

# Transfusion Today

COVID-19  
Worldwide

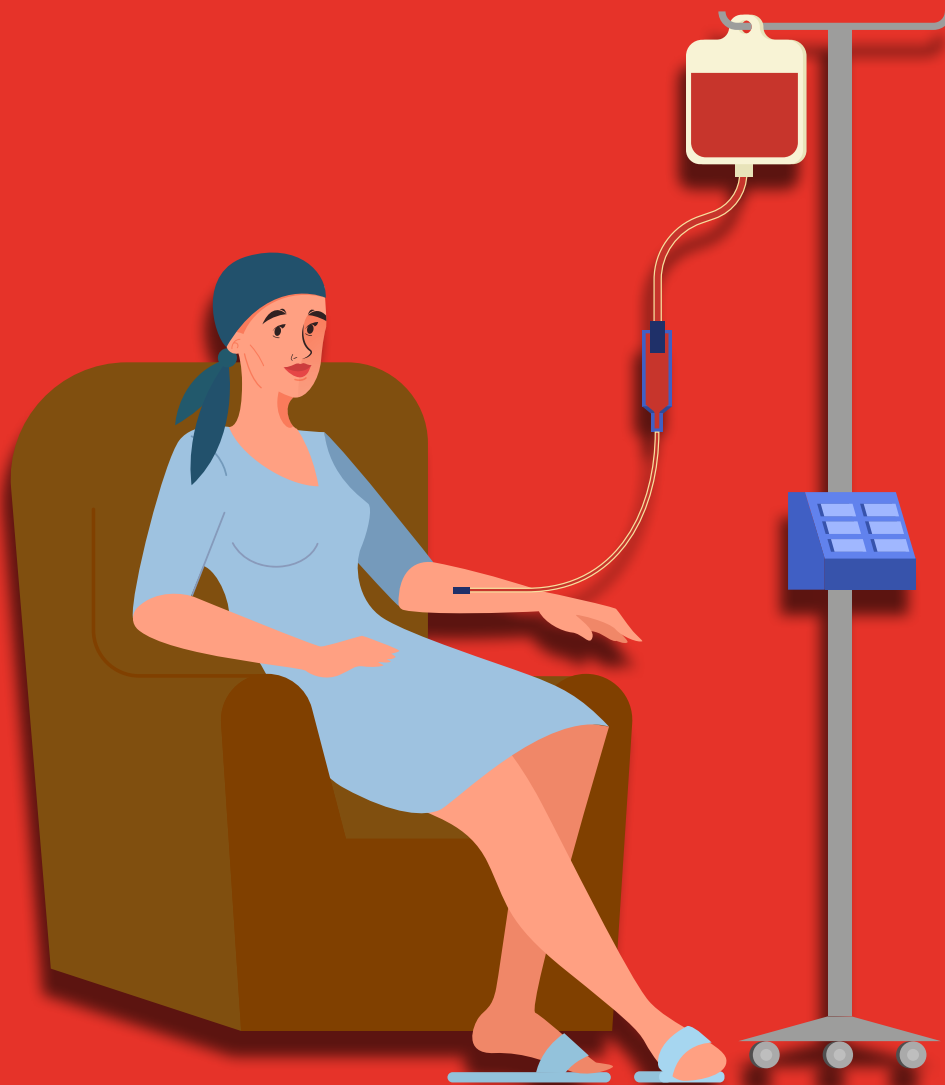
ISBT 2020  
Goes VIRTUAL

World Blood Donor  
Day Celebrations

New Board  
of Directors

## In Focus

# BLOOD TRANSFUSION AND CANCER



ISBT



**Zhan Ye**  
University of Kansas  
Medical Center  
USA

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# Risk of RBC Alloimmunization in Multiple Myeloma Patients Treated by Daratumumab

**In November 2015, the United States Food and Drug Administration (FDA) approved Daratumumab (DARA), a human immunoglobulin (Ig) G1 monoclonal antibody (Ab), as monotherapy for relapsed/refractory multiple myeloma (MM) patients who had already received three previous treatments. One year later, DARA received additional FDA approval as combination therapy with lenalidomide or bortezomib and dexamethasone for MM patients who had received at least one prior therapy. Frequent transfusions and relatively long-term DARA treatment (at least 24 weeks according to FDA DARZALEX Prescribing Information) raise concern about RBC alloantibody formation in DARA-treated patients.**

Besides highly expressed CD38 on MM cells, DARA also binds weakly expressed CD38 on reagent human red blood cells (RBC). Without affecting ABO/Rh typing, DARA causes weak panreactivity with all reagent RBCs in indirect antiglobulin tests (IAT) performed at 37° C and potentially masks clinically significant RBC antibodies in patients' plasma. To prevent Ab-mediated hemolysis, methods negating DARA mediated panreactivity or transfusion with phenotypically or genotypically matched blood are used, but their utilization is limited by the availability of reference laboratories, higher cost and prolonged turnaround time. Currently, the destruction of CD38 on reagent RBCs by dithiothreitol (DTT) is the most widely adopted DARA interference negating method worldwide. Almost all published studies regarding DARA interference in pre-transfusion testing have focused on resolution of DARA induced panreactivity and correlation between transfusion and alloimmunization was not investigated. Therefore, we conducted the first study of post-transfusion RBC alloimmunization risk in those patients. Between July 2015 and December 2018, 45 among 145 MM patients treated with DARA at the University of Kansas Hospital (TUKH) were transfused 246 units of RBCs with or without phenotype matching. 184 Ab screens were done on these 45 patients between the first DARA dose to the last or extending to the first negative Ab screen after the last DARA dose. None of these Ab screens showed detectable alloantibodies. An additional 55 Ab screens were performed after the study period (additional 1-9 months) and no alloantibodies were detected. 46 MM patients who received transfusion but no DARA between January 2013 and June 2015 were studied as control group. 2 of 46 patients in the control group had preexisting alloantibodies but no new alloantibodies were detected during study period, which indicates the rate of forming new RBC alloantibodies after transfusion in MM patients receiving chemotherapy was already very low. No significant difference in post-transfusion alloimmunization risk was detected between DARA and non-DARA treated patients (p=1). RBC phenotype matching made no difference in post-transfusion

alloimmunization risk in DARA treated patients (p=0.47). We made the following recommendations based on our current findings:[1] forgo phenotyping or genotyping at any time during and after DARA treatment; [2] maintain a current database of patients being treated with DARA; [3] perform Ab screen and identification prior to initiation of DARA therapy; (4) use DTT treatment to solve IAT panreactivity if a new or historic Ab exists prior to initiation of DARA. Elimination of DTT treatment may be considered for patients without current or historical alloantibodies before initiation of DARA if the low risk of RBC alloimmunization in this patient population can be proved by a multicenter study with more DARA-treated MM patients. While writing this article, we are in the midst of the COVID-19 pandemic. In the Netherlands, and other countries, numbers of donations have been increasing during this crisis, as have new donor registrations. Hence, the question "What motivates donors?" is even more pressing now than before. Humans can be exceptional, especially in times of crisis and extreme situations. During extraordinary life events (e.g., terrorist attacks, or natural disasters) large numbers of people present to donate blood because they want to help and contribute their share to society.(4) Currently, media coverage of Sanquin testing donors for SARS-CoV-2 antibodies might attract donors seeking confirmation that they had COVID-19 (despite the results not being reported to individual donors). Moreover, Sanquin has called recovered confirmed COVID-19 patients to donate their plasma for patient treatment in trials.

In conclusion, we need to be aware of different motives of (new) blood donors (e.g., altruism, test-seeking, directed patient help) to get an understanding of selection effects that might occur. This is particularly important to examine during times of crisis, when donor motivations may develop and change. We will closely monitor donor motivations during and after the COVID-19 pandemic to assess if and how donor health is impacted, and what implications this has on the Healthy Donor Effect.

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## Editorial

The in focus section of this issue of Transfusion Today highlights the many different aspects of the subject blood transfusion and cancer. It had long been noted that there are statistical associations between blood group antigens and specific malignancies. As more has been discovered about the structure and function of red cell antigens, fascinating explanations have been found for these associations. Very recently, the molecular basis for the MAM blood group system was elucidated, with the cancer-related EMP3 protein lacking on red cells leading to the MAM-negative blood group. Transfusion support with red cells and other blood components continues play an essential role in allowing treatment of malignancies which would not otherwise be possible, and observance of PBM is also important in this group of patients. Cancer treatments with monoclonal antibodies have presented unexpected issues with provision of compatible blood, such as the use of anti-CD38 to treat myeloma.

The situation with the global pandemic has reached a stage where it is no longer possible or responsible to hold a large scale event in December. Therefore, it was with huge regret that we took the decision, announced on September 1, that the 2020 ISBT congress planned for Barcelona would now take place in a fully virtual format. I would like to acknowledge SETS and the Barcelona Local Organising Committee who have been excellent and supportive partners in all the preparation and subsequent decision making regarding the congress. Whilst it is disappointing not to be able to meet in Barcelona, we have an exciting scientific programme to transform to our virtual platform and are looking to make this as interactive as possible. We can also appreciate the 'silver lining' that this congress will be accessible to so many who may not have the time or resources to travel to a face-to-face meeting. More information will follow very soon on the programme and how to register.

This edition also features World Blood Donor Day celebrations from around the world, which remind us that people can do amazing things even in the face of a pandemic.



**Thierry Peyrard**  
 Chair of the ISBT Working Party  
 on Immunohaematology  
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# Blood groups and cancer

As of today, 367 red blood cell antigens are described in humans, included in 39 genetically independent systems (330 antigens), collections (14 antigens), and series (700 series: 17 antigens; 901 series: 6 antigens).

One of the first suspected association between blood groups and malignancies was the role of ABO blood types in gastric cancer suggested in the early 1950s, people with group A being more likely to be affected than others [1]. Blood types are now known to be associated in many ways in the field of oncology, such as: (i) statistical associations; (ii) red cell phenotype alteration; (iii) chemotherapy drug transporters; (iv) chemokine receptors.

## 1 Statistical associations

Apart from group A and stomach cancer, several other associations between ABO and malignancies have been described [2-3]: higher risk of salivary glands, ovarian and breast cancer with group A and AB, lower risk of pancreatic cancer in group O, higher risk of pancreatic cancer in group B (especially in homozygous BB), etc. The lower or

higher risk of developing the disease can be expressed in relative risk (RR), odds ratio (OR) or hazard ratio (HR), with a 95% confidence interval (95% CI). For example for pancreatic cancer, BB genotypes show a 2.42 OR (95% CI: 1.28-4.57), which means the odds of developing pancreatic cancer when being BB relative to being group O are 2.42 to 1. The underlying mechanisms by which ABO types or closely linked genetic variants of the ABO locus may play a role in cancer development and progression are still poorly understood.

## 2 Red cell phenotype alteration

### a) Loss of classical antigens

Either loss or diminished expression of red cell antigens were reported to occur in malignancies [4]. This is especially the case for A, B and Rh antigens. For Rh, this usually affects one of the two haplotypes. For example, a D+C+E-c+e+ patient (probable Dce/dce genotype) may become D-C-E-c+e+ if the Dce (R1) haplotype is affected.

### b) Loss of high-prevalence antigens

Several high-prevalence antigens are known to be potentially lost in some hematological malignancies. The most illustrative example is AnWj (901 series) that appears to regularly be lost in lymphomas and other hematological diseases, together with the development of an anti-AnWj. High-prevalence antigens of the LW, Colton, MNS systems may also appear to be depressed or absent in hematological malignancies, especially lymphomas and Hodgkin's disease. The patients may come back to their initial phenotype after disease remission (so-called "acquired" or "transient" negative phenotypes).

### c) Appearance of new antigens

Some antigens are said to be cryptic, which means they are normally not exposed at the outer red cell membrane surface. However, in some circumstances, those antigens are activated and such red cells are said to be "polyagglutinable". This is typically the case for the Tn antigen, that may be activated in several kinds of leukemias. Of note, the immuno-dominant carbohydrate moiety of Tn is very close to the A antigen. As a result, some monoclonal anti-A reagents may be reactive if Tn is exposed at the red cell surface; this can lead to a forward/reverse ABO typing discrepancy in group O and B patients, falsely appearing as A and AB in forward typing, respectively. Of note, the Tn activation may be detectable long before the onset of the disease. If a Tn polyagglutination is incidentally found in a blood donor or a patient, it is then important to advise a medical consultation by a hematology-oncology specialist.

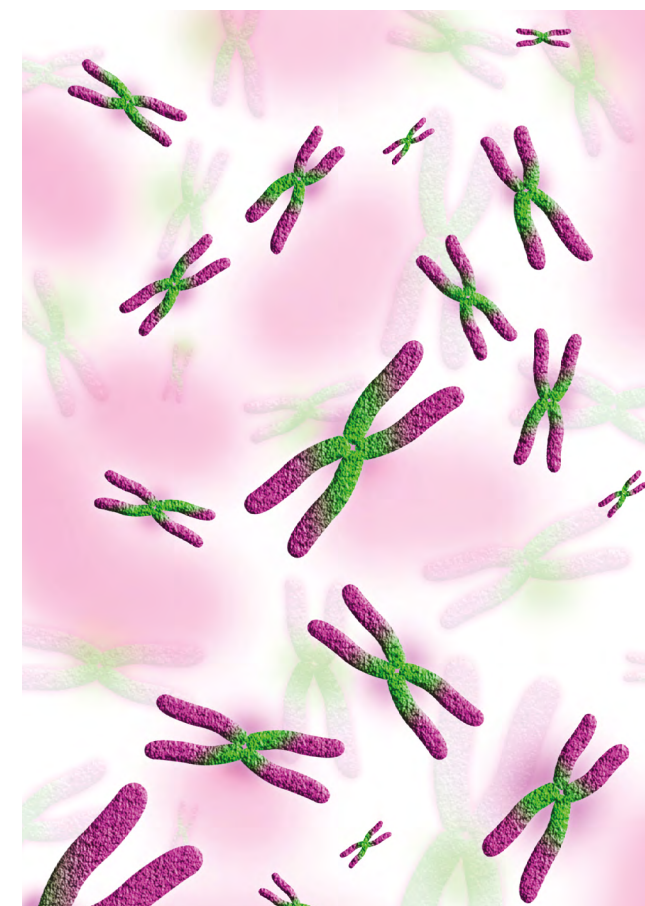
## 4 Chemotherapy drug transporters

Several recently discovered blood group systems were found to be carried by ATP-Binding Cassette (ABC) transporters, such ABCG2 (JR), ABCB6 (LAN) and ABCC4 (PEL), which all play an important role in anti-cancer drug efflux out of the cell and possible treatment resistance. It was speculated that the standard anti-cancer doses applied in people with the rare Jr(a-), Lan- and Pel- phenotypes, which are all null types (absence of the protein), could be more toxic and should be adjusted downwards. However, more or less efficient compensatory mechanisms seem to exist, e.g. ABCC4 in Jr(a-) and ABCG2 in PEL- [5].

## 5. Chemokine receptors

The Duffy protein is also called DARC for "Duffy Antigen Receptor for Chemokines". By acting as a scavenger on erythrocytes (clearance of angiogenic CXC chemokines), DARC was claimed in a mouse model to potentially serve as an important growth regulator for prostate cancer stage and progression. However, several studies in humans have shown that the Fy(a-b-) type (no DARC expression), frequent in people of African ancestry, was not found to be associated with prostate cancer risk, regardless of tumor grade. In a recent study, overexpression of DARC in a mouse model with ovarian cancer was reported to be associated with inhibited tumor growth, proliferation and tumor angiogenesis. Besides, in a large Chinese cohort of patients with breast cancer, it was shown that the Fy(b+) type was associated with a lower risk of lymph node invasion at the time of diagnosis.

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# Discovery of the molecular basis of the MAM blood group

Both authors are members of the ISBT Working Party for Red Cell Immunogenetics and Blood Group Terminology. N.T. is also Vice Chair of the ISBT Working Party for Immunohaematology and member of the ISBT Working Party for Rare Donors. M.L.O. is also the immediate Past President of ISBT.

We have recently been privileged to collaborate with international colleagues to undertake an extensive and longstanding investigation into the molecular and genetic background of the MAM blood group antigen. When we say recently, although the publication describing the study which led to the discovery of what will soon hopefully become the MAM blood group system was published in July 2020 [1], many years of research was required to reach this achievement. Although the candidate gene was identified early in our study, proving that a gene encodes a blood group antigen requires an enormous amount of work. The ISBT Working Party on Red Cell Immunogenetics and Blood Group Terminology determines and curates the ratification of blood group systems, antigens and blood group gene alleles and the scientific proof of such entities is scrutinised by the experts within this working party. Similarly, to meet the high standards of top scientific journals is very demanding. Therefore, the scientific proof of such discoveries must be solid and undeniable since the implications of errors may have severe consequences.

MAM is a blood group antigen carried on the red cells of nearly all humans. Until now MAM has been part of the 901 series of high frequency antigens. The antigens in this category have been shown serologically to be an inherited characteristic, through family studies and extensive serological testing, but the molecular basis of the antigen has not yet been established. They are the “orphans”, antigens waiting to be homed to a genetic locus.

The MAM-negative phenotype was first described 27 years ago, when an antibody to an unknown high prevalence antigen was detected in the serum of a pregnant woman (M.A.M.) during her third pregnancy [2]. The baby was delivered prematurely but it was thought that this was unrelated to the antibody. Since this first case we now know of subsequent cases where anti-MAM has caused severe and fatal haemolytic disease of the fetus and newborn and likely also thrombocytopenia in some cases. It was this clinical significance, along with scientific curiosity, which led us to endeavour to find the gene responsible for MAM expression and learn about

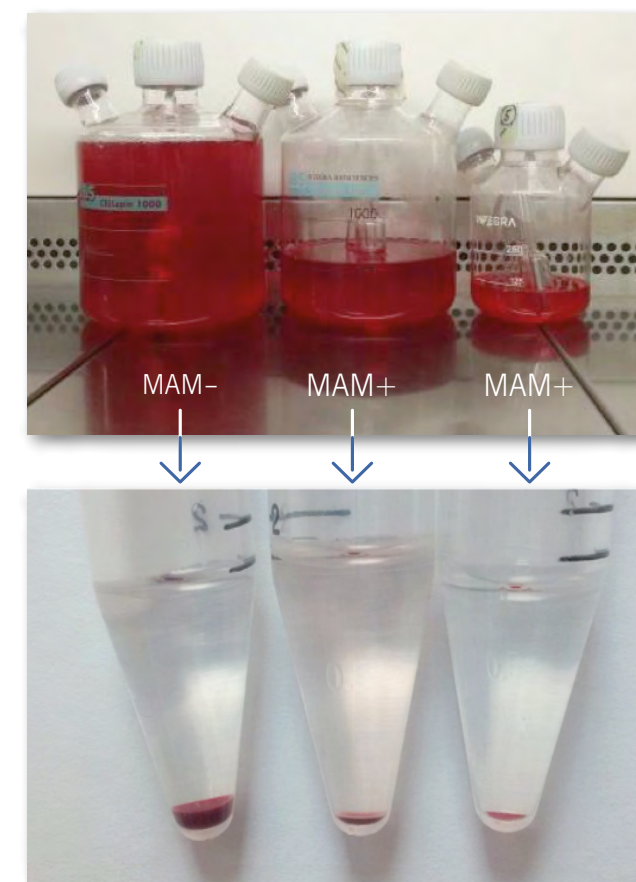
the carrier molecule on which MAM resides. Thanks to a global collaborative effort involving international investigators, both Working Party members and others, we were able to investigate most, if not all, individuals known at the time with the very rare MAM-negative phenotype.

Through a thorough serological characterisation of MAM, early results indicated that CD44, home to the Indian blood group system antigens, may be associated with the MAM carrier molecule. At this point we turned to powerful molecular testing tools to scrutinise the genes of rare MAM-negative individuals. Whole exome sequencing excluded the CD44 gene but instead enabled the identification of EMP3 (encoding the Epithelial Membrane Protein 3, EMP3) as the gene responsible for the expression of MAM. In MAM-negative individuals, production of EMP3 from the EMP3 locus is prevented by introduction of a premature stop codon or deletion of the whole gene or a single exon. This opens the possibility to find blood donors lacking MAM by genotyping in the future. Currently, there is only one registered donor in the world, so more are certainly needed.

An exciting revelation made during the course of our research opened up a whole new area to explore. As with many scientific discoveries, this started with a totally unexpected observation: “the cultured cells of our MAM-negative patient are growing like a weed”. This comment made by co-author Carole Green, an experienced cell culture scientist, sparked further experiments and led us to conclude that both EMP3 and CD44 proteins have an important regulatory role in red cell production, as cells from MAM-negative individuals showed markedly better growth in cell culture (Figure 1). Further exploration indicated that EMP3 was associated with, and stabilises, the cell surface signalling molecule CD44. Elucidating also this functional aspect of MAM/EMP3 deepens our knowledge of how red blood cells are made and opens up promising avenues of research for achieving therapeutic doses of in vitro cultured red blood cells. Interestingly, EMP3 has previously been investigated mainly because of its involvement in various cancers. In some tissues it appears to act as a tumour-suppressor (downregulated) and in others as an oncogene (upregulated). More research is required to understand the possible impact of inherited variation in MAM/EMP3 expression for health and disease.

This study could not have been carried out without the support of the incredibly enthusiastic and cooperative MAM-negative individuals

who donated their blood. Our aim is always to honour their generosity and ensure that our findings lead to better understanding and clinical management of these rare cases. We thank the whole scientific team and all donors involved for helping us to discover the MAM blood group system [1].



Comparison of MAM-negative and two MAM-positive controls in an ex vivo erythroid cell culture experiment under explicit proliferation conditions and the resultant packed cell pellets of filtered reticulocytes. The volume of medium in the culture flasks is approximately proportional to the number of cells.

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<https://doi.org/10.1038/s41467-020-17060-4>



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# Red cell and platelet transfusions in adult oncology patients

Cytopenia is common in both solid organ and hematologic malignancies. The majority of oncology patients are managed in the outpatient setting and have the highest burden of outpatient transfusions<sup>1</sup>.

## Transfusion associated adverse events

In patients undergoing surgical cancer resection, transfusion has been associated with increased mortality<sup>2</sup>. In outpatients undergoing chemotherapy, both arterial (ATE) and venous thromboembolism (VTE) risks are increased with transfusion<sup>2</sup>. In chronically transfused patients, iatrogenic iron overload can occur after 20 units of red blood cell (RBCs)<sup>3</sup>. Up to 1 in 13 patients become allo-immunized against RBC antigens, increasing risk of delayed hemolytic transfusion reactions and restricting available inventory for transfusion<sup>3</sup>. HLA allo-immunization can cause platelet refractoriness and difficulty in obtaining suitable donors for allogeneic bone marrow transplant<sup>3</sup>.

## Red cell transfusion

Hemoglobin thresholds for inpatient RBC transfusion have been well. In cancer patients, restrictive hemoglobin thresholds did not impact morbidity or mortality, while reducing transfusion burden<sup>4</sup>. In the absence of active bleeding, a hemoglobin threshold of < 70 g/L in a majority of in-patients is non-inferior to a higher threshold<sup>4</sup>. Slightly higher thresholds may be used in special circumstances, including patients with active ischemic cardiac disease (< 80g/L)<sup>4</sup>. In the out-patient setting, clinicians must prioritize optimizing the quality of life (QoL) and functional capacity. Recently, the RETRO study<sup>1</sup> assessed the impact of transfusion on anemic cancer out-patients aged 50 years of over. Those on cancer therapy were compared with those not on active cancer treatment. Of the 221 subjects, 149 were on treatment and 94% had hematologic cancer. Majority (74%) received 1-unit RBC transfusion, with the most common hemoglobin threshold between 70 – 80 g/L. Improvement in fatigue and 6MWT were seen in half of the patients. For patients with a post-transfusion hemoglobin of at least 80g/L, 6MWT distance improved by 32m with no additional improvements seen for higher hemoglobin levels. However, a quarter of patients had worsened fatigue and 19% had a shorter 6MWT distance post-transfusion. Hence, a threshold between 80 – 90g/L may be acceptable in the outpatient setting to optimize the functional capacity and minimize hospital visits for ambulatory patients.

## Platelet transfusion

Platelets transfusions may be used therapeutically or prophylactically for thrombocytopenia to prevent spontaneous or peri-procedural bleeding. One adult dose of platelets is considered the standard, with post-transfusion platelet count check before further administration of platelets<sup>5</sup>.

For patients with significant bleeding while on anticoagulants or requiring RBC support, platelet transfusion is recommended regardless of the platelet count<sup>5</sup>. In patients with spontaneous intracerebral hemorrhage (ICH) on antiplatelet agents transfusion of platelets results in higher morbidity and mortality<sup>6</sup>. However, if the ICH is due to anticoagulant therapy and/or malignancy, platelet transfusion is acceptable.

For patients awaiting surgical or image-guided interventions, platelet transfusion thresholds are shown in Table 1<sup>5, 6</sup>.

Table 1: Recommended platelet transfusion thresholds for patients undergoing procedures<sup>5, 6</sup>

For patients with hypoproliferative thrombocytopenia, transfusion at a platelet threshold of <10x10<sup>9</sup>/L is safe and can decrease clinically significant bleeding<sup>7</sup>. In sub-group analysis, patients undergoing autologous stem cell transplant had lower bleeding rates and no benefit from platelet transfusion<sup>7</sup>. Unfortunately, patients with malignancy may present with conditions where platelet transfusions are harmful. These conditions include thrombotic thrombocytopenic purpura (TTP), heparin-induced thrombocytopenia (HIT), and immune thrombocytopenia (ITP). Hence, in patients with unexpected thrombocytopenia, further investigations should be conducted to determine the etiology, and platelet transfusion should be avoided unless the patient is actively bleeding. Platelet refractoriness is commonly encountered in acutely ill oncology patients. Non-immune etiologies, such as fever, sepsis, drugs, intra-vascular devices, and splenomegaly, account for 80% of platelet refractoriness<sup>8</sup>. With non-immune causes, platelet count at 60 minutes may show adequate recovery, however, there is shortened long-term survival and the count may fall within 18 to 24 hours<sup>8</sup>. An insufficient platelet count increment at 60 minutes post-transfusion indicates an immune-mediated etiology<sup>8</sup>. While awaiting HLA typing and anti-HLA antibody results, fresh, ABO compatible, either pooled

or apheresis platelet products can be administered to support the patient. Decisions regarding indication and dose of red cell and platelet transfusion in oncology patients remains challenging given a lack of patient-reported outcome data and trials in the outpatient setting.

Table 1: Recommended platelet transfusion thresholds for patients undergoing procedures<sup>5,6</sup>

Interventional radiology guided procedures or Bedside procedures <sup>6</sup>		
	Patients with no liver disease	Patients with liver disease
Low-risk <sup>a</sup> procedures	<20x10 <sup>9</sup> /L	<20x10 <sup>9</sup> /L or <30x10 <sup>9</sup> /L for liver biopsy
High-risk <sup>b</sup> procedures	<50x10 <sup>9</sup> /L	<30x10 <sup>9</sup> /L <70 x10 <sup>9</sup> /L for neuraxial anesthesia
Surgical procedures <sup>5</sup>		
Major surgery (non-CNS)	<50x10 <sup>9</sup> /L	
Low-risk procedures	<100x10 <sup>9</sup> /L	

<sup>a</sup>Low-risk procedures include<sup>6</sup> arthrocentesis, bone marrow aspiration without biopsy, central line removal, catheter exchange, chest tube placement (non-tunneled), dental extraction (up to 2), dialysis access, endoscopy without biopsy, IVC filter placement, joint injection, non-tunneled venous catheter, lumbar puncture, pacemaker insertion, paracentesis, peripheral nerve block, PICC placement, superficial aspiration, superficial drainage, superficial skin biopsy, thoracentesis, thyroid biopsy, transjugular liver biopsy, tunneled venous catheter, venography.

<sup>b</sup>High-risk procedures include<sup>6</sup> arterial interventions (sheath  $\leq$ 7 Fr), biliary interventions (new tract), bone marrow biopsy, cervical cone biopsy, chemoembolization, cholecystostomy, colonic polypectomy, complex dental procedures, complex venous interventions, deep abscess drainage, deep non-organ biopsy, endoscopy with biopsy, lymph node biopsy, nephrostomy tube placement, neuraxial anesthesia, percutaneous enteric tube (new tract), pericardiocentesis, prostate biopsy, radioembolization, radiofrequency ablation, solid organ biopsy, spinal procedures, subcutaneous port device placement, transjugular intrahepatic portosystemic shunt (TIPS), urinary tract interventions, uterine fibroid embolization

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# From the President



## Dear ISBT members,

Thank you all for the warm welcome I have received as the new ISBT president, and sincere thanks to Martin Olsson for his wonderful leadership as president over the past two years. It is a great privilege to serve in this role and I will do my very best. I welcome the other newly elected board members, and thank everyone who stood for election. I also recognise the valuable contributions of all those who have recently retired from ISBT board roles – your service is greatly appreciated.

This edition of Transfusion Today focusses on transfusion and cancer. Blood components continue to play important roles in the supportive care of patients with a wide range of cancers, whether providing red cells to manage anaemia, platelet transfusions to prevent or treat bleeding, immunoglobulins to prevent infections in patients with immune system damage from cancer or its treatment, or one of the many other products available. In many countries, cancer patients are the largest single group of patients to receive platelet transfusions. Cellular therapies also provide an ever-expanding range of vital treatment options for patients with cancer.

Personalised cancer care, or precision medicine, is now a reality for many aspects of cancer care. Nothing could be more important than individualised, evidence-based transfusion support for patients with cancer, and here the principles of patient blood management (PBM) are central to our practice. However, the evidence underpinning many aspects of transfusion management in the cancer setting is surprisingly weak. Improving the evidence to optimise transfusion supportive care for haematology/oncology patients was identified as a research priority from the first International Consensus Conference on PBM, hosted by the European Blood Alliance, and supported by ISBT and many partners. The recommendations were published in JAMA last year. In many cases, better planning and coordination, and the use of modern surgical and anaesthetic techniques and alternative therapeutics can reduce the need for transfusion support. Cell salvage can probably be more widely used in cancer surgery than it currently is.

We also need to adapt our transfusion support to advances in cancer diagnosis and treatment. Many new therapies for cancer are now available. Patient and clinician expectations are higher than previously. More patients are having their cancer care delivered as outpatients, and their needs are different. We need to make sure that clinical trials of transfusion support in the cancer setting include outcomes relevant to patients, including quality of life and functional outcomes, not just improvements in haemoglobin or platelet counts. Simplifying the outpatient transfusion process and reducing the burden of frequent hospital attendance for transfusions would make a big difference to patients and their families.

These are challenges for all of us in the transfusion community. Addressing them will provide many opportunities to advance the science and clinical practice of transfusion medicine in the coming years and lead to better outcomes for cancer patients and better use of precious blood products in this setting.

Yours truly,

Erica Wood  
ISBT President

# Welcome to our new members

## July 2020 - September 2020

### Africa

**Nigeria:** Theresa, Ahmad Baba, Adaeze Oreh

### Americas

**Canada:** Renee Bazin

**USA:** Eileen Selogie, Richard R Gammon, Lorena Aranda, Parvez Lokhandwa, Pampee Young

### Eastern Mediterranean

**Pakistan:** Mohammad Abdul Naeem

**UAE:** Tarek Al Hariri

### Europe

**Belgium:** Linda Joosten

**Netherlands:** Dorien Rotteveel, Joyce van Beers, Natascha Zoet, Irene Korver-Keularts

**Poland:** Monika Salwierz

**Romania:** Mirela Tianu

**Sweden:** Marja-Kaisa Auvinen

**United Kingdom:** Gregory Barber, Laura Williams, Kathryn Maguire, Wayne Miller

### South East Asia

**India:** Nishith Vachhani

**Indonesia:** Teny Tjitra

**Thailand:** Pimol Chiewsilp

### Western Pacific

**Australia:** April Davis, Christopher Newbound

**Malaysia:** Narazah Mohd Yusoff

**New Zealand:** Jaennevibe Cabias, Meredith Smith

**Philippines:** Holiday Ann Mamuyac





# New ISBT Board 2020 - 2022

The first meeting of the new ISBT Board 2020-2022 went virtual in July!

Elections for vacant positions on the ISBT Board of Directors took place from March to May, 2020. We would like to present the new Board of Directors 2020 – 2022:

Erica Wood	President	Lilian Casthilo	South America
Mike Bush	President Elect*	Cynthia So-Osman	Europe*
Martin Olsson	Past President	Birgit Gathof	Europe
Masja de Haas	Vice President	May Raouf	Eastern Mediterranean
Lin Fung	Vice President*	Shirly Owusu Ofori	Africa*
Gwen Clarke	Secretary General	Mahrukh Getshen	South East Asia*
Eric Jansen	Treasurer**	Denese Marks	West Pacific*
Mindy Goldman	North America	Veera Sekaran Nadarajan	West Pacific

\* = newly elected \*\* = re-elected

Thanks to all the members who stood for election and congratulations to those who were elected.

Technology is great, and although we could not meet in person, we were able to conduct our meeting on-line, across time zones - from late evening in Australia to very early in the morning in the USA.

The new Board acknowledged the recently retired board members and retired executive director Judith Chapman for all their excellent work on behalf of ISBT, and are looking forward to a productive two years working together as a team.



# The 36th International Congress goes virtual - December 12-16 2020

In view of the level of uncertainty around the global Coronavirus situation, the ISBT Board has taken the decision to transform the 36th International Congress planned for Barcelona 12-16 December 2020 into a fully virtual event.

Demands on health services continue to be high, travel restrictions are unpredictable and concern regarding further waves of COVID-19 is increasing. Under these circumstances, we do not feel it would be possible or appropriate to hold a large-scale in-person event. This has been a difficult decision, made with regret, but the safety of our delegates, speakers, and exhibitors is paramount.

Whilst we are still three months away from the December congress, we have made this decision now to provide clarity to everyone involved. ISBT will use this time to develop a first-class virtual congress to take place over the same dates, 12 – 16 December 2020. Whilst the format of the meeting will change to maximize engagement from delegates in a virtual environment, ISBT remain fully committed to providing the latest scientific updates and education in blood transfusion and a platform that still provides interactive experience.

We would like to thank all of you for your understanding and patience, through the postponement from June to December in the hope that we could have met in person, to the final transformation to a virtual congress. ISBT acknowledge the work of all involved in preparing for the 36th International meeting in Barcelona, including SETS, the Barcelona Local Organizing Committee, MCI and all our industry sponsors, and we are grateful for all the continuing support for the virtual congress.

### Late Breaking Abstracts

To ensure that the scientific content of the meeting is up to date and to give you the opportunity to present new work, we have decided to put out a call for 'late breaking abstracts'. This allows for the submission of abstracts containing clinical or non-clinical data which were not available at the time of the original abstract submission deadline in February this year. We will be looking for significant new work that would update knowledge or practice in any area, and also work related to COVID-19. Please note that this abstract submission is solely for abstracts with late-breaking data and not for 'routine' abstracts.

### Congress website

We are working on the digital platform; the congress website will be relaunched soon with an exciting revised programme, details of how to register and information on late breaking abstracts.





**Erica Wood**  
Monash University Melbourne  
Australia

## Q & A Erica Wood, ISBT President

### 1. What started your interest in Blood Transfusion and how did it develop?

I had not planned a career in transfusion medicine, but when I was training in clinical haematology and stem cell transplantation in the US an opportunity came up for some short 'electives' in the hospital blood bank. I really enjoyed these experiences, and one elective led to another, and then to a year-long fellowship between the University Hospitals of Cleveland, the Cleveland Clinic and American Red Cross. I'd not seen a role like this before, but it was great. When I returned to Australia I was able to support a similar role here to provide transfusion medicine training for registrars (fellows) in haematology, which was very productive. Many of those trainees are friends and colleagues to this day, and some have gone on to careers in transfusion medicine themselves.

### 2. What have been the most rewarding times in your career?

Each phase of my career has been rewarding in its own way, but I've always really enjoyed the combination of clinical and laboratory medicine, research and teaching. I've been fortunate to work in several different countries, and for the World Health Organization as well.

### 3. Who have been the most influential people in your career?

I've been blessed to work with many people who've supported and encouraged me over the years. If I had to name only three, I'd say:

- Roslyn Yomtovian, at the University Hospitals of Cleveland, who first encouraged me to go into transfusion medicine and changed the course of my career,
- John Miller, then at the American Red Cross in Cleveland, now at the National Marrow Donor Program in Minnesota, who showed me how interesting blood centre medicine could be, and encouraged me to continue in transfusion medicine and research, and
- Merrole Cole-Sinclair, at St Vincent's Hospital in Melbourne, Australia and as Chief Examiner for the Royal College of Pathologists of Australasia, who has supported me throughout my career in haematology and research and taught me so much.

All have been great friends and mentors over the years.

### 4. What made you decide to stand for election as ISBT President?

When I joined ISBT in 2001, I immediately felt welcome, although I could never have imagined being the ISBT President! I've enjoyed my time on the ISBT Board, and felt that I could contribute further as president. I thank everyone who encouraged me to get involved with ISBT, from Luc Noel who supported my initial membership, to Silvano Wendel who originally suggested I stand for election as the regional director for the Western Pacific, and the presidents and other board members and executive directors I've worked with since then. It's been a great experience.

### 5. What can the ISBT members expect from you and your leadership? What are your personal goals in relation to ISBT over the next two years? How do you see ISBT's role in supporting members during the global pandemic?

At the recent General Assembly I mentioned that as goals for my term of office:

- **Firstly, I want to lead the Society safely through this current difficult time with COVID-19 and deliver on our strategic plan.** We have big ideas and lots of exciting things to do over the next few years. I am sure we will be able to continue some of the innovative things that we have learned and developed during these times and our Society will be stronger in the future.
- **Secondly I feel we can engage more with clinicians who are prescribing and administering blood and taking care of patients.** ISBT, through its members, represents enormous expertise internationally, in all facets of transfusion science and medicine. We have many members who are clinicians, but not many members who are surgeons and anaesthetists or obstetricians or trauma doctors, or nurses or midwives who are prescribing and administering blood to a wide range of patients. We have invited clinicians to join our working parties and to contribute as speakers at our congresses, and their knowledge and expertise has enhanced our work in transfusion medicine. I think we can do even more, and would like us to reach out more widely and explore opportunities such as formal partnerships with clinical societies, and contributions to their meetings and their research activities, which I think will be to the benefit of all.

We have also recently signed a memorandum of understanding with the International Collaboration for Transfusion Medicine Guidelines. This will provide opportunities for ISBT members to contribute to selection of clinical guideline topics, and develop guidelines and implementation tools that meet the needs of clinical users all around the world, including in low and middle income countries. I look forward to this collaboration unfolding over the next few years and also how it will complement our own ISBT activities and our long-standing partnerships with WHO and other organisations.

- **Thirdly, although this is not in any order of priority, I want to support and develop the role of nurses within ISBT, and in particular the role of transfusion practitioners, or "TPs".** Transfusion practitioners are often from nursing or clinical laboratory scientist backgrounds, and play an important role in strengthening quality aspects of clinical practice, including education and audit and feedback and haemovigilance reporting and many other things in the hospital and the blood centre. The role is complementary to that of medical and scientific staff, and I have seen first-hand

how having TP roles has completely transformed how we practice transfusion in Australia and New Zealand and other places. The TP role is established in some countries but not in all, and is relatively new within ISBT. I want to see our TP group grow and flourish. ISBT is a natural home for TPs, who will benefit from what ISBT has to offer, and I am confident that ISBT will benefit as a society from expanding our membership with TPs from around the world.

### 6. What do you do in your spare time?

I like spending time with my husband, as well as going to hear live music, and travelling.

### 7. Finally, what do you wish to add, or what would you like to say to our Transfusion Today readers and ISBT members?

It's a great honour to be elected president of this great Society – thank you for your confidence in me! I'll do my very best. I look forward to meeting even more members of ISBT during my time as president, and hearing your ideas for the Society.



Team photo, the Transfusion Research Unit at Monash University.





**Tyler Hutchinson**  
Chairperson of the Young Professional Council  
United States

# Changes in the Young Professional Council

Over the past few months we have seen some big changes in the ISBT Young Professionals Council (YPC). We have welcomed three new members and transitioned out two of our founding members who have fulfilled their terms on the YPC. We have also chosen a new Chairperson and Secretary for the June 2020 to June 2021 term. In addition to this, it was decided during the virtual General Assembly in June that the YPC would become an ISBT Standing Committee.

Also in June, in accordance with the YPC Terms of Reference, a new Chairperson and Secretary were chosen. Tyler Hutchinson (North America region) and John-Paul Tung (Western Pacific region) were appointed as the new YPC Chairperson and Secretary, respectively. John-Paul will be filling Tyler's former position as Secretary while Tyler will take over as Chairperson from Satyam Arora (South East Asia region).

Tyler Hutchinson



John-Paul Tung



Last year it was recognized that an additional council member representing South America would be a benefit to the YPC and young professionals in that region. As a result, we introduced Carla Dinardo as the eighth member of the YPC beginning in May.

We also welcomed two new members in June, Lilian Boateng (representing the Africa region) and Syeldy Sasongko (representing the Europe region). Lilian and Syeldy are replacing Sophie Uyoga and Cécile Toly Ndour who have both completed their three-year term on the YPC. Both Sophie and Cécile were integral in helping us understand the needs of young professionals through surveys aimed at Young Investigator Breakfast attendees and all young professionals in ISBT, respectively. As a council, we would like to extend our gratitude to both of them!

Another change to the YPC came during this year's virtual General Assembly. It was voted upon and accepted by the ISBT membership that the ISBT bylaws would be changed to include the YPC as an ISBT Standing Committee. This change formalizes the role of the YPC within the structure of ISBT, solidifying it as an official Standing Committee.

On behalf of the YPC, I would like to thank all ISBT members for their support while extending an extra thank you to all of the young professionals within ISBT. I would also like to thank the Board and all of the Working Parties who have been adamant in their support of young professionals and the YPC. Finally I would like to reiterate our thanks to Sophie and Cécile who helped make YPC such a successful endeavor.



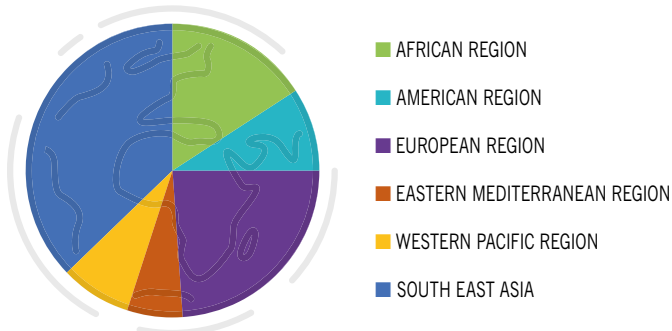
**Cécile TOLY-NDOUR**  
French National Reference  
Centre in Perinatal Hemobiology (CNRHP)  
Paris, France

# Results of the second survey on ISBT Young Professionals and their needs

In order to identify the evolving needs of the young members and to continue to improve the value of their ISBT membership, the Young Professional (YP) Council designed a second online survey, derived from the first one performed last year. This new survey was circulated to all members between March 4th and April 20th 2020.

### Who has responded?

A total of 130 ISBT YP (<40 years) participated in the survey. ISBT participants were more numerous than last year (79) and represented 24 % of the total ISBT YP members. They came from 50 different countries (28 last year) and from all the WHO regions (Figure 1). Compared to the 2018-2019 survey, there were more responses from low-middle income countries.



Geographical distribution of the YP who have participated in the survey

The YP work in all the fields of transfusion including blood donation, blood supply management, clinical transfusion, immunohematology and genetics or transfusion transmitted infectious diseases mainly as physicians, allied healthcare Professional or researchers.

### Why have they chosen to become members of ISBT?

Similarly to last year, the main reasons for the YP to become ISBT members were continued education through workshops, webinars, journal clubs and the Education App (77%), career development (63%) and networking opportunities (62%).

93% of the YP were interested in joining a Working Party (WP) but only 13% are currently WP members. Compared to last year, a larger proportion of YP have heard of ISBT activities (from 60% to 80% depending on the program).

Of those who responded, 47% attended an ISBT Congress in 2019. Among these, 40% participated in the YP workshops, 38% in the Young Investigator Breakfast and about 25% in the other new activities that were developed for YP (YP Reception and Speed dating events). In addition, 66% of YP are now regularly using the ISBT Education App and 68% are participating in ISBT webinars or live journal clubs. More than 63% follow ISBT updates and the #ISBTYoungBlood through social media (Twitter, Facebook, LinkedIn and Instagram).

### Are they satisfied with their ISBT membership?

Compared to 85% last year, 98% of the YP reported to be satisfied with their membership. 58% of the participants had already renewed their membership at least once.

### What are their needs?

Mentorship programs and more workshops tailored for YP during Congresses remained to be the most requested need.

Benefit	Percentage
Better experience at the YP breakfast	22,2%
More social/networking events for YP during ISBT Congresses	43,7%
More workshops tailored for YP at ISBT Congresses	57,9%
Opportunities to join mentorship programs within ISBT	67,5%
A web page with a forum dedicated to YP on the ISBT website	44,4%
Enhanced engagement through social media	43,9%

Benefits that the YP would like to receive from their ISBT membership

### YP council reflection:

The efforts made by the YP council over its first 2 years have made an impact on the YP members experience in the society. There are more members satisfied with their membership. Moreover, the council has established new activities during ISBT Congresses. Social medial promotion of these activities made them better appreciated. The Mentorship program has just started and membership in the WPs have been initiated. The council has recently established its webpage on the ISBT website, as well as a YouTube channel, and will work on establishing a forum for the YPs, to allow more networking between YP. The YP Council will continue to pursue its avenue for greater social/networking opportunities for future congresses and will also look into means to increase the opportunities for YPs to attend ISBT congresses, either on site or through virtual technologies such as video conferences.

Connect with us and share with us your ideas through utilizing our hashtag (#ISBTYoungBlood) on social media channels!



# World Blood Donor Day 2020 celebrations

**On June 14, 2020 World Blood Donor Day took place all around the world. We asked our ISBT regional directors to collect some materials from different regions. Here you will find how WBDD 2020 was celebrated around the world.**

## Thanks to our life savers – Bhutan

June 14 is globally observed as “World Blood Donor Day” with the goal to promote blood donation as an act of solidarity, with this year’s theme being “Safe blood saves lives”. It manifests the fundamental human values of altruism, respect, empathy and kindness. This is all the more relevant to Bhutan, given the rich spiritual heritage we Bhutanese enjoy.

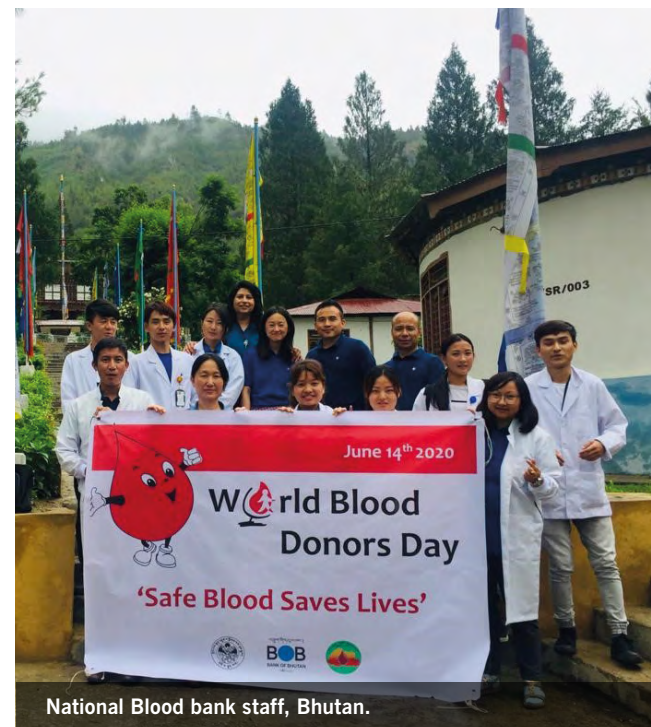
The need for blood transfusions and medications continues to grow during the ongoing COVID-19 pandemic and to maintain an adequate pool of safe blood in the blood banks is a requirement at this critical situation. Thus, additional strict safety measures have been installed at the blood collection sites for both donors and medical staff to avoid crowding and unnecessary exposures. In the wake of the recent pandemic, Bhutanese society in general has demonstrated a great force of goodness, generosity and volunteerism by coming forward to help the Ministry of Health (MoH) and the Blood Service through many initiatives including blood donations. Special thanks goes to the Bank of Bhutan for their continued support as a Corporate Social Responsibility by supporting 4 major blood campaigns at national and at 3 regional levels. There was a turnover of 315 potential donors which resulted in collection of 243 blood units. Each campaign was inaugurated with a cake cutting ceremony. The event information was disseminated through social media such as Facebook and We chat and also on NBTS’s official website.



COVID-19 Prevention and control measures.



Blood collection, Bhutan.



National Blood bank staff, Bhutan.

## “Red June” in Brazil

The Hematology and Hemotherapy Blood Center from University of Campinas – UNICAMP (Hemocentro UNICAMP) is a regional blood center located in Campinas, 90 kilometers (60 miles) from São Paulo (the capital of São Paulo State, Brazil) and gives blood support to public hospitals in a region that comprises around 6 million people, 60 hospitals from 41 cities. This center collects around 6,000 units of blood monthly, one third from mobile collect units in small cities. The two thirds remaining are collected in four collection facilities. In Brazil, paid donations are forbidden and periodic campaigns are essential to keep enough number of donors. June has been established in São Paulo State as “Red June” in commemoration of International Blood Donor’s Day – 14 June (date of Karl Landsteiner birth). This year, Hemocentro da UNICAMP has planned the campaign “#live, sangue, vida” that means, lives in cell phones is the better way to communicate due to COVID (sangue means blood and vida means life). This campaign started with a celebration using the system of mobile collection, at Brazilian Preparatory Army School – ESPCEX, when a lights exhibition took place, and donors (military as well as community ones) received a reusable red tissue mask to prevent COVID-19 marking the date. The event was carefully organized, taking care with all the measures established by local health regulation (see Barjas-Castro et al., ISBT Series May 2020, DOI: 10.1111/voxs.12565). Cities monuments were red-lightened during the month. Local celebrities as a TV presenter, an athlete and a singer have participated in a TV commercial film used in local television programs. As June 14 was a Sunday and the collection units are usually closed, we celebrated on the day before, June 13, with a special meal (“ragout” and pasta), YouTube music “live presentations” and white reusable tissue masks were offered. To close the campaign a “blood donation marathon” was organized in the main blood donation facility, when blood donations took care from 7:30 AM to 10:00 PM (the facility usually closes at 3PM). In this special day, some typical season refreshments were offered to donors, like cotton candy, popcorn and caramelized peanuts, additionally to regular refreshments, as well as again the white reusable tissue masks were offered. It was possible to attend the double number of donors (202) of the frequently number attended (around 90). That was a great opportunity to thank donors who help patients altruistic and anonymously.



Appreciating youngest blood donor in Dubai.

## Dubai - Celebrating World Blood Donor Day 2020

“Every year we celebrate WBDD, but this year it is different. Thank you messages; word of appreciation would not be enough for our voluntary blood donors whom did not stop donating during COVID-19 pandemic” this was an article in our main newspaper to cover this important topic from HE. Humaid Al Qutami, Director General for Dubai Health Authority. During our celebration we have forwarded thousands of SMS thank you messages to our blood donors, platelets apheresis donors and convalescent plasma donors. We have used many posts in social media. Dubai Blood Donation center has invited the youngest blood donor in Dubai who donated on first day after his 17th Birthday, appreciated his good deed and made a press release covering an interview with him to encourage young people to become regular blood donors. Our media center has also interview a regular blood donor who is a biker and donated 53 times after an accident that required him to be transfused. Different stories from different donors have been covered by social media for public awareness and education.







**World Blood Donor Day – Asia  
Malaysia**

With COVID pandemic and MOVEMENT CONTROL ORDER (MCO) implemented in Malaysia, World blood donor day 2020 was celebrated in smaller scale in University Malaya Medical Centre, a tertiary teaching hospital in Kuala Lumpur Malaysia. Number of blood donors were restricted to enable proper social distancing.

**Hong Kong**



**World Blood Donor Day 2020 – Virtual Celebration in Ghana**

Ghana celebrated our first virtual World Blood Donor Day 2020 on Sunday 14 June 2020. Multiple simultaneous events took place over social media waves under the theme “Safe blood saves lives” and slogan “Give blood and make the world a healthier place”. The National Blood Service Ghana (NBSG) led the celebration to publicly appreciate voluntary unpaid blood donors.

The notable activities were:

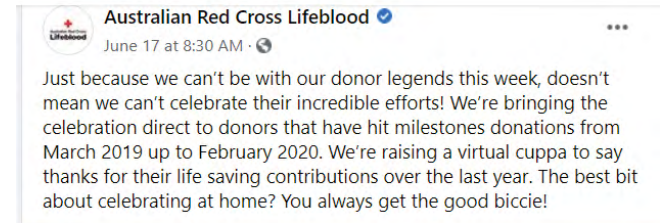
- Her Excellency, the First Lady of Ghana; Mrs. Rebecca Akufo-Addo with 15 Queen Mothers and Female Chiefs launched a media campaign through a multi-lingual video which aired severally on three television networks and via social media handles on 14 June as part of ‘Champions of Change Blood Donation Campaign’.
- The finale of a virtual commemoration ceremony aired live via Facebook and other Social Media platforms; in attendance were the Deputy Minister of Health, Madam Tina Mensah, Dr. Neema Rusibamayila Kimambo; WHO Country Representative and Dr. Justina Kordai Ansah; Chief Executive Officer - NBSG
- NBSG-led videos of celebrities, and civil society groups sharing goodwill messages and encouraging the public to donate voluntarily.
- Outdooring and distribution of branded WBDD 2020 Face masks to donors.
- National Catholic Blood donation campaign was launched to encourage Catholics to donate frequently and regularly.



**World Blood Donor Day - China**

Each blood service in China has organized celebrations in honor of WBDD. In addition to that, the CSBT (Chinese Society of Blood Transfusion) initiated a voluntary campaign named Lighting Up Your City with Love for the evening of the 14th June, beginning at 8pm, and live broadcasting on internet and social media. 48 institutions from 44 cities registered to the campaign. Some cities had done similar lighting shows before but for others this was the first time. The live show lasted for some 40 minutes, attracting over 269k viewers and over 85k thumbs-up on line. The audience at the sites in these cities and viewers watching play-back are innumerable. The campaign, both on sites and on-line, has boosted the attentions from all circles of life to the WBDD and the contributions of voluntary blood donors.

Campaign video: <https://m.inmuu.com/v1/live/news/266373/6032904>



**WBDD - Australia**

Unfortunately, due to distancing restrictions, they did not have any World Blood Donor Day events this year. Instead they released a video from recipients of blood products, thanking their donors. Link to the video: [www.donateblood.com.au/national-blood-donor-week-2020](http://www.donateblood.com.au/national-blood-donor-week-2020)

They also sent out a “thank you pack” to their donors who had reached milestone donations in the last 12 months, including some tea and a biscuit for a virtual “cuppa” (Australian slang for a cup of tea or coffee).




## Educational page

VOX SANGUINIS – THE NEW ISSUE IS NOW AVAILABLE

We have selected four excellent papers from the new edition of Vox Sanguinis and have posed a question for you to consider after reading each one. The aim is to prompt reflection on how what you have learned relates to your own practice. Reflective learning is useful in many different settings and at all stages of our career progress to help us use new knowledge and experience to improve our everyday practice. It is useful to write a reflective statement to demonstrate understanding of new information and this forms part of many professional CPD schemes.


### Washed red cells: theory and practice

Rebecca Cardigan Helen V. New Hazel Tinogate Stephen Thomas  
07 July 2020  doi.org/10.1111/vox.12971

There are many different methods for washing red cells. The laboratory data summarised in the article demonstrate that washing of red cells may not be a benign process. The most accepted indication for washed red cells is in prevention of severe or recurrent allergic reactions but there have been surprisingly few clinical studies. Whether washing of red cells has a beneficial effect in terms of improving clinical outcome following surgery is controversial.

*Under what circumstances would you use washed red cells, and what is the evidence base for your decision?*


### RAGE interacts with the necroptotic protein RIPK3 and mediates transfusion induced danger signal release

Hilary Faust LK Metthew Lam Meghan J. Hotz Danielle Qing Nilam S. Mangalmurti  
First published: 07 July 2020  doi.org/10.1111/vox.12946

RBC transfusion causes Receptor for Advanced Glycation End Products (RAGE) mediated endothelial injury. The article demonstrates the role of the pro inflammatory pattern recognition receptor RAGE in endothelial necroptosis, as deletion of RAGE attenuates necroptotic cell death in response to TNF $\alpha$ , LPS or CpG DNA.

*How would you target RAGE to prevent transfusion associated adverse outcomes*


### Maternity iron, anaemia and blood management in South Australia: a practice based evidence for clinical practice improvement

Cindy J. Flores Angelina Yong Eleanor Knights Jodie Grech Ben Saxon  
Corey Markus Romi Sinha Kym Osborn  
First published: 07 July 2020  doi.org/10.1111/vox.12969

Anaemia at delivery is a strong modifiable risk factor for transfusion in women with a postpartum haemorrhage (PPH). A Maternity Patient Blood Management (PBM) Practice Based Evidence Clinical Practice Improvement (CPI) was conducted to optimize antenatal haemoglobin and iron stores prior to delivery. This study demonstrates how a CPI can modify one risk factor for blood loss, which is the anaemia at delivery, and subsequent transfusion in the perinatal period.

*Would you use IV or oral iron to prevent iron deficiency early in pregnancy?*

### Noncompliance to blood donor selection criteria by men who have sex with men – Complidon 2017, France

Claire Sauvage François Charpentier Éliane Garrabé Camille Pelat  
Roxane Spinardi Bruno Danic Florence Lot Pascal Morel Syria Laperche  
Josiane Pillonel  
First published: 20 July 2020  doi.org/10.1111/vox.12975

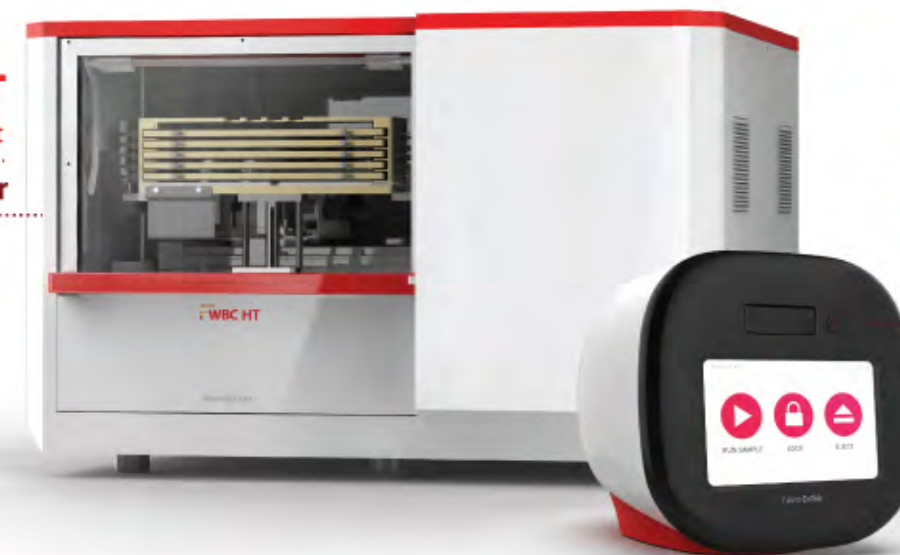
In France, the main recent change in deferral requirements occurred on 10 July 2016 when MSM blood donation deferral changed from permanent to 12 months. An anonymous online survey (Complidon) of a sample of blood donors showed that compliance with blood donation criteria in MSM was high, but not optimal, especially among younger men. HIV residual risk did not increase after the implementation of 12 month deferral. Data from Complidon helped French policymakers to assess the additional HIV risk posed by increased access to blood donation.

*What do you think the reasons of the donors were for not disclosing male to male sex?*

# Walk-away

## residual WBC counter

ADAM  
**WBC HT**  
High Throughput  
50 tests / hour



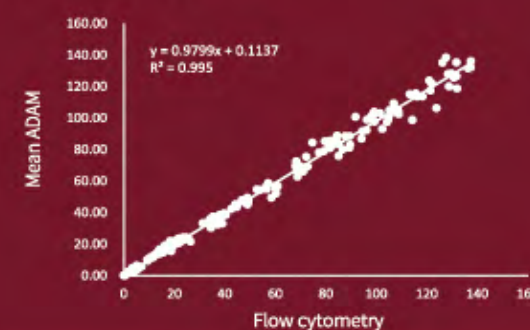
ADAM  
**WBC 2**  
1 test / 45 sec

Not required

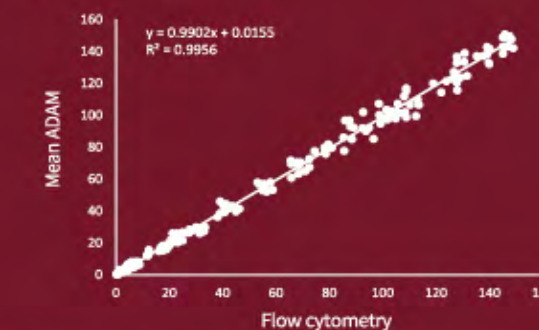
Dark room incubation / Vortex / Daily maintenance  
Gating adjustment / Warming up

### Comparison to Flow cytometry

#### RBC products



#### Platelet products







**Michael Smidt**  
Deutsches Rotes Kreuz  
Blutspendedienst Institut  
Frankfurt  
Germany



**Erhard Seifried**  
German Red Cross Blood donor  
service Baden-Wuerttemberg –  
Hesse, gGmbH  
Germany

# General COVID-19 situation in Germany

**The COVID-19 pandemic has been present in Germany since January 27, 2020. It is the spread of the respiratory disease COVID-19, which first appeared in late 2019 in China and broke out worldwide in early 2020 [5,6]. The Robert Koch Institute (RKI) rated the risk of the COVID-19 pandemic for the German population as “low to moderate” on February 28, 2020, since March 17 as “high” and for risk groups since the 26th of March as “very high”.**

On March 25, the Bundestag declared an “epidemic situation of national importance”. For this reason the Federal Ministry of Health issued nationwide orders to reduce the infection rate significantly by minimizing personal contacts.

As of July 23, 2020, 0:00 am, the RKI reports 203,368 laboratory-confirmed infections in Germany, including 9,101 deaths, and estimates the number of those recovered at approximately 189,000 people.

## Preparation at the German Red Cross blood donor service, COVID 19 safety plan

In February 2020 a COVID-19 pandemic plan was prepared at our blood service which describes three periods of a pandemic. The pandemic plan starts with period 1 (observation period) which is comparable to WHO phase 1-5. In this phase donor marketing activities were intensified, resources of relevant material were enlarged (e.g. the available stock of donor bags, safety masks, test kits etc. were checked and filled up), and the communication with other blood donor services was improved. During the second period the pandemic plan was divided into subgroups P1 (the pandemic has been declared in at least 3 WHO countries outside Germany), P2a (pandemic is declared in Germany with an incidence rate between 5-15%), P2b (pandemic is declared in Germany with an incidence rate between 15-30%), P2c (pandemic is declared in Germany with an incidence rate between 30-50%). Phase 2a was activated in March 2020. During this phase, the call for blood donations was intensified in daily newspapers, on the radio as well as on social media. In addition, smaller gifts (incentives) were given to donors. All mobile donation facilities were checked with regard to a suitable and sufficient distance between donor beds. Furthermore, all donation appointments were arranged via an electronic reservation system. This measure reduced the waiting time for donors to a minimum. For all donors, a contactless temperature check and a questionnaire asking for health disorders

was mandatory before entering the donation facility. A face mask was required for the entire donation process and hand disinfectant was provided [2].

In our blood donor departments, employees were split into groups that worked spatially independently. The break times were also distributed to avoid any infection risk between employees of the different groups. In addition, the body temperature of each employee was checked contactlessly before starting to work [8]. All employees had to wear face masks, and the canteens were closed for visitors. Cashless payment was introduced, the meals were served at individual tables, with only one employee per table and a minimum distance of 2 meters between each employee. Furthermore, all employees received a sufficient amount of hand disinfectant solution for private usage. All these measures avoided a local SARS CoV-2 outbreak among employees at our blood donor service. All departments (donation, production, screening laboratory, sales, administration, quality management) have remained fully operational. Home office was implemented for every employee whose presence wasn't necessary. A pandemic task force met via video conference twice a week.

## Frankfurt adjusted COVID 19 Testing Method

In March 2020 the number of SARS-CoV-2 infected patients increased in Germany and the Institute of Medical Virology at the Goethe University in Frankfurt asked for assistance for SARS CoV-2 RNA NAT testing for symptomatic patients. Our blood donor service had three high-throughput NAT analyzer (Roche Cobas 8800) with a maximum capacity of 10,000 preparation per day. Based on the experience of the mini-pool NAT testing for the parameters HBV, HCV, HIV, HAV, PB19, HEV, and WNV, we reached for options to examine throat swabs in a mini-pool setting or with a multiple swab testing. Reaching for a new testing method we discovered that swabs with SARS CoV-2 emit viruses continuously into a lysis buffer over a time period of one hour [7]. It is therefore possible to pool the swabs in mini pools up to 50 swabs without reducing the diagnostic sensitivity as well as without reducing the diagnostic specificity. This increases the test capacity for each laboratory dramatically, so that the new technology (Frankfurt adjusted COVID-19 Method; FACT) can be used for testing of symptomatic patients as well as for screening of asymptomatic persons. In the meantime, we have examined more than 40,000 people for SARS CoV-2 and have always been able to find a match between the CT values in the multiple swab tubes and in the individual swab tubes. This method is now being used nationwide in Germany,

especially for high-risk persons (old people in old people's homes, police officers, fire brigades, medical personnel). All patients admitted to hospitals in Germany first receive a COVID-19 NAT test and are placed thereafter on COVID-19 wards or non-COVID-19 wards. These extensive COVID-19 screening measures help to identify SARS CoV-2 at an early stage to isolate infected people and thus break the infection chain as early as possible. It is also an example that blood donation services work during a pandemic closely together with Institutes of Virology and national health authorities made a significant contribution to prevent the spreading of SARS CoV-2.

## CAPSID Study clinical trial for the relevance of re-convalescence plasma

Another task in the corona pandemic is carried out in our blood donation service as part of a clinically controlled study. Donors with a SARS-CoV-2 infection are examined for neutralizing antibodies against SARS-CoV-2. If these can be detected, plasmaphereses are performed. Patients with a severe clinical course will be treated in a placebo-controlled study with these convalescent plasma products. This CAPSID study would like to investigate the scientific relevance of convalescent plasma on the clinical course of a COVID-19 infectious disease. In the absence of targeted therapy against SARS-CoV-2 infections, transfusion of plasma with Anti-SARS CoV-2 antibodies can help to reduce serious fatal illnesses or shorten the ventilation time. Results of the CAPSID study are urgently expected.

## Robert-Koch-Study to anti-SARS antibody prevalence in Germany

Our blood donation service is also participating in a national prevalence study conducted by the Robert Koch Institute in which 5,000 blood donors from all regions in Germany are tested for SARS-CoV-2 antibodies every 2 weeks over a period of 6 months. All donors with a reactive SARS-CoV-2 ELISA are examined in further tests for neutralizing SARS-CoV-2 antibodies. As a first intermediate result after 20% of the study has now been done, there is a very low rate of donors in Germany with SARS CoV-2 antibodies of around 1.3% with regional differences. The maximum rate of SARS CoV-2 antibodies is around 4% in two regions in Germany. So far, however, it has become clear that the SARS CoV-2 infection is a new type of corona viruses and that the German population had very low immunity rate against this species. This is very far away from “herd immunity” of the whole population.

## Life with COVID 19

Based on intensive lockdown procedures in April, May and June, the rate of new infections in Germany dropped down to less than 300 infections per day. As a consequence, politicians reduced lockdown measures in July 2020 [1]. Restaurants reopened with special hygienic measures. After ending of the strict lockdown procedures an increased need for blood products for postponed operations were recognized. Travel restrictions have also been reduced, although this year many inhabitants organized their vacations within the country on the two existing coasts [3]. However, individual local outbreaks of SARS CoV-2 were registered in July, making it clear that the pandemic is not yet over. In the absence of specific therapy such as vaccination [4] we should be on alert that a second infection wave can appear at any time. In addition to the primary tasks of blood donor services in the provision of safe blood products, blood donation services have taken additional tasks in Germany for the global health system. COVID-19 has made it clear that a pandemic can arise and ultimately must be combated nationally and internationally.

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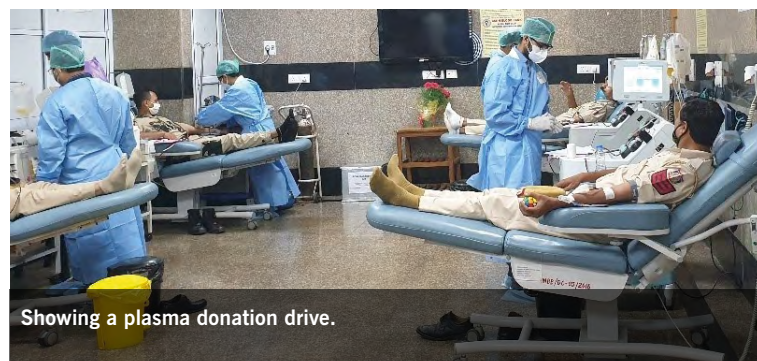
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# Challenges to blood supply in India during COVID-19 pandemic: the fight to meet demand and supply

SARS-CoV 2 was first reported from Wuhan, China around December 2019 and the first case of COVID-19 in India was reported from one of the districts in Kerala towards latter half of January 2020. The number of COVID-19 cases in the country has increased to more than a million in July 2020 with a case fatality rate of around 2.5%. The pandemic has forced each of us to adopt a new lifestyle where travel and gatherings are restricted and wearing mask in outdoors is compulsory by law. The functioning of healthcare facilities was also affected and resulted in closing of most of the routine healthcare services. This was followed by gradual opening of outpatient services with increasing use of telemedicine facilities towards the end of lockdown period.

Blood banking services were also affected by the pandemic especially after the government initiated a nationwide lockdown towards the end of March 2020. In-house blood donation was decreased significantly to almost 10-20% of pre-COVID era as blood donors tried to delay blood donation activities to limit their exposure by coming to hospital-based blood banks as well as due to travel restrictions imposed by the government. Outdoor blood donation camps were also cancelled in the initial period of lockdown due to restrictions on large gatherings and need for social distancing. Though there was a decline in demand of blood components to approximately 40-50% of the demand in pre-COVID era, it was disproportionate to the decrease in blood supply leading to shortage of blood in some of the hospitals. Most of the blood banks were able to cope up with the situation during the initial period by utilizing the buffer stock kept for disaster situations. Blood products were also redistributed by one blood center to other in case of adequate inventory.

As the nationwide lockdown was extended till May 2020, blood banks across the country restarted the blood donation drives utilizing the existing infrastructure such as the mobile blood collection buses. The National Blood Transfusion Council was also prompt in providing the recommendation to be followed by the blood banks during collection and testing of blood, ensuring the safety of blood bank staff and donors. To ensure that social distancing norms are followed during in-house blood collection, blood banks restructured the blood donation area to increase distance between successive blood donor couches. Donors were asked to wear masks and at entry and exit hand sanitizers were placed. Blood bank staff was also provided with N95 masks, gloves, face shields and gowns to keep them safe. Additional questions were added to the existing donor history questionnaires to identify donors at risk of COVID-19 and exclude them from donor pool to ensure blood safety. SOPs were modified to add extra precautions to be taken in lab processes. In addition to the blood inventory aspects, the pandemic also affected academic activities at different institutes. The seminars and journal clubs were shifted to online mode and post graduate examinations were conducted virtually. To ensure continuous educational activities, time to time webinars have been conducted across the country. Transfusion services also played a crucial role in recruitment of COVID-19 recovered patients as plasma donors as well as the collection of plasma from them and its distribution during this time. Plasma banks were introduced in some of the cities affected badly by the pandemic and some blood banks also conducted plasma collection drives. Blood transfusion services across the country have responded to challenges posed by SARS-CoV-2 and nationwide efforts have ensured a sufficient inventory of blood and blood products while ensuring safety of both blood donors and staff.



Showing a plasma donation drive.



A blood donation camp organised during COVID pandemic in India.



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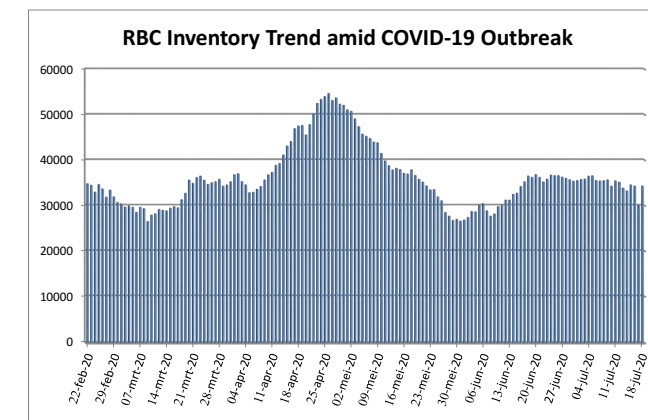


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# Blood Transfusion Management in Iran amidst the COVID-19 Outbreak; Lessons Learned

The first case of COVID-19 in Iran was officially reported on February 19, 2020.[1] On February 29 closures were imposed on all schools and universities and subsequently on March 7 there was a total lockdown. All hospitals and medical centers in Iran had shifted to provide services for COVID-19 patients. At the end of the first week of the outbreak, the Iranian Ministry of Health (MOH) reported 29 new cases with a total number of 8 deaths and at the end of the second week 593 confirmed cases with 43 deaths.[2] A feeling of anxiety then grew among people and raised concerns over the uncertainties, which encouraged the public to stick to stay-at-home rules that were adopted to prevent the spread of the virus.

The Iranian Blood Transfusion Organization (IBTO) was obviously affected by the outbreak. The number of blood donations at the beginning of the outbreak dropped by 30% throughout the country. It varied though different provinces of the country with some blood centers experiencing a decrease of about 60%. IBTO immediately developed the "IBTO Committee for COVID-19". The Committee took the following measures in blood centers across the country: [1] providing a safe environment for blood donors and staff including the mandatory use of face masks and gloves, [2] scheduling blood donation by online appointment to avoid crowding, [3] promoting information dissemination to overcome donor anxiety and fears. The figure below displays the RBC inventory trend amidst the COVID-19 outbreak in Iran.



Some of the potential lessons that we learned from the COVID-19 outbreak have been outlined here.

1. Establishing an effective communication with blood donors was the top priority. Once the general public perceives the importance of blood donation during this crisis and sense that efforts are being made by blood centers to provide a safe facility environment, they would certainly consider donating blood and get engaged; the blood donation trend amid the recent outbreak in Iran attests to it.
2. Clinicians should seriously consider patient blood management (PBM). Hospitals and medical centers were strongly recommended to apply PBM strategies to ensure an adequate supply of safe blood products.
3. Blood centers planned on training multi-tasking personnel, given the fact that the newly emerged infection of COVID-19 might affect the staff and consequently lead to their absence. IBTO offered competence and skill-based training courses for the blood centers' staff. However, it seems that preparedness in a crisis like COVID-19 outbreak requires that the scope of training not be limited to the single current task description the staff is defined to perform.
4. The web-based infrastructure needed to be more strengthened. This outbreak showed that the need for online meetings to enhance experience sharing and interactions at national, regional, and international levels grew dramatically. As much, there is a need for online meetings to be held for managers and staff who work in blood centers throughout the country; they play an essential role and need to be informed on the latest information gained and decisions adopted for COVID-19 outbreak management purposes. It is inevitable not to overlook the role of training of blood centers staff involved in research projects amid the new crisis.
5. Daily monitoring of hospital blood orders were put into place. IBTO Headquarters regularly monitors the number of blood donations, the distribution of blood and blood components, and the number of blood units available in the inventory across the country. However, it seems necessary to precisely monitor the blood orders to ponder on the changes and adopt the compatible corrective actions.

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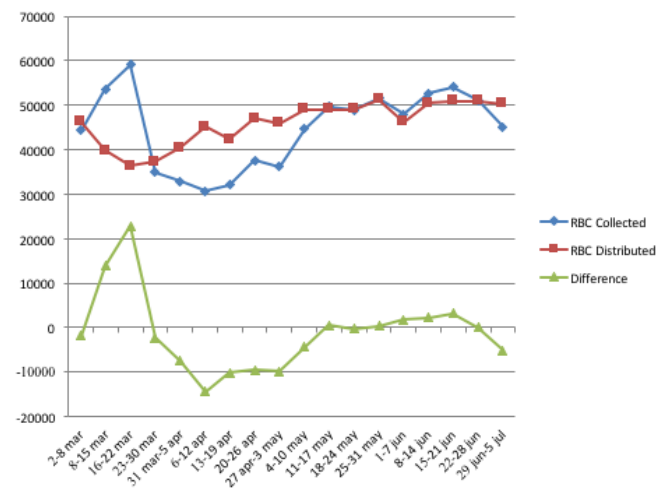
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## COVID-19 in Italy

The first two cases of COVID-19 in Italy were confirmed on January 30, 2020; as to July 20th, the number of infected people rose to 244.253 cases, 34.132 (14%) died and 188.600 recovered. As a consequence of the limitation measures, an initial important decrease in blood donations has been recorded and this induced the Ministry of Health to include blood donation among the “urgent and essential activities”; however, due to the rapid saturation of hospital units with COVID-19 patients, the non-urgent admittance have been drastically reduced and this was responsible for a huge reduction in blood need. A surplus of blood donations was the net result of the national media campaign on the importance and safety of blood donation and the reorganization of hospital activity. The response of Italian blood donors was commendable, but it also promoted a better planning for blood collection to allow measures for donor and staff safety, a more regular supply of blood and a better management of the blood inventory which is now to an almost normal situation (fig. 1)



Blood collection and distribution in Italy during SARS-CoV-2 pandemic

The possible exposure of blood donors and staff to a potential deadly airborne infectious threat during blood collection was the first challenge in COVID-19 times. Blood activities needed to be reorganized according to new safety standards: person distancing, hand and environmental sanitation, scheduling of blood donations to

avoid overcrowding, telephone triage when calling the donor, personal protection devices for donors (mask) and staff (mask, protective visor and gloves) were soon introduced. Blood donors are evaluated to prevent a possible blood-borne transmission and the National Blood Center has recommended to defer donors who, in the 14 days prior to donation, have had fever (> 37.5°C), symptoms of respiratory infection or contact with a suspected or confirmed COVID-19 patient. We still rely on the evidence that potential transfusion-transmission is not significant and that effective control measures should concentrate on the protection at community level, as demonstrated by the haemovigilance and by the post-donation information (PDI) reports: the majority of PDIs are related to symptoms of respiratory infection or contact with a suspected or confirmed COVID-19 case, while positive swabs among donors are negligible (fig. 2); as expected, no cases of transfusion-transmitted SARS-CoV-2 infection have been documented. Only if the donor is positive or highly suspected (relevant symptoms), then the donated units should be recalled and eliminated, if still in the inventory; no look back is required if they have been transfused.

The third challenging opportunity emerged in transfusion medicine is the revived interest for convalescent plasma and its use in Italy was very soon regulated in the framework of a position paper of the Italian Society for Transfusion Medicine and Immunohematology (SIMTI) and the Italian Society for Haemapheresis and Cell Manipulation (SIdEM). At present, there are eight Clinical Trials registered in Italy (six at Clinicaltrials.gov): three are Multicenter prospective randomized open-label clinical trials and five are Interventional, Single Group Assignment, Longitudinal assessment, Open Label. They are very different in size of treated patients and in the primary endpoint (mortality, need of invasive mechanical ventilation and rate of COVID-19 progression). The first trial (from Pavia University hospital) has been recently completed, recruiting a total of 46 patients. However, although the number of patients potentially benefiting is negligible now, due to the decrease of pandemic in the country, plasma is still collected and stored in view of a possible second wave of infections.



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## Challenges for blood centers during the COVID-19 outbreak - Majorca

**Managing the COVID-19 outbreak in a blood center involves implementing strategies to ensure the safety of donors, blood components and workers while maintaining an adequate blood supply to the hospitals.**

Our blood center, the Balearic Islands Blood Bank (BIBB), is located in a Mediterranean archipelago, the Balearic Islands, in Spain. Besides the challenges of the COVID-19 outbreak, the BIBB has to routinely deal with the difficulties associated with our geographic location. In order to provide a safe blood supply during the course of the COVID-19 outbreak, the following measures were implemented:

1. On 30 January 2020, the WHO declared that the outbreak of COVID-19 constituted a Public Health Emergency of International Concern [1]. The BBIB began to implement the contingency plan for the COVID-19 outbreak in February 2020. As a result, blood collections were gradually increased during this month to prevent a blood shortage in the event of the coronavirus disease spreading to the archipelago.
2. On March 15, a state of emergency was declared in Spain and the population were confined to their homes. People were only allowed to go out if it was strictly necessary, i.e., to buy food or medicines or to donate blood. In this phase, additional measures were implemented:
  - a. The BBIB encouraged donors to wear masks and to schedule their donations through the BBIB website in order to maintain social distancing and allow a more organized flux of people in the blood center. On the website, donors were also able to fill in a donation questionnaire and review the COVID-19 deferring criteria, which gave them the opportunity for self-exclusion. The BBIB defers donors who, in the 28 days before donation, have had fever (>37.5°C), symptoms of respiratory tract infection, contact with a suspected or confirmed case, been infected with COVID-19 or traveled outside the archipelago.
  - b. Before entering our facility, donors were requested to wash their hands with alcohol-based hand sanitizer and to put on a mask if not already wearing one.
  - c. In the blood collection area, disinfection procedures for all material shared by donors and staff were carried out after attending each donor.
  - d. The refreshment area was reorganized to ensure safe distancing.

- e. We also recommended our donors to contact the blood center if in the 14 days following the donation they presented COVID-19 symptoms or had contact with a suspected or confirmed case of COVID-19. The post-donation information (PDI) procedure includes the elimination of all non-transfused blood components given by this donor. The safety of the blood center staff is addressed by the occupational risk prevention department.
  - f. Platelets and plasma produced by the BBIB have been treated with pathogen reduction techniques (PRT) since 2008 [2] and are COVID-safe [3]. A stock of frozen platelets, with a prolonged shelf life, was available in the hospitals of the archipelago.
  - g. Convalescent plasma collection was started in order to provide treatment for COVID-19 patients (4).
- All these measures helped us to provide a safe environment for our donors and workers while maintaining a secure blood supply.

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## Thalassaemia major patients and COVID-19 pandemic in Pakistan

**The ongoing pandemic of coronavirus disease 2019 (COVID-19) caused by SARS-CoV-2, emerged in the Chinese city of Wuhan last December. Pakistan shares an international border with China and took all necessary measures to limit the disease transmission in the country. However the first case of the disease was reported in February 2020, and since then the number has now crossed 0.274 million. The earliest infected cases in Pakistan were primarily those traveling from Iran and Saudi Arabia. Later the transmission dynamics changed and followed a local human-to-human transmission.**

The Pakistan Government enforced a 6-week lockdown to ensure social distancing in curtailing the transmission of COVID-19. This strategy appears to have been effective in “flattening the curve” of COVID-19. However, the hidden health costs are now weighing as the containment measures had a huge impact on wider society, for example, the mental health, domestic violence, the healthcare supplies including the blood and blood components. Donating blood is indispensable and the need for blood remains constant, even during the COVID-19 pandemic. In February 2020, the World Health Organization (WHO) advised regarding the potential of COVID-19 to affect the blood supply[1] as was witnessed later in China[2] and Iran.[3] Pakistan experienced a similar situation in the first three months as blood centres reported a significantly low number of donors showing up for blood donations attributing to lack of awareness and the fear of acquiring COVID-19 infection. The most affected population remained the transfusion-dependent thalassaemia major patients who generally consume about one-third of the national blood supply.[4] Pakistan, with a demand-driven blood transfusion system, harbors an estimated 100,000 transfusion-dependent thalassaemia major patients.[5] To give an example, one of the public sector thalassaemia centres with 207 registered thalassaemia major patients collected 267 whole blood donations during the lock down period. This was 56% less than the average collection of 602 blood units during the same period.

The thalassaemia patients profoundly rely on blood donations through announcements in the academic institutions (colleges, universities) and religious gatherings (e.g. mosques). As these sources are inaccessible during the lockdown, thalassaemia patients are suffering with adverse effects of anaemia resulting in physical and mental trauma to the whole family. As there seems to be no known end date in the fight against COVID-19, the general public is the sole source to maintain an adequate blood supply to cater to the demands for emergency purposes particularly thalassaemia patients.

To mitigate this dismal scenario, the hospitals and blood centres initiated coordination with the print and electronic media to communicate the message to potential donors. Appeals were also made through the ‘Facebook Blood Donation Feature’ which makes it easier for people to sign up to become blood donors, and aids in connecting these voluntary donors with centres in need of blood.[6] Some of the institutions also utilized the WhatsApp service to mobilize potential blood donors.[7] The blood centres have been advised by the respective blood transfusion authorities (BTA) to practice standard sanitizing procedures and regularly monitor the COVID-19 symptoms including temperatures of both the donors and the blood bank staff to minimize the risk of transfer of SARS-CoV-2. Educational and awareness sessions are being carried out for the blood bank staff regarding COVID-19 and standard biosafety procedures linked to it. All these strategies are proving productive in communicating the message and restoring the public confidence as the number of donors visiting the blood centres is increasing gradually. It is hoped that these efforts prove successful to circumvent another health-care crisis besides COVID-19.

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## Strategies for the recruitment, retention, and increasing the frequency of donation by plasma donors

**One of the major challenges facing blood collection agencies (BCAs) worldwide is the growing demand for plasma derived products, in particular, immunoglobulin (IG). This challenge is particularly acute for agencies that are committed to national self-sufficiency and who collect from voluntary, non-remunerated donors. The COVID-19 crisis has particularly highlighted the vulnerability of reliance on imported plasma products.**

Expanding the plasma supply relies on improving donor recruitment, conversion, retention, and encouraging increased donation frequency. Research provides insights into how to achieve this. Plasma donors are altruistic, conscientious and have positive attitudes towards donating. For them, donating plasma allows them to contribute to their community [1]. Knowing that more plasma is needed, both now and into the future, motivates donors to become and remain plasma donors. BCA's should clearly and consistently communicate the many uses of plasma and the increasing need for donations. Donor centre staff provide information that shapes donors' understanding and expectations, and are therefore key to converting donors to plasma and encouraging return [1]. When converting whole-blood donors to plasmapheresis, staff should explicitly address the key barriers to apheresis (such as time taken), along with the benefits, including the higher volume yield. This approach can improve attitudes and reduce anxiety. Donors' confidence to try plasmapheresis is enhanced by highlighting similarities with the whole-blood procedure [2]. Staff should familiarise new donors with the plasmapheresis process and give them information and reassurance to manage aspects of the donation that may appear negative. If donors know what to expect and understand the procedure, they are less concerned if negative symptoms occur [1]. Donors are most likely to return when staff address common concerns such as the safety of red cell return and vein healing and highlight the benefits of donating plasma, such as personal satisfaction and the ability to help more people (1,3,4). BCA's should test and implement strategies, such as anxiety reduction techniques, to decrease the likelihood of adverse events (5).

While plasma can be donated more frequently than whole-blood, donors are deterred by expectations of high frequency donation [2]. Staff should help donors set personally realistic expectations of what they can give by discussing how donating fits with their other regular commitments [1]. In Australia, where donors can give fortnightly, most new donors prefer to schedule 4-weekly donations. Requests to donate more frequently should be targeted to those for whom other commitments are lessening [1].

In Australia, COVID-19 has resulted in record numbers of donors giving plasma. This is likely due, in part, to heightened community awareness of the critical importance of plasma with the collection of convalescent plasma (CP) to treat those with coronavirus. Many of the strategies identified here can be applied to recruiting CP donors and encouraging them to return as frequently as possible while their antibody levels are high. Now is a good opportunity for BCAs to retain those who have come forward to donate plasma for the first time, as well as encouraging those who have donated CP to become regular plasmapheresis donors.

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## Towards the Implementation of a Rare Donor Registry in Colombia

**Most of the time, when a patient requires a blood transfusion, compatible blood is easily found in the transfusion service. However, the provision of red blood cell (RBC) units is a challenge in the case of patients with RBC alloantibody mixtures or those who lack a high prevalence antigen, especially in developing countries where transfusion resources and technologies are limited.**

In the multi-ethnic Latin American population, the prevalence of blood group antigens varies significantly, and the diversity of phenotypes can be higher when compared to Caucasian or African groups. Moreover, some country-specific regulations limit blood importing and exporting, and the supply of rare blood phenotypes must be handled locally. Over the years, the IDCBIS Blood Bank (formerly the District Hemocentro of Bogotá) has provided compatible blood to many patients around the country. However, the blood requirements for patients with alloantibodies against high prevalence antigens and the RBC phenotype frequencies observed in donor studies have highlighted the need to develop a national rare donor registry. The implementation of this registry is being built through the following stages:

1. Red blood cell phenotyping of blood donors and patients at the IDCBIS Laboratory that has allowed the identification of individuals with rare blood phenotypes.
2. Population studies: The 2019/2020 funding for research made it possible to carry out the extended RBC phenotyping (Rh, Duffy, MNS, Kidd, Kell, and Lutheran blood group systems) of 1000 routine blood donors and Diego phenotyping of 500 individuals. In addition, 400 blood donors were genotyped for Rh, Kidd, and Duffy/GATA by in-house assays. During this period, 9 rare donors were identified including k-, Di(b-), Lu(b-) and En(a-) phenotypes.
3. Strengthening of the technical capacity: The RBC phenotyping has been complemented with genotyping tools for identification of rare antigens and RH variants. In addition, the serological testing portfolio is being expanded to make the IDCBIS Laboratory as the first Immunohematology Reference Laboratory in Colombia.

4. Communication strategy: An interdisciplinary team (social communicators, web developers, laboratory technologists, and physicians) has designed a strategy to demographically characterize the rare blood donors, inform them about their rare phenotypes, explain them the importance of being blood donors, and promote their loyalty to the rare donor program. A webpage for the rare donor registry has been created in a straightforward language for the general audience.
5. Sustainability of the project: In the short term, we will be seeking internal and external funding to establish an active approach for the identification of rare blood donors. In addition, cryopreservation of blood units with the rarest blood groups will be implemented. The long-term goal of the project is to convert this rare donor registry into a national program through the articulated work with other blood centers.

Although the IDCBIS rare donor program is at an early stage, the effort and long-term commitment of its founders warrant the articulation of a Colombian Rare Donor Registry with the WHO International Rare Donor Panel (IRDP).



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## Voluntary blood donation program on 100th birth anniversary of father of Bangladesh

**Blood is the life saving intervention especially for patients with acute blood loss. In Bangladesh too, blood transfusions are needed for a wide range of health conditions including anaemia, complications during pregnancy and childbirth, severe trauma due to accidents, and surgical procedures.**

17th March 2020 was the auspicious 100th birth anniversary of the father of our nation, Bangabandhu Sheikh Mujibur Rahman. Each year, it is observed as National Children's day in his memory.

This year, the entire nation planned to celebrate the birth centenary on a large and elaborative scale. But, due to COVID-19 outbreak, this day was observed in a small way. The Transfusion Medicine Department of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka organized blood donation and motivation programs and a free blood grouping session. It also included educational and awareness programs for the general public on the importance of maintaining physical distancing, cough etiquette, hand hygiene and use of masks during the COVID-19 outbreak.

Honorable Vice-Chancellor of BSMMU, Professor Kanak Kanti Barua formally inaugurated the program and highlighted the importance of voluntary blood donation and appealed to the public to donate blood on their birth-days and other national and international days especially on upcoming World Blood Donor Day on June 14. Experts from Blood Transfusion Society of Bangladesh (BTSB), members of Bangladesh chapter of Asian Association of Transfusion Medicine (AATM) as well as officials from World Health Organization were present. The program was also attended by the dean, chairman, ex-chairman, teachers, registrar, additional registrar, vice-president of AATM-International, proctor and staff of the university as well as transfusion medicine experts of other medical colleges in Dhaka.

Due to prevailing COVID-19 situation, physical participation was less in the ceremony, but a generous number of volunteers came forward to uphold the spirit of volunteerism. Their enthusiastic participation made the program a success. Upon knowing their blood groups in ABO/Rh testing session, many participants got motivated to donate their blood. On this occasion, 41 units of whole blood were collected and 358 tests for blood grouping were performed.

All public health control and preventive measures for COVID-19 were followed. On this auspicious day, it was decided to keep all the blood banks open 24x7 to collect as many blood donations as possible to meet the unmet needs of blood and blood products thereby making blood accessible and available to the hospitals for clinical transfusion requirements of patients during this challenging time.

The fond memory of the Father of the Nation shall always prevail in the hearts of people of Bangladesh.

Inauguration of the Transfusion Medicine Department of the then Institute of Post Graduate Medicine and Research (IPGM&R) by the Father of Nation Bangabandhu Sheikh Mujibur Rahman in 1972.



Inauguration of Mujib 100th birth anniversary blood donation camp by Honorable Vice Chancellor Prof. Kanak Kanti Barua and other syndicate members



**Edson W. Mollel**  
Northern Zone Blood Transfusion Centre  
Tanzania

## Workshop on implementation of quality management system among blood collection team leaders

**Blood collection event is an organized activity that requires a systematic approach. There are important principles, that have to be adhered in order to collect blood which meets the required standards and that can be used to save lives. According to international standards, there must be an established team and having necessary equipment and infrastructure. Each team has members who play an important role in the whole process of blood collection process: from blood donors' recruitment and mobilization process, blood donors selection procedures, physical examination and counselling, blood donation, transportation of blood units and blood samples within the appropriate temperature to blood storage. According to African Society of Blood Transfusion (AfSBT), the team has to comprise a minimum of seven members; a driver, a blood donor recruiter, a data clerk, a counsellor, one lab personnel and two phlebotomists. Each team has to have a team leader who organizes and supervise the performance of the team on each mobile donation session.**

This training aimed to train only team leaders from blood collection teams of Arusha, Kilimanjaro, Tanga and Manyara, as it was not yet practical to teach every team member. These team leaders are expected, in return, to teach their respective teams on appropriate conduct of blood collection and good principles of Quality Management System (QMS).

The training was conducted at Moshi, Kilimanjaro with lecture presentations followed by short discussions. Finally, a WhatsApp group was formed, which includes all participants and some members from Northern Zone Blood Transfusion Centre (NZBTC), so as to facilitate easy communications, and sharing of experience with each other. The group will also act as the catalyst for further improvement and sustainability.

The following action items were agreed, and that all team leaders would do their best to achieve the set targets:

1. To increase blood collections, using different techniques and tactics shared in the forum
2. Each council will start to share the donation plan with others, as well as share its implementation every week
3. Each council should follow all the standards required, and make sure they have all the necessary documents (Guidelines, SOPs, forms, etc) from NZBTC
4. Proper samples packaging, transporting and storage



### Acknowledgement

NZBTC would like to thank the ISBT Academy for its continuing support in improving blood collection and related training for Tanzania health workers. These trainings have really made a difference, in that we have been able to succeed in establishing blood collection teams in the Regions of Northern Tanzania. But also, we have been able to provide the very fundamental knowledge on appropriate standards of blood collections to blood collection team leaders, throughout the Zone.

We are also very grateful, to the TNBTS Headquarter for the concurring support, to facilitate the implementation of the training. Lastly, but not least, we thank all facilitators and all participants.



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