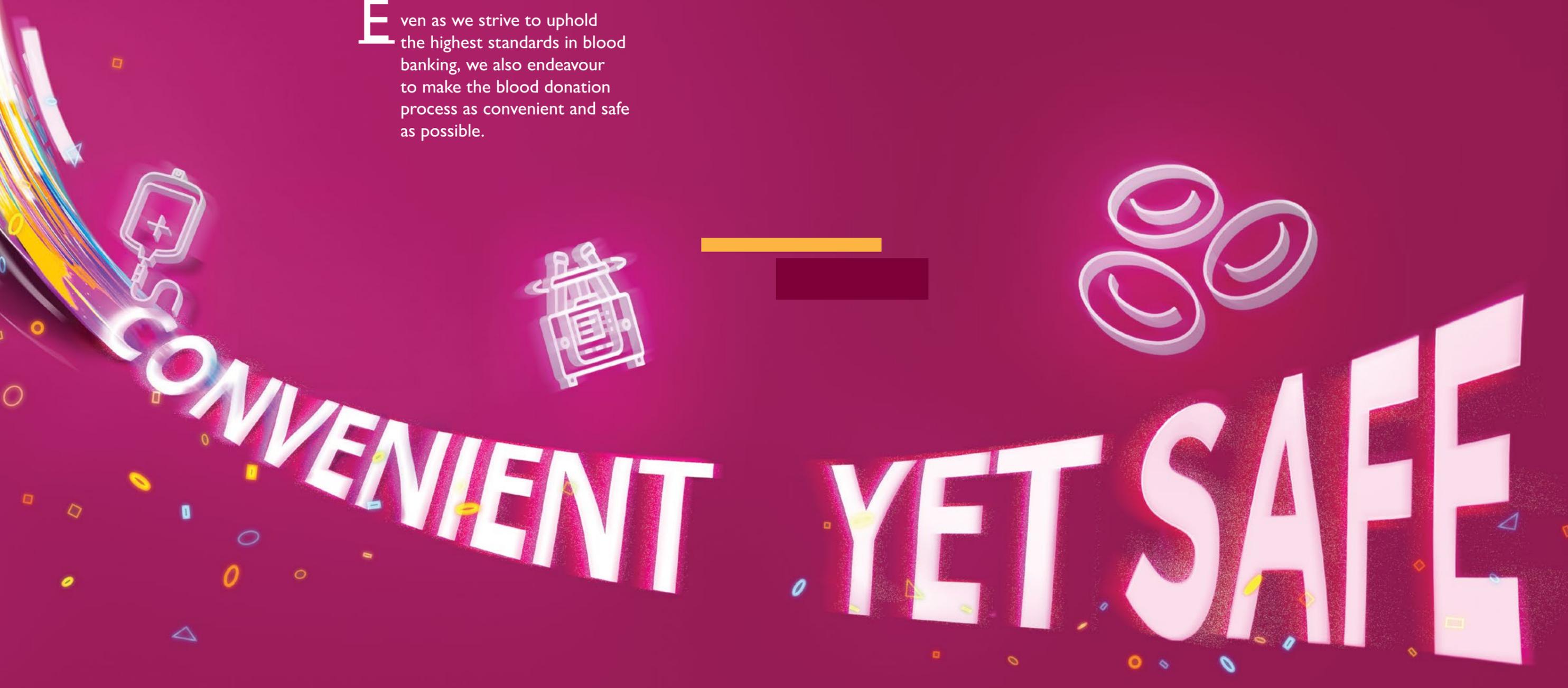


02

BLOOD SERVICES GROUP

Even as we strive to uphold the highest standards in blood banking, we also endeavour to make the blood donation process as convenient and safe as possible.



IMPROVING THE BLOOD DONATION PROCESS

We believe in continuously raising the bar and improving the blood donation experience for our donors.



BLOOD BANK USER RESEARCH PROJECT

In September 2020, we embarked on a Blood Bank User Research Project with Singapore Polytechnic to develop strategies to improve the blood donation experience for both donors and staff, and strategies to engage and retain donors to become regular donors.

As part of our development process, we created a user journey map using different donor personas to gain deeper insights into our current processes. We also worked closely with donors, blood bank staff and Singapore Red Cross staff to co-create solutions.

In line with HSA's efforts to embrace digitalisation, one of our ideas included digitalising functions such as a donor guide, personalised check-in, donation milestone accomplishments, donation care tips and appointment sharing.

With the project completed in March 2021, it is envisioned that we will soon be able to roll out these new initiatives that can improve donor and staff satisfaction, as well as grow our pool of regular donors.

BETTER COMMUNICATION REGARDING THE BLOOD DONATION PROCESS

As part of our continuous improvement efforts, we introduced a donation flow checklist in July 2020 to ensure that donors follow the streamlined blood donation process and do not miss any blood donation station.

For further clarity, we also came up with signage to highlight the various blood donation stations and provided additional verbal reminders to donors to proceed to the next station.

So far, donors have commended the usefulness of the posters in reminding them about the order of stations, while staff have found the checklist to be helpful in identifying donors who may have missed out any of the stations prior to blood donation.

COVID-19 AND BLOOD BANKING

We stepped up and navigated the challenges brought on by the pandemic to secure our blood supply.

ENSURING ADEQUATE BLOOD SUPPLY FOR PATIENTS

The COVID-19 pandemic had an impact on the blood supply, especially during the early phase of the pandemic and during the Circuit Breaker period when the blood collection dipped. To protect the safety of our blood donors and to reassure blood donors and the general public so that they would continue to come forward to donate blood, we rolled out a number of additional precautionary measures such as:

- Pre-screening of donors before they enter the blood donation centres and blood mobiles
- Safe management measures such as placing the donation beds as far apart as possible
- Increased frequency of cleaning of blood banks

With the support of our donors, partners and stakeholders, we managed to bring the blood supply back to healthy levels.

ESTABLISHING SINGAPORE'S CONVALESCENT PLASMA PROTOCOL

HSA worked with the National Centre for Infectious Diseases (NCID) and Tan Tock Seng Hospital (TTSH) to establish the COVID-19 Convalescent Plasma protocol for Singapore. We shared our donor selection and blood collection protocols, and trained staff from TTSH to enable them to collect convalescent plasma from recovered COVID-19 patients. We also extended our service to test and process COVID-19 convalescent plasma for patients' use.



RAISING BLOOD SAFETY STANDARDS

We are committed to our mission of providing safe blood for patients in Singapore.

ADDITIONAL SAFETY PROTOCOL FOR PATIENTS WITH NO BLOOD GROUP RECORD

To prevent the occurrence of incompatible blood transfusions, matching of patient's blood group needs to be performed and historical records are typically used as a means of additional verification.

However, this can prove problematic in cases where patients have no historical blood group records. To enhance transfusion safety, an additional blood sample from patients with no historical blood group records is now required for the confirmation of the patient's blood group.



IMPLEMENTATION OF HEPATITIS E VIRUS (HEV) SCREENING

In 2017, we identified HEV as a potential transfusion transmissible infection through our Risk-Based Decision Making Framework.

After subsequent studies, including a viraemia and seroprevalence study in 2017 and 2018, we proposed that universal blood donation testing by molecular method would be the most appropriate risk management strategy for detecting HEV in donated blood and to ensure the safety of the blood supply in Singapore.

As of June 2021, donor HEV testing has been included as part of our routine screening protocol.



INCREASING OUR EFFICIENCY

Through smarter working processes, we are empowered to deliver greater value to all our stakeholders.

USING ROBOTIC PROCESS AUTOMATION (RPA) TO ENHANCE OUR PRODUCTIVITY

Maintaining records manually is a time-consuming process. Using RPA, we managed to reduce the time spent on these tasks significantly.

RPA for maintaining blood transfusion records

On a typical day, we receive hundreds of blood transfusion records from all hospitals. Our staff then spend hours downloading patients' transfusion records and integrating them into our blood bank's IT system. Further contributing to the tediousness of the process was the need to manually retrieve and return erroneous records to the hospitals for correction.

With RPA, the same task now takes only **2-3 minutes** to complete instead of 2-3 hours previously, giving our staff more time to focus on other higher-value tasks



RPA for maintaining blood donation testing records

We receive an average of 80 blood donation testing reports performed by external laboratories a month which had to be manually uploaded into our IT system, requiring eight man-hours of work.

With RPA, we managed to reduce the time taken to upload these records by **80%**



From taking an average of 8 hours a month to upload records, we now take around **1.5 hours** a month

DIGITALISATION INITIATIVES

Digital transformation goes beyond the adoption of technology into our work processes. It also requires a change in the way we imagine and do things.

SWITCHING TO AN ONLINE DONOR FEEDBACK FORM

By replacing our manual Blood Donor Feedback Form with FormSG, donors can now submit feedback online at their own convenience. This also improves our efficiency in collating and analysing their feedback, which was previously performed manually.



We have managed to channel more than **170** man-hours each year towards higher value tasks



DIGITALISATION OF ALL PATIENTS' DATA AND RECORDS

Over the past year, we have been involved in an exercise to move all of our patients' data and records from 1987 into searchable PDF files. As of December 2020, we have successfully completed the user acceptance testing phase of our Digital Documentation and Online Forms project.

- By going digital, we have:
- Made retrieval of patients' records faster and easier
 - Reduced physical storage formerly required to store hardcopy records
 - Lowered our paper consumption
 - Cut down the waiting time for clients requesting duplicate reports

USING QR CODES TO FACILITATE RECORD-KEEPING

For the Cell Therapy Facility, manually recording material and equipment information on hardcopy forms and electronic records would often result in transcription errors and discrepancies.

To improve accuracy, we introduced the use of QR codes and a 2D barcode scanner, and converted most of the hardcopy forms into electronic records. With this new process, staff just need to scan the QR code to facilitate recording and auto-populate data. This eliminates transcription errors as well as reduces the time required by staff to log information by up to 80%.

Additionally, electronic forms also allow for expired materials to be automatically flagged.

GOING PAPERLESS FOR BETTER EFFICIENCY

Monitoring of temperature in the laboratories and equipment

Maintaining the ideal temperature in the laboratories is important to ensure the accuracy and stability of tests. Recording of temperatures used to be done manually on paper logs.

To improve the process of monitoring the temperature of laboratories and critical equipment, paper logs have now been combined into a single excel workbook, which is updated using a tablet. With this new system, logging is faster, records are cleaner, and abnormalities that require attention can be automatically flagged.

This new system also automatically generates charts which allow for quick and efficient reviews of temperature deviations which occur in the laboratories.

Monitoring the temperature of temperature-sensitive storage devices

The daily temperature readings of storage devices were handwritten on hard copies, which could be messy. For greater convenience and to be more efficient, we introduced digital forms. The readings are now entered into an excel file stored in a tablet.

Formulas are used to check if the temperatures are out of range and any deviations will be flagged out so that staff can take immediate action. Charts can be easily plotted to monitor the temperature trend and performance of the storage devices.