Blood is the gift of life and we seek to provide a safe, secure and sustainable blood supply for all patients in Singapore. To do so, we are constantly trying to improve the donation experience to encourage regular donations, and ensure the safety of our blood supply through our adherence to stringent safety protocols and the adoption of new technologies.
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Enhancing Donors’ Experience

Our donors are the lifeline for patients. With their altruistic contributions, we can help ensure that there is a regular blood supply for those in need. That is why we are committed to making the blood donation process seamless and a positive experience for our donors.

Donor-friendly Operating Hours

We have revised the operating hours for Bloodbank@Dhoby Ghaut to better cater to our donors’ preferences. From August 2014, donors are now able to donate blood on Saturdays and Sundays between 10am and 5pm. This change was based on visiting patterns of weekend donor traffic. This donor-friendly initiative has enabled more people to come forward to donate during weekends.

Leading Donors to Bloodbank@Woodlands

To enable donors to locate Bloodbank@Woodlands easily and to attract potential donors, several onsite publicity efforts were put in place. In November 2014, escalator stickers were put up and in January 2015, a façade signage was set up to indicate the location of the blood bank at Woodlands Civic Centre.

Going Electronic for Shorter Waiting Times

The apheresis suite at the Bloodbank@HSA has moved from a manual to an electronic system of documentation using handheld personal digital assistant devices (PDA) in September 2014. This has resulted in faster retrieval and tracking of past donation records, and hence, a shorter waiting time for donors. Greater operational efficiency and reduction of paperwork mean that our nurses can spend more time interacting with our donors.

Treasuring Our Donors

Our blood donors and their families had a splash of a time at the 11th World Blood Donor Day on 7 June 2014. Celebrating “Blood: The Greatest Treasure of Life”, 12,000 donors gathered at the Port of Lost Wonder in Sentosa for a carnival of fun, food and performances. Graced by Guest of Honour, Mr Gan Kim Yong, Minister for Health, the event recognised 1,610 awardees for their selfless contributions, with 584 of them receiving the Champion Donor Award.

Enhancing Blood Safety

We strive to enhance blood safety by regularly reviewing our blood testing processes and implementing new workflows, tests and technologies.

Double Checking on Compatibility

Before any blood transfusion is carried out, it is crucial that blood group testing is performed accurately to prevent adverse transfusion reactions. We have introduced a new process to run a second blood verification for new patients who have no historical blood group records, which is aligned to international accreditation recommendations. This serves to enhance transfusion safety and will enable future implementation of electronic cross-matching, if required.

Reducing the Risk of Transfusion Related Acute Lung Injury (TRALI)

As a risk reduction measure, all female apheresis donors who have been pregnant before are screened for antibodies against Human Leukocyte Antigen (HLA). This has resulted in better patient care and reduced incidence of TRALI. In April 2014, HSA began offering the service of screening at-risk female donors to the National University Hospital. Moving forward, we plan to use new HLA antibody screening kits that will include screening of antibodies to Human Neutrophil Antigen, which is also implicated in TRALI.

Introducing HLA-DP Typing to Reduce Transplant Rejection

HLA-DP typing has been introduced as recent reports have suggested that anti-DP antibodies can be associated with allograft rejection and graft loss in kidney transplant. This enables doctors to know whether anti-DP antibodies, if detected in a potential recipient, will react with the HLA-DP antigens or alleles of the donor. It may lead to rejection if the transplant is carried out.

Giving Blood to the Right Patients

Handwritten recipient labels for blood and blood components assigned for transfusion have now been replaced by system-generated labels. This recipient label contains the patient’s particulars and details of the blood unit, which help ensure the correct identification of patients and the overall safety of transfusion.
Maximising Our Precious Resources

Being an effective blood service means constantly making improvements in our processes to increase our efficiency and maximise the use of our resources. At the same time, we need to be prepared for emergencies and ensure workplace safety.

Identifying Problems, Seeking Solutions

Three Lean Six Sigma projects were submitted for poster presentations at the 25th Regional Congress of the ISBT (International Society of Blood Transfusion) in London. These projects, which were completed in 2014, target to gain more yield in platelet collection, reduce excess usage of commercial Antisera in phenotyping, and streamline the work process for retrieval of Fresh Frozen Plasma. Project team members also shared their projects at their quarterly staff meetings. In preparation for their projects, they underwent coaching sessions where they were guided through the application of Lean Six Sigma tools. This has helped accelerate the progress of the project.

Ready for Contingencies

As the national blood service, it is important that we are always ready and prepared for any emergencies. 88 participants from HSA, the restructured hospitals’ blood bank laboratories (BBL) and the MOH Emergency Preparedness and Response Division took part in a tabletop exercise (TTX) in April 2014. The objectives of the TTX were to familiarise the hospitals’ BBL on Singapore’s current blood supply and distribution plans during a mass-casualty emergency. The exercise also facilitated thinking and clarification on tactical issues under various scenarios, which included an industrial accident and a terrorist attack in a crowded MRT station.

Enhanced Workplace and Staff Safety

The safety of our staff is paramount. With this in mind, we have replaced gamma irradiators with X-ray irradiators for the preparation of irradiated blood products. Our staff will be less exposed to radiation risks since no radiating source material is used in X-ray irradiators.

Vital Progress in Research

Our specialised testing laboratories provide high quality and well-managed research services to research institutions and hospitals, to elevate patient care and safety.

Clinical Trial Shows Promise

With its potential benefits demonstrated in several small-scale clinical trials, we have embarked on a large-scale expansion of mesenchymal stromal cells (MSC). This is done by our GMP laboratory for the treatment of patients with graft versus host disease (GvHD). The disease is manifested in some patients after an allogeneic transplant, and MSC infusion is used as an alternative treatment for patients who have exhausted standard GvHD treatment options. The ex vivo expansion of MSC from a bone marrow cell source were carried out in the Cell Therapy Facility, in accordance with GMP standards. To date, these in vitro cultured MSC have been given to two patients successfully.

Clinical Trial Takes Steps Towards Another Cure

We have successfully completed a pre-clinical study to isolate human regulatory T cells (Tregs) from apheresed peripheral mononuclear cells (PBMCs) obtained from nine healthy donors. Tregs constitute a rare population of immune suppressor cells which are of clinical interest for the treatment or prevention of inflammatory diseases and syndromes, including autoimmune diseases, graft rejections and GvHD. Together with A*STAR’s Singapore Immunology Network (SIgN), we developed a protocol for the isolation of these cells, which uses an automated immune-magnetic cell isolation system, as well as customised kits for large-scale production. The first phase of a clinical trial project, in collaboration with the Singapore General Hospital’s Haematology Department and SIgN, will be carried out to determine the feasibility and safety of using Tregs to treat acute GvHD.
Acquiring and Imparting Knowledge

We are on a constant lookout for best blood banking practices to help us do our work better. And while we gain knowledge from others, we also actively share our know-how with our local and regional counterparts.

Sengkang Hospital Training, from April 2014
HSA conducted three successive training programmes to train a total of six blood bank technologists from Sengkang Hospital to enable them to perform pre-transfusion testing for patients in the hospital.

SGH Attachment, July 2014
Five HSAians attended a two-day attachment programme at the Singapore General Hospital Haematology Centre to gain insight into the current transfusion practices and other related services.

Gold Standard in HLA Genotyping
HSA's new Sequence Based Typing (SBT) for HLA genotyping as a routine test implemented in September 2014 has provided a higher level of sensitivity and accuracy in its results to improve the transplant outcome for patients. Validated and accredited by the American Society for Histocompatibility (ASHI), SBT is the gold standard for haematopoietic stem cell transplants which delivers complete sequence information, helping to resolve ambiguities. In addition, our Tissue Typing & Platelet Reference Laboratory (TTPR) has once again passed the ASHI 2014 inspection and remains accredited by ASHI. In the future, we are looking to also offer HLA-DQ and HLA-DP testing for an optimal haematopoietic stem cell match between patient and donor.

GMP Certification for CTT Products
We are proud to have achieved the Good Manufacturing Practices (GMP) certificate for our human cell and tissue-based therapeutic (CTT) products. This certifies that our Cell Therapy Facility has maintained an overall acceptable level of compliance with the Pharmaceutical Inspection Convention/Co-operation Scheme (PIC/S) Guide to GMP for Medicinal Products (Part I) and the relevant annexes.

This also means that we can look forward to potential new projects in cellular skin therapy treatment, adipose tissues, biophysically derived mesenchymal stromal cells for human haematologic applications, and producing GMP or Guanosine-5’-triphosphate (GTP) stem cells.

Immunohaematology Workshop, October 2014
Staff reported enhanced knowledge on red cell serology after attending a workshop which included a knowledge assessment on immunohaematology.

Jurong Health (Ng Teng Fong General Hospital) Training, February 2015
HSA conducted refresher training for four Jurong Health (Ng Teng Fong General Hospital) staff from the Blood Transfusion Services section.
Transfusion Medicine Training

We had the opportunity to share our skills with blood banks from other countries.

**April 2014**
Two delegates from the Clinical Laboratory of Karachi’s Aga Khan University in Pakistan visited HSA to learn about flow cytometry histocompatibility in renal transplant.

**May 2014**
We welcomed 15 delegates from the Macau Blood Centre.

**May 2014**
One doctor from the Bangladesh Haematology Department joined us for an attachment at the Human Leukocyte Antigen Laboratory.

**July 2014**
We hosted medical professionals from the Thailand Red Cross.

**August 2014**
We hosted two medical professionals from the Zambia National Blood Transfusion Service.

**September 2014**
We received five medical professionals from the Indonesia Red Cross, Jakarta.

**January 2015 – January 2016**
A doctor from Sri Lanka is currently undergoing a year-long clinical attachment with HSA for her post-medical doctorate training.

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Study Visit to Hong Kong Red Cross, July 2014

We learned about the various layouts and designs of blood donation centres on a study visit to the Hong Kong Red Cross Blood Transfusion Service Blood Donation Centres. The information gained will aid in the planning of our future satellite blood banks.

Australia Study Trip on Inventory Management System, March 2015

Staff from HSA and the Singapore Red Cross visited the manufacturing facility and National Contact Centre to learn more about the Australian Red Cross Blood Service inventory management and donor management system.

Myanmar “Train the Trainer in Red Cell Serology”, November 2014

In collaboration with the Singapore International Foundation and the Myanmar Ministry of Health, HSA led a series of four “Train the Trainer in Red Cell Serology” workshops which provided skills upgrading for Myanmar’s transfusion physicians and medical technologists in blood serology testing. This was followed by a post-training evaluation upon project completion.

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