Reaching Out to Blood Donors

Our partnership with the Singapore Red Cross for the National Blood Programme entered its eighth year. The number of blood donors coming forward continues to increase annually, with 60,654 donors making 92,454 whole blood and 9,506 apheresis donations in 2008. Donor recruitment programmes focused on the campaign theme of “Are you my type?” that targeted young people between 16 to 25 years and aimed to entrench blood donation as an iconic part of their youth culture.

Every year, World Blood Donor Day is celebrated globally to honour voluntary altruistic blood donors who regularly donate the ‘Gift of Life’ to help those in need of blood transfusion. In 2008, World Blood Donor Day was celebrated in Singapore on 14 June with the theme of “Giving Blood Regularly.” Blood donors were invited to celebrate with their families and friends at the Singapore Zoo. 1,318 Champion Blood Donors were honoured at ceremonies held in the picturesque settings overlooking the lake. 37 bloodmobile organisers were also recognised for their invaluable contributions to the community during the ceremonies.

Continuing with our drive over previous years to make blood donation more convenient, several new initiatives were introduced. To reduce the waiting time for donation, blood donors making blood donation appointments online have the option of completing their pre-donation health assessment questionnaires online before coming down to the Bloodbank@HSA.

The health and safety of our blood donors remains an important area of focus. To protect the iron levels of our blood donors, iron-rich desserts were added to the post-donation refreshments provided. We have also enhanced the care of regular donors with low haemoglobin levels, putting in place programmes to monitor their iron levels and provide counselling on how to improve the haemoglobin levels.

Blood Services Group

As the national blood service, the Blood Services Group of HSA diligently keeps in focus its critical life saving and life-giving mission in every aspect of its operations. Quality and safety are guaranteed through internationally accredited blood bank and transfusion medicine protocols, thus ensuring every patient access to the safest possible blood supply appropriate to clinical need. To lend further impetus to our commitment to deliver a world-class blood service, we continually strive to achieve the highest level of excellence. By judiciously adopting latest knowledge and innovatively adapting new technologies, we maintain our edge in the fields of transfusion medicine, immunohaematology and tissue typing so that we can continue to deliver blood products and services of the highest standards. At the same time, we are actively engaged in cutting edge areas of therapeutic research such as cell processing.
Adopting New Technologies to Enhance Blood Supply Safety and Quality

Maintaining stringent and strong quality systems in blood processing, testing, inventory management and distribution remains the top priority of our Blood Supply Management Laboratories. With rapid advances in blood bank technology, new and improved systems for processing and testing the blood supply are continuously made available. By wisely adopting new technologies that are appropriate to our blood service and continuously adapting existing processes innovatively, we aim to ensure that our national blood supply is efficiently and effectively managed.

New technologies were adopted to ensure that blood donations continue to be screened for blood types and transfusion-transmitted infectious diseases using state-of-the-art systems. New protocols to screen blood donations for malaria were explored to improve the safety of blood collected from donors who had returned from malaria endemic areas. New blood bag systems incorporating sample diversion pouches were introduced, thus reducing the risk of bacterial infection as well as improving workplace safety for our staff.

We are also studying the new developments in pathogen reduction technology that will enable blood components such as platelets and plasma to be treated to inactivate low levels of viruses, bacteria and parasites that may be present. A two-year pilot study is ongoing to assess the clinical use of methylene-blue treated fresh frozen plasma. Research projects are also in progress to study the effectiveness of two types of pathogen inactivation protocols (psoralen and riboflavin) available for platelets.

In addition, much work is taking place to develop effective strategies to manage the blood supply in the face of emerging threats such as dengue, chikungunya and novel influenza strains. Research was also done to assess the risk of non-infectious transfusion complications such as Transfusion Associated Acute Lung Injury (TRALI) and to assess appropriate measures to reduce these risks. Successful strategies must always balance the need to ensure patient safety without compromise to the availability of supply and timely access to blood transfusions when required.
Providing High Quality Immunohaematology and Tissue Typing Support

With introduction of new medical procedures and treatments in our healthcare institutions, it is critical to put in place timely and relevant laboratory and blood transfusion support to assure best possible outcomes for the patient. For example, with the introduction of ABO-incompatible kidney transplants in Singapore, our Immunohaematology Laboratories provided critical laboratory testing to support the treatment.

The Immunohaematology Laboratories also continued to upgrade and expand our capabilities to meet international standards as a red cell reference laboratory. Research projects in the area of molecular-based blood group typing contribute towards the development of expertise in this growing area of transfusion medicine.

The Tissue Typing Laboratory continued to provide high quality support to the haematopoietic stem cell and solid organ transplant programmes in Singapore, as well as some other countries in our Region. To assure that transplant programmes are provided with the best possible laboratory support, the laboratory introduced new techniques of HLA antibody detection based on flow cytometry. Even newer technologies involving more sensitive and speedy methods of antibody detection and identification are also being evaluated, as well as the study of possible genetic sequencing methods for HLA typing in future.

Collaborations with Clinical Colleagues

As a reference centre for transfusion medicine, immunohaematology and tissue typing, we maintain strong links with our hospitals with the aim of providing patients the best possible care through our clinical consultative services.

To ensure that blood and blood components are appropriately transfused for the correct clinical indications, our doctors worked closely with their hospital colleagues to develop robust protocols for handling complicated medical situations needing blood. Such protocols continue to improve the speed and effectiveness of blood transfusion support, for example, during liver transplants and obstetric emergencies.

The National Haemovigilance Programme, initiated in 2003 in collaboration with public and private Hospital Transfusion Committees, continued to function effectively to gather local data to assess the frequency of blood transfusion complications and to enable continued improvement efforts to be taken to reduce such complications. A new initiative has been the inclusion of donor haemovigilance to study the complications associated with blood donation.

The Haemovigilance Programme in Singapore is part of wider groups such as the International Haemovigilance Network (IHN) and the International Society for Blood Transfusion Working Party on Haemovigilance. Through such collaborations, our Blood Services Group is able to compare data and information, as well as to participate actively in the development of international standards, definitions and indicators.
Attaining International Benchmarks of Excellence

We were proud to achieve accreditation in August 2008 by the American Society for Histocompatibility and Immunogenetics (ASHI) for tissue typing and transplant support activities. The guiding principle of emphasizing excellence in all areas of our work enabled our Tissue Typing Laboratory to attain this distinction, which is awarded only upon demonstration of the highest standards of reliability and quality in histocompatibility testing laboratories. HSA’s Blood Services Group is one of only two national blood services in Asia to have achieved this accreditation.

The ASHI accreditation follows our international accreditation by AABB (formerly known as American Association of Blood Banks) for blood banking activities since 2006. The AABB accreditation for blood banking and transfusion activities demonstrates our commitment to advanced learning, continuous improvement and innovation by striving to sustain the highest possible levels of patient and donor care.

KEY STATISTICS
Consolidating Our Position as a Centre for Excellence in Transfusion Medicine

We continued another term of appointment by the World Health Organisation (WHO) as a WHO Collaborating Centre for Transfusion Medicine. As a valued partner of WHO in its work to promote and improve standards of blood supply quality and safety globally, we participated in global and regional expert consultations, fora and workshops to develop appropriate policies, recommendations and guidelines relevant to blood supply quality and safety. We also conducted training programmes covering the full spectrum of our work, sharing our experiences during study visits and attachment programmes involving health officials, blood banks and hospital staff from other countries.

A key initiative with WHO has been the Singapore-WHO Joint Training Workshop on Management of National Blood Programmes. With the support from the Singapore Government and WHO, the workshop has been held annually since 2007 and aims to provide directors and national managers from blood services in the region with knowledge of current concepts and practices in planning, managing and monitoring national blood programmes. It has also served as an excellent platform for close networking and cooperation amongst blood services in our region. The 2nd workshop was held in July 2008, and focused on critical areas such as donor recruitment programmes, human resource management, training and education, inventory and supply management, and clinical aspects.

Through our many strategic partnerships and collaborations, we have been able to participate in valuable information sharing initiatives, significant research and developmental projects, and formulation of wide-ranging international guidelines and policies. An important regional initiative has been the Asia Pacific Blood Network (APBN) of which Singapore is a founding member, and which aims to strengthen regional cooperation and networking, and promote blood safety and efficiency of blood service operations among members. Activities include information updates, comparison of practices, joint purchasing initiatives, regional disaster management and emergency frameworks, formulation of white papers and regional guidelines.

Other major regional initiatives included two training programmes organised with our colleagues in the blood services of Malaysia and Myanmar. The first Malaysia-Singapore Joint Workshop on Blood Donor Management was held at the National Blood Centre in Kuala Lumpur in December 2008. During the two-and-a-half day programme, participants were able to share ideas and information, exchange experiences, and discuss issues of common concern. Through the many lively group discussions, presentations, forums and role-playing activities, the workshop was an invaluable opportunity to further cement the strong ties between the two blood services.

The Blood Group Serology Project is a technical skills training programme jointly organised between HSA’s Blood Services Group and the National Blood Centre in Yangon. Sponsored by the Singapore International Foundation, the three-year programme seeks to enhance the blood serology and clinical transfusion programmes in the blood services in Myanmar. Laboratory and medical staff from our Blood Services Group and the Singapore General Hospital will provide hands-on laboratory training. Since the first training workshop in 2007, significant benefits have been realised and partnerships developed.
Looking Forward to the Future

Exciting developments have been taking place at our Cell Processing Laboratory. Medical advances have demonstrated that different human immune cells may play vital roles in the treatment of cancer and other diseases. The Cell Processing Laboratory enables the selection and expansion of these cells outside the human body in a sterile and stringent manner, so that they can be safely and effectively infused into the patients for treatment.

One particular focus is on a type of immune cell called the natural killer (NK) cells. Researchers in our laboratory continue to study molecular mechanisms underlying enhanced killing of defective cells using NK cytotoxicity, and through this knowledge, developing the means to improve NK expansion procedures.

An ongoing clinical study in collaboration with clinical colleagues from the Singapore General Hospital involved in stem cell transplantation involves the administration of another special type of immune cell called the cytokine induced killer (CIK) cells. CIK cells are cultured in our laboratory and infused into patients with various blood malignancies such as leukaemia.

With the success of the pilot Cell Processing Laboratory and increasing demand for laboratory space, plans are underway to expand it to an internationally accredited Cellular Therapy Facility. With an additional four processing rooms, the future facility will provide a cutting-edge translational platform for clinicians and scientists to scale up promising research protocols in the transition from bench to bedside.

Future research programmes will include developing novel cell therapy products arising from promising findings in genomics, immunology and proteomics. Our new capacities and capabilities will continue to strengthen our valued partnership with hospitals and biomedical research institutions in clinical translational trials. It will also give additional advantage to the thrust towards becoming a regional and international reference centre for new advances in cellular therapy.