion, immunohematology, apheresis and cellular therapy. The mission of the AMMTAC is to promote the training and continuous updating of personnel involved in Transfusion Medicine through high-level educational activities, consensus and discussion forums that allow the exchange of ideas, the scientific, technological and academic development of its members in order to raise transfusional safety in Mexico.

ANNUAL MEETING

In September 25 to 28, 2019, we celebrated our XVII National Congress in the city of Monterrey, Nuevo León, which is a city in the north of the country, where we carried out 8 workshops, 5 plenary sessions, 12 symposiums, 9 satellite symposiums, with various topics of transfusion medicine, apheresis medicine, cell therapy, immunohematology, infectious diseases, clinical transfusion, PBM, hemovigilance among other important topics, with national and international professors. We had a successful congress, the total attendance was 1345, of which almost 1000 were delegates, 47 national professors, 8 foreign professors and the rest of the organizing committee, exhibitors, staff and companions.

We also launched an app, to integrate our website and social networks in a practical way for our users.



ISBT ACADEMY

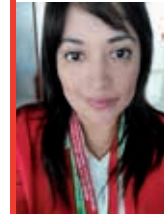
3rd edition of blood bank and transfusion medicine course in AUNA, Lima, Peru



The course included donor health, quality control, transfusion practice in massive bleeding and perioperative medicine. A laboratory workshop was held about the detection of rare donors, freezing blood drop techniques, microplate testing, in house techniques and resolving cases of serology with enzyme techniques.

We want to give a warm regard to all our Latin American teachers, young residents of clinical pathology, technicians, biologist who participated and went to nurture the attendance, we delivered 100 scholarships this year.

Special recognition to our guests who selflessly came to give the most valuable of themselves: their time, friendship and presence with us. Estela Lavalle from Montevideo Sanatory, Tech Ximena Borgno from Hemocentro Maldonado (Uruguay), Sebastian Oknaian from Garrahan Hospital, Oscar Torres from Sardá Maternity, Fabiana Bastos from Roffo Policlinic, Buenos Aires (Argentina) as well as Nancy Benites (OneBlood, Miami Florida, EEUU) who came to teach us and share with us their knowledge. Special thanks to Jose Fuentes



Dra Ina Perez Huaynalaya
Medical Coordinator of Blood Service and Transfusional Medicine. Clinica Delgado - AUNA

Rivera of the National Blood Program of Peru for his presence, participation as a speaker and contributions to the group.

Many physicians like neonatologists, cardiovascular surgeons, anesthesiologists, critical care nurses, epidemiologists, clinical engineers, industrial engineers were part of the audience, Managers of medical patient safety also participated in the classes, as well as the Clinical Delgado Medicine Manager, Dr Jesus Canales Vargas who gave the speech of inauguration. If there is something that unites us all, it is the desire to get ahead in the region.

It was challenging to grow to have 180 workshop participants. We want to thank ISBT who made this possible, as well as our teachers.

ESECS - AUNA School applied to the ISBT Academy and made this possible joining together those who believed that the project was important.

We gave scholars the opportunity to use lab materials, manuals and practice of good quality, many times hospitals don't have available because their budgets doesn't support them for teaching and training. We are moving forward during 3 years from the basics. We still have a long road and experience to develop. In Peru we already have reported the first case of K null in 2018, and we expect to have more reports and publications from this working group. This education is necessary in order to create more opportunities to show the work of rare donors we are developing in the region. We want to thank ISBT for the support this year. It has been worthwhile to work it.



Irena Kramar
President of The Blood Transfusion Society of Slovenia and Blood Transfusion Centre of Slovenia



Vesna Galvani
Blood Transfusion Centre of Slovenia

News from the meeting of the Slovenian transfusion medicine society

This year's meeting was held in Zreče, Slovenia, from April 5 to 6 and hosted 120 participants (physicians, nurses, laboratory specialists, and others). The program started with an intense discussion about the importance of science and post graduate education in transfusion service, how to write a scientific article, and sometimes the most important issue of where to get financial support for your research

The meeting started with a state of the art presentation on HCV infection in Slovenia among haemophilic patients (successfully treated in 98%), IVD abusers, other patients, and the entire population living in Slovenia. HBV topics concluded the session with the trends in detecting HBV markers and the results of a recent prevalence study among Slovenian blood donors. The prevalence of anti-HBc in 2019 is 1.28% (Fig. 1) and a remarkable decline in last 20 years has been noticed.

In December 2018 the Slovenian National Haematopoietic Stem Cell Transplantation Programme celebrated 30 years of the first haematopoietic stem cell (from bone marrow) transplantation. Blood Transfusion Service has been involved in collection, preservation, storage, distribution and allocation of the products as well as in HLA typing and matching since then. An entire topic was dedicated to haematopoietic stem cell transplantations and the future challenges that will inevitably affect all of us.

The good vibe of the meeting and fruitful interactions between the participants opened a variety of opportunities to start a new collaborations or projects. We really appreciate that ISBT contributed to this meeting by sponsoring the organization of this educational event.

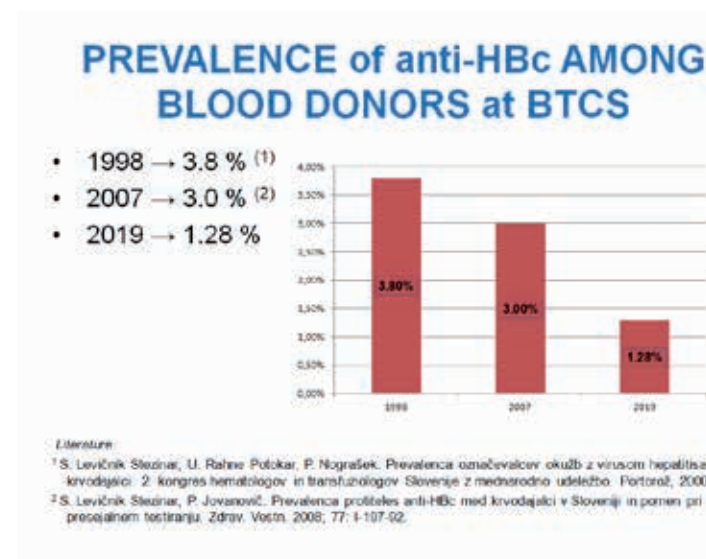


Fig. 1: Prevalence of anti-HBc among blood donors at Blood Transfusion Centre of Slovenia (BTCS). The study was performed on 5706 donations in the period January - March 2019.

South African national blood transfusion society congress

The 35th South African National Blood Transfusion Congress was held from August 5 - 8, 2019 at Sun City, in the North West Province of South Africa.

This congress was organised by the South African Society for Blood Transfusion, a non-profit entity including directors and members of both blood services in South Africa (SANBS and WPBTS).

The key highlights were:

- 428 delegates attended (including 54 day delegates).
- 100 abstracts were submitted, of which 65 were accepted for oral presentation, and 29 for poster presentation.
- 32 talks were delivered by invited speakers, which included 6 local and 10 international speakers.
- 49 trade exhibition stands were taken up by 28 companies.
- 36 sponsorship opportunities were purchased by 14 companies.
- Delegates attended several social events – which included the opening of the Trade Exhibition, the early morning Fun Run, the Casual Dinner and inter-regional singing competition, and the Gala Dinner.

In addition, three people were honoured with Lifetime Achievement Awards, recognising their substantial contributions to research and advancing scientific knowledge, their contributions which shaped the direction of the Blood Services in South Africa, and their stature in both the local and international transfusion medicine community. The recipients were Anthon Heyns, Arthur Bird, and Ravi Reddy.

Another highlight of the congress was the demonstration of the BloodWing drone, which is able to take off and land vertically, and transition to conventional flight once airborne. This drone is able to fly autonomously, and can speedily deliver up to 4 units of blood to distant sites to overcome ground logistical challenges.

The organisers of the congress were kindly granted €10.000 by the ISBT Academy, which was utilised to fund the attendance of delegates from resource-constrained African countries as well as covering some of the costs of the three ISBT Workshops.

Feedback from the delegates supported by the ISBT Academy's grant follows:

Daniel Ndhlovu – Malawi Blood Transfusion Service:
"I learnt a lot in the three days and my knowledge in immunohematology and blood transfusion has improved tremendously. There were also sessions of interest, which, although not applicable to my practice in Malawi, widened my horizons in the field. Making a presentation at a congress was an exciting experience to me. The knowledge gained at the congress I will share with my colleagues and entire organisation."

George Mavunganidze - National Blood Service Zimbabwe
"The congress provided unique and limitless opportunities for me individually and for my country, Zimbabwe. It was encouraging and motivating for me to be amongst the congress presenters for such an international event. I will conduct more research in my country and encourage those who work under me so that more meaningful blood transfusion research papers are presented from Zimbabwe in future. I learnt through the conference that strengthening collaboration with countries in the region and abroad is a key game changer."



Gregory Ralph Martin Bellairs
 CEO/Medical Director – Western Cape Blood Service
 President – South African Society for Blood Transfusion



Marion Vermeulen
 Senior Manager: Operations Testing – South African National Blood Service
 Chair – South African National Blood Transfusion Congress 2019

Menard Mutenherwa - National Blood Service Zimbabwe
"I managed to share and acquire knowledge in blood transfusion services, showcased my achievements, solved some blood transfusion problems during discussions and broadened my knowledge of the blood transfusion base in South Africa, Africa, Australia, and other countries represented by ISBT. I also learnt about some of the challenges that are faced by blood transfusion service organisations in Africa. For example, National Blood Service Zimbabwe can explore solar power as a solution to overcome the recurrent power shortages being experienced in Zimbabwe. The experience I got is great and will last forever." The Scientific Program can be accessed via the following link - <https://sabloodcongress.org/programme/>

The organisers wish to thank the ISBT, the sponsors, and the exhibitors for their financial support, as well as all delegates and speakers who ensured that this was yet another successful congress on the African continent. We must highlight the generosity of the delegates who donated substantial quantities of stationery, non-perishable foods, blankets and first-aid kits to two impoverished schools in the area as part of the Corporate Social Investment initiative.

The next South African National Blood Transfusion Congress will be held in 2021 and further details will be released in due course.

Nucleic acid testing centralization and its impact in public health

At the end of the 90s, in Europe and the USA, Nucleic Acid Testing (NAT) was implemented initially for HIV and HCV and later for HBV in blood donations, responding to the need to offer safer blood products. In Latin America there are few data in this regard, and among the different countries the situation is not homogeneous in terms of regulation, organization and strategies for promotion of blood donation.

In Argentina, NAT is not regulated as mandatory, but its implementation in reference centers has increased in recent years. The National Blood System of Argentina is organized in 38 Regional Blood Centers, 147 Intra-hospital Blood Banks and 861 Hospital Transfusion Units, where 70% corresponds to public health areas and the rest are private. Almost forty five percent of donations are collected from voluntary blood donors and the remaining corresponds to family/replacement blood donors. At the Centro Regional de Hemoterapia Garrahan (CRH-HG), a great challenge in promotion and education for blood donation has been conducted, achieving “100% voluntary no replacement donors” and 40% of repeated blood donors since 2011. As a consequence, the markers of transfusion transmissible infections have decreased up to 10 times.

At CRH-HG NAT testing for HIV and HCV in blood donors was implemented at the beginning of 2007, followed by NAT for HBV a year later, becoming one of the first blood banks in the country that performed this screening.

Since August 2013, after a political agreement and the design of technical and administrative circuits to allow the quality, safety and traceability of the results, NAT for HIV, HCV and HBV in blood donations were centralized in the CRH-HG using Multiplex Real Time-PCR in the Cobas MPX 2.0 system (Roche Diagnostics, Germany). Blood donation samples were transported from 28 hospital Blood Banks, from the city of Buenos Aires and other provinces, to CRH-HG.

From August 2013 to December 2018, 426,573 donations had been studied (Table 1). We found a significant difference between the prevalence of the different markers in donations collected in CRH-HG in relation to blood donations from other centers. This difference could be related to different blood collection programs among centers, total voluntary donor program in CRH-HG and the mixed (voluntary and replacement) donation program in the rest of the centers.

In this period, we found 9 samples that were negative for serological tests but with positive results for nucleic acid screening tests; 1 for HCV, 4 for HIV and 4 for HBV. Of these samples, 8 could be evaluated for viral load by another reference laboratory (Table 2).

The implementation of a centralized network for NAT allowed to detect infectious blood units that would have not been excluded with conventional screening methods in small centers, which could not afford NAT due to high costs. Globally, the regional blood system could provide safer products.

Acknowledgements

I would like to thank all my colleagues at CRH-HG, mainly Dr. Silvina Kuperman, Dr. Mirta Remesar and Dr. Constanza Lapera.



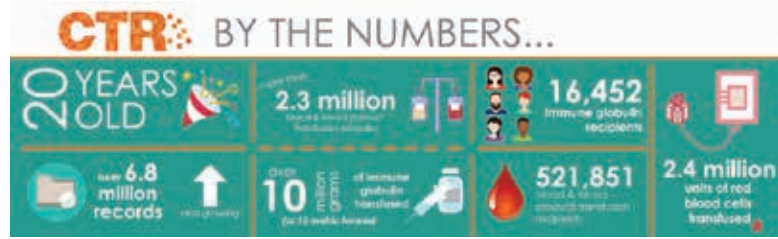
Carolina Fernandez
Senior Laboratory Staff
TTI Laboratory, Centro Regional de Hemoterapia, Hospital de Pediatría Garrahan
Argentina

Table 1: Prevalence of molecular viral markers among blood donors.

	N	HIV Prevalence (%) (CI 95%)	HCV Prevalence (%) (CI 95%)	HBV Prevalence (%) (CI 95%)
H. Garrahan	80,042	0.022 (0.013-0.036)	0.017 (0.010-0.029)	0.011 (0.005-0.021)
Other Centers	346,531	0.084 (0.075-0.094)	0.064 (0.058-0.075)	0.066 (0.056-0.073)
Total	426,573	0.072 (0.065-0.081)	0.057 (0.050-0.065)	0.054 (0.047-0.062)

Table 2: Description of window period donations found in the 2013-2018 period.

Sample	Ag and/or Ac	MP-NAT	ID-NAT	Viral load
1	a-HCV-/HCVAg-	HCV+	HCV+	>10 ⁶ copies/mL
2	HBsAg-/a-HBc-	HBV+	HBV+	14 IU/mL
3	HBsAg-/ a-HBc-	HBV+	HBV+	36 IU/mL
4	HBsAg-/ a-HBc-	HBV+	HBV+	94 IU/mL
5	HBsAg-/ a-HBc-	HBV+	HBV+	Not done
6	a-HIV-/Ag p24-	HIV+	HIV+	Undetectable
7	a-HIV-/Ag p24-	HIV+	HIV+	149 copies/mL
8	a-HIV-/Ag p24-	HIV+	HIV+	370 copies/mL
9	a-HIV-/Agp24-	HIV+	HIV+	2,590 copies/mL



Matthew T. S. Yan
Medical Officer
Canadian Blood Services
Canada

British Columbia's central transfusion registry: 20 years of data-driven initiatives

British Columbia (BC) is Canada's third largest province with approximately five million inhabitants. Blood and blood products are provided to healthcare institutions by Canadian Blood Services (CBS), the national blood operator for all Canadian provinces and territories except Quebec. In BC, the BC Provincial Blood Coordinating Office (PBCO) administers and coordinates blood and blood product utilization programs in collaboration with provincial stakeholders. One of these key programs is the Central Transfusion Registry (CTR), which started in 1999 to facilitate lookback and traceback activities in response to the contaminated blood tragedy.

In its 20th year of operation, CTR represents the first population-based transfusion registry and one of the earliest uses of big data in the Canadian transfusion community. CTR is a centralized database that stores blood and blood product disposition data for all institutions in BC and neighbouring Yukon Territory. Both unit and recipient information are transferred securely from transfusing institutions to CTR. The dataset is further enriched through collaboration and linkages with CBS, Statistics Canada, as well as clinical registries, such as the Surgical Patient Registry, and Perinatal Registry.

CTR has evolved to provide a complete overview on blood use in BC while supporting quality and safety surveillance programs, demand forecasting, and utilization initiatives. To date, CTR contains over 2.3 million transfusion events representing more than 520,000 recipients (figure 1). Approximately 500 reports are generated annually from the registry to assist stakeholders in decision-making and strategic planning. CTR can be queried to extract meaningful transfusion data such as product-specific utilization trends stratified by location, specialty, and recipient demographics.

Throughout the years, PBCO has been able to leverage and transform the functions of CTR into several highly

successful initiatives. These initiatives, including three highlighted below, not only focus on utilization and quality, but also on the delivery of patient-centred care.

IVIG Request Module: Linked to CTR's IVIG disposition dataset, the IVIG Request Module supports the coordination and management of all IVIG orders in BC. Rheumatologists and neurologists acting as provincial IVIG experts can access the online portal to efficiently approve or deny IVIG requests and evaluate effectiveness through reporting of patient outcomes.

Inherited Coagulopathy and Hemoglobinopathy Information Portal (iCHIP): iCHIP, the award-winning program developed in 2013, uses CTR functionality to allow patients with inherited bleeding and red cell disorders to track infusions of distributed products and log clinical events (e.g. bleeds) remotely through a mobile application. The utilization and clinical data are shared with treating clinicians to allow optimization of care and reduction in product wastage.

Transparent Blood Inventory (TBI): TBI takes advantage of existing CTR infrastructure to provide real-time updates on provincial blood inventory forming a critical part of the BC Contingency Blood Plan and product redistribution programs. Health authorities and CBS transmit regular updates to TBI to allow visualization of hospital-level inventory throughout BC using an online portal.

As CTR embarks on its 20th anniversary, it promises to continue its transformation of transfusion medicine services in BC. For more information about PBCO and CTR, please visit <https://www.pbco.ca>.



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Transfusion Medicine Specialist
Hospital Tuanku Ja'afar
Malaysia

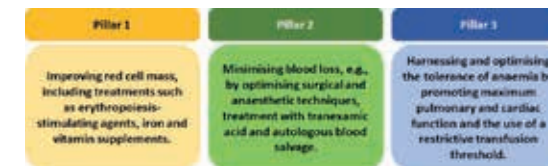


Christina Lee Lai Ling
Transfusion Medicine Specialist
University Malaya Medical Centre
Malaysia

Patient Blood Management journey in Malaysia

Patient Blood Management (PBM) is a multidisciplinary patient-centered strategy aimed at minimising the use and the need for allogeneic blood transfusion in all at-risk patients with the aim of improving their clinical outcomes.

The idea of PBM was first mooted in 2005 by Professor James Isbister, who advocated that transfusion should be patient based rather than product based. PBM has three main principles:



PBM can be applied in all clinical setting especially perioperative setting. Anaemia and blood transfusion have been associated with increased morbidity and mortality in surgical patients, and the systematic application of a PBM perioperatively has been proven to improve patients' clinical outcomes following surgery. The paradigm shift from standard transfusion practice to PBM gained momentum worldwide. The wave of PBM came to Malaysia when the Clinical Haematology team from Hospital Ampang started the Clinical Transfusion Workshop in February 14, 2012. The Clinical Transfusion Workshop was renamed as Patient Blood Management workshop since 2014, with three to six workshop organised annually. There are six teaching modules in the PBM workshop: 1) Myths and facts of blood transfusion, 2) Understanding coagulation, 3) Critical bleeding, 4) Introduction to PBM, 5) Three Pillars of PBM, 6) Managing anaemia. Seven practical modules are included in the PBM workshop. Besides, affiliation with Asian Pacific Society of Patient Blood Management (ASPBPM) was started since the meeting in Busan, Korea in November 2016. Hereafter, 3rd ASPBM joint symposium was successfully organised at Malaysia National Heart Institute on August 12, 2017.

Malaysia National Blood Centre (NBC), Malaysian Blood Transfusion Society (MBTS) and all transfusion medicine departments in the country have been actively promoting PBM concept since the first lecture of "Principle of Patient Blood Management" was delivered by prestigious speaker Dr Aryeh Shander during the 7th National Blood Transfusion Conference (NTMC) on September 11, 2015 in Kuala Lumpur. Ever since then, many PBM workshops were organised regularly at the local, regional and national level to increase awareness of PBM concept among the healthcare providers in Malaysia. PBM programme was successfully implemented in Hospital Serdang, Hospital Sultan Haji Ahmad Shah and other state hospitals. University Hospitals in Malaysia also joined in the bandwagon to promote Patient Blood Management by conducting PBM workshop and incorporating PBM in lecture in under graduate and postgraduate teaching.

Moving forward, some strategies and measures are put in place to move the PBM programme in the country, which include formation of Malaysia Patient Blood Management Society (MyPBM) and development of national policy and clinical guidelines of PBM in the near future.

In conclusion, PBM programme is an extraordinary tool for the improvement of patients' clinical outcomes. All disciplines involved in blood usage have to work hand in hand to move forward. National health authorities and medical societies also play an important role to introduce regulatory measures and recommendations to promote the effective implementation of PBM programmes.

Patient Blood Management Workshop University Malaya Medical Centre on July 1, 2019.

Acknowledgement

1. Dr Jameela Sathar, Consultant Haematologist, Hospital Ampang, Malaysia.
2. Dr Noryati Abu Amin, Director of National Blood Centre, Malaysia.
3. Dato' Dr Faraizah Dato' Abdul Karim, President of MBTS, Malaysia.

2019

December 11 - 13, 2019
RTA Moscow, Annual meeting of the Russian Transfusionologists Association
Moscow, Russia

December 20, 2019
Pakistan PSBT, Course/workshop Recent Dengue Epidemiology A challenge for Blood Transfusion services
Islamabad, Pakistan

2020

January 8 - 11, 2020
TRANSMEDCON 2020
Mumbai, India

March 16 - 20, 2020
HBTSSN International Congress 2020
Port Harcourt, Nigeria

June 6 - 10, 2020
36th International Congress of the ISBT
Barcelona, Spain

January 14 - 15, 2020
IPFA/EBA Workshop on Plasma Collection
Amsterdam, the Netherlands

March 19 - 20, 2020
Eye Drops from Human Origin – First EDHO Workshop on Current Standards and Future Developments
Vienna, Austria

February 5, 2020
MEDLAB Congress 2020
Dubai, UAE

March 4 - 5, 2020
MBTS Malaysian Blood Transfusion Society
Malacca, Malaysia

March 25 - 26, 2020
IPFA 5th Asia Workshop on Plasma Quality and Supply
Chonburi, Thailand

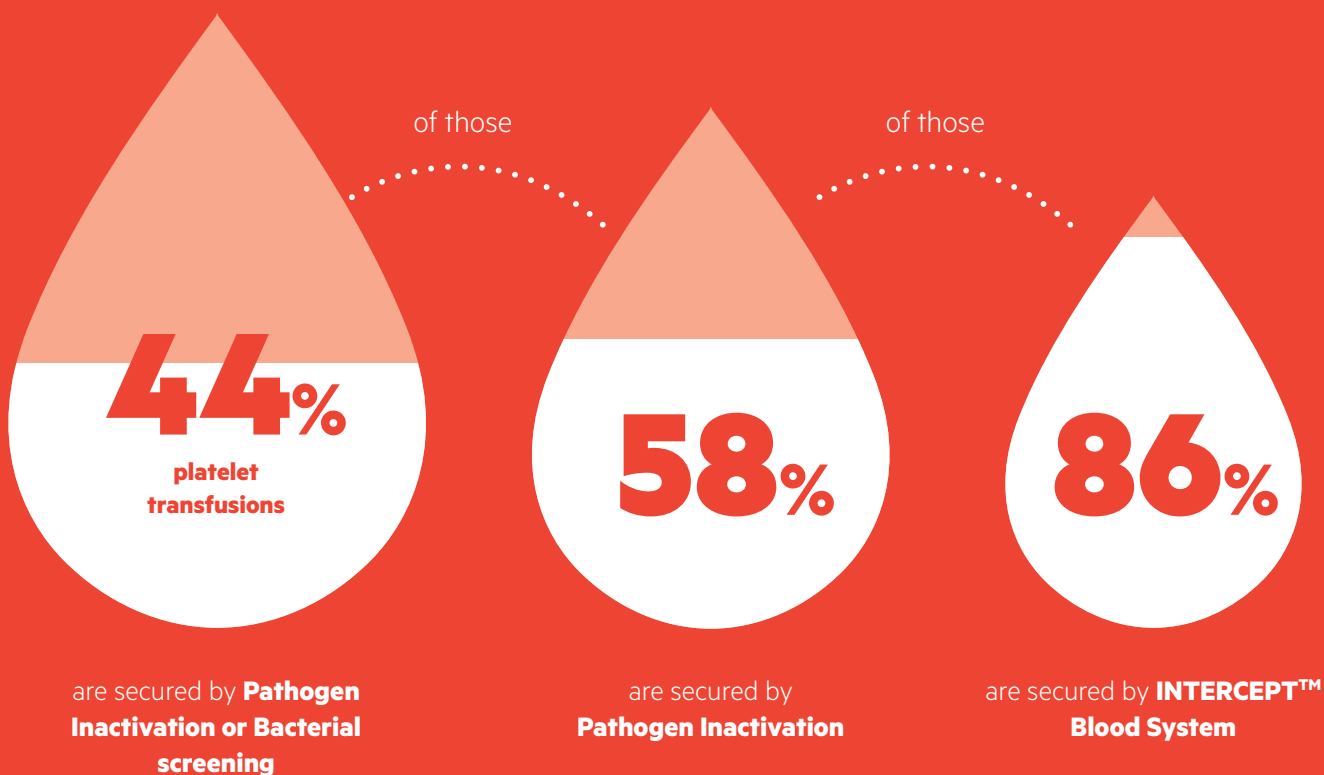
March 8 - 12, 2020
BBTST Blood Banks & Transfusion Society of Turkey
Antalya, Turkey

Season's Greetings

We hope you've had a wonderful 2019 & wish you all the best for the new year

ISBT President, Board of Directors & ISBT Central Office

What have you done to **protect your patients?**



EU Platelet Safety Today

More at [interceptbloodsystem.com](https://www.interceptbloodsystem.com)

References

Represents EU and Switzerland December 2017 market size data provided by national, regional and individual blood centres.
Data on file.