醫療財團法人
台灣血液基金會
捐血救人 Taiwan Blood Services Foundation

2023 ANNUAL REPORT

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Message from the President

Over the past year, thanks to numerous compassionate blood donors and collective efforts from all the parties, the number of blood donations in 2023 reached 1,901,021, which is 26,641 more than in 2022, representing a 1.4% growth. The blood donation rate also increased from 8.08% in 2022 to 8.13%, marking a new high in the past decade and placing Taiwan among the world's leaders in blood donation. The need for blood supply is expected to continue, especially as we face the challenge of maintaining stable clinical blood usage in an era of declining birth rates. Educating the new generation about blood donation is crucial. In recent years, the Taiwan Blood Services Foundation (TBSF) has actively promoted the concept of "rooting down," emphasizing the importance of not overlooking the potential crisis of future blood shortages. As part of this effort, TBSF published Taiwan's first educational graphic book on blood donation, titled "The Children's Illustrated Guide To Blood" designed to help teenagers understand the significance of blood donation. This book was recognized with the "2023 Openbook Awards."

Ensuring the safety of blood transfusion remains a top priority for TBSF. Since 2013, TBSF has implemented comprehensive nucleic acid amplification testing (NAT) for HIV, HCV, and HBV in donated blood, significantly reducing the risk of transfusion-related infections. Over the past decade, there have been no reported cases of patient infections related to blood transfusions, demonstrating the effectiveness of these measures. TBSF's commitment to blood safety was acknowledged with the winning of bronze medal from the "2023 Third Taiwan Sustainability Action Awards (TSAA)" contest for our project titled "SDG 3 Health and Well-being: Ensuring Blood

Safety through Nucleic Acid Testing." To simplify blood matching procedures and enhance patient safety and efficiency, TBSF has introduced the "Comprehensive Blood Group Antigen Testing Program" for blood donors. This program includes testing for 10 primary antigens and 9 secondary antigens, with the antigen information clearly labeled on blood bags for clinical use, improving transfusion effectiveness and patient outcomes.

Healthcare for blood donors is also a priority. Next year, TBSF will expand two "Blood Donor Health Management Measures" previously available only to repeat donors. These measures include screening for three high-risk factors (HbA1c, total cholesterol, LDL cholesterol) and abdominal ultrasound examinations. The eligible age for participation will be lowered from 40 to 35, benefiting more blood donors. Furthermore, TBSF's care extends beyond donors and recipients to environmental concerns. We have been actively promoting the environmental transformation of bloodmobiles, gradually replacing diesel-engine bloodmobiles with electric-powered ones. These electric vehicles are noise-free, emission-free, and environmentally friendly, enhancing the comfort of blood donation. TBSF's efforts in this area were recognized with the winning of bronze medal from the "2023 Third TSAA" contest for our project titled "SDG 13 Climate Action: Establishing an Environmentally Friendly Bloodmobile Fleet."

In response to the automation of operations at the Kaohsiung Blood Center's Anan Blood Component Manufacturing Site and the future construction plans for the Taipei Blood Center, TBSF sent representatives to visit blood centers in Japan. The goal is to plan for automation to replace manual labor and strengthen blood quality. The Manufacturing Center will introduce automation equipment, including Artificial Intelligence of Things (AIoT) technologies to enhance blood component processing, automated blood bank storage systems, and the use of unmanned vehicles for blood and material transport. In addition, routine blood donor testing will be streamlined through the implementation of intelligent automated track systems. We aim not only to learn from Japan's experience but also to understand advancements in other advanced countries, aspiring to be the best in Asia.

Reflecting on the promotion of Taiwan's Voluntary non-remunerated blood donor movement, I always feel extremely touched at all times. After four difficult years of the pandemic, we must still thank the blood donors who have shown great love. These regular blood donors are truly the strongest pillars of Taiwan's healthcare system. It is no exaggeration to call them "Bodhisattvas Protecting the Nation." Looking back and forward, TBSF will continue to ensure a secure blood supply, enhance blood quality and safety, and serve blood donors and recipients. With an ample and safe blood supply, we will progressively promote sustainability, create an environmentally friendly environment, establish a happy workplace, and continue our efforts for society. Let this thread of love that connects our entire society remain unbroken.

Sheng-Mou Hou

President

About us

Our Aim

Upholding the concept of "happy blood donation and safe blood use," the TBSF practices a voluntary non-remunerated blood donation system, insists on strict blood quality control and provides the most complete services for blood donors and blood recipients so as to ensure a sufficient blood supply for clinical uses.

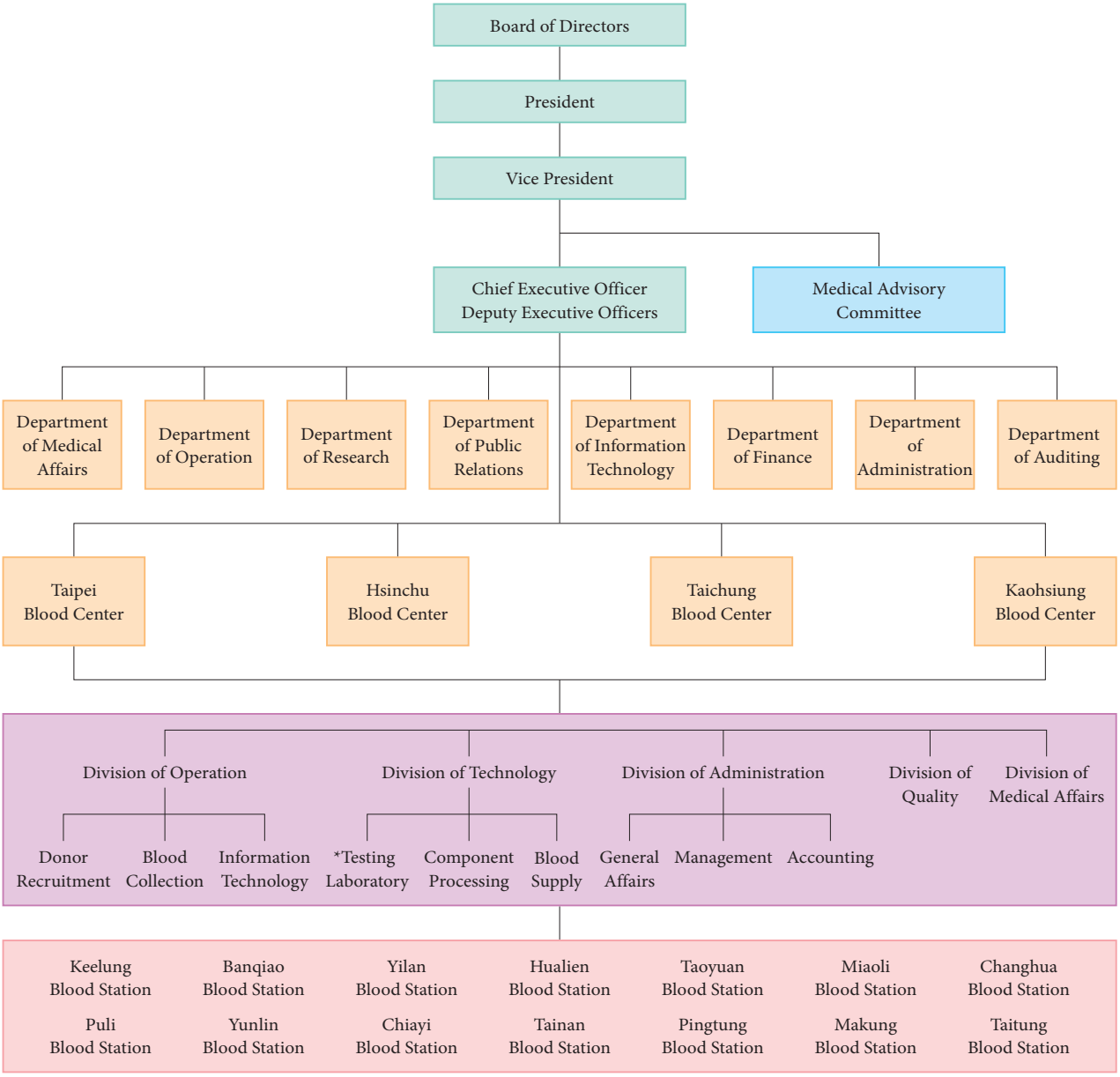
Our Vision

Adhering to sustainable development under the principles of integrity, harmony, efficiency, and innovation, the TBSF vows to become the leader in blood supply for safe clinical uses in Taiwan.

Our Missions

1. To plan and implement blood donation services.
2. To establish blood donation systems, and to conduct research and development on safe blood use.
3. To conduct research on blood science and technology.
4. To collect , laboratory-test, and supply blood for patients of public and private hospital.
5. To conduct research on the health maintenance of blood donors.
6. To conduct matters concerning the use and safety management of blood suitable for transfusion.
7. To plan and supply blood in large quantity at times of major disasters or wars.
8. To commission toll fractionation , to storage and supply domestic plasma derived products.
9. Other matters concerning blood donation and supply.

Organization



Note: * There are 2 centralized testing laboratories in Taipei and Kaohsiung Blood Center.

History of Taiwan Blood Services Foundation (1974~2023)

1974

April • Chinese Blood Donation Association was established.

August • Taipei Blood Center was established.

1975

October • Taichung Blood Center was established.

1976

December • The Kaohsiung Blood Center was established.

1978

July • Taipei Blood Center started the production and supply of blood components, including packed RBC, washed RBC, WBC concentrates, platelets, fresh frozen plasma and frozen plasma.

1981

July • Tainan Blood Center was established.

1983

January • Taipei Blood Center introduced leukocyte and platelet apheresis.

1985

July • Human leukocyte antigen (HLA) laboratory was established.

1987

June • Hospital-based and Red Cross paid donor blood banks were closed by government.

1988

January • Implementation of anti-HIV-I test.

1989

December • To prevent blood donations from high-risk AIDS groups and other unsuitable donors, the Blood Centers started "a conscience call back", whereby donors could call to notify the Blood Centers if the blood donated is unsuitable.

1990

January • Republic of China Blood Services Foundation was established by Chinese Blood Donation Association.

1991

April • Hualien Blood Center was established.

December • The annual blood donations exceeded one million units, and the blood donation rate

reached 5.18%.

1992

May • Hsinchu Blood Center was established.

• Implementation of anti-HCV test.

• Establishment of electronic database of red cell phenotypes.

July • Republic of China Blood Services Foundation was renamed as Chinese Blood Services Foundation.

1993

February • Introduction of HLA-matched apheresis platelets.

September • Building an information management system of blood donation and processing.

1995

April • It is the first time, the President summoned the 28 outstanding blood donors in the presidential palace for annual blood donor recognition event.

1996

January • Implementation of anti-HTLV test.

1997

January • The Minister of Department of Health, Chang Po-ya, and the President of TBSF, Lin Kou-Sin, jointly announced to start the productions of plasma derivative products.

1998

February • Implementation of RBC irregular antibody screening test.

April • The first public umbilical cord blood bank was established. The plan was ended in January 2013.

1999

March • The Blood Centers got approval of the MCA (Medicines Control Agency in UK) and sent source plasma to SNBTS (Scottish National Blood Transfusion Service) for fractionation.

2001

August • Consolidated 6 blood centers' testing laboratories into 2 centralized labs located in Taipei and Kaohsiung blood center.

December • The "TBSF" plasma derivative products started to supply.

2004

October • Chinese Blood Services Foundation was renamed as Taiwan Blood Services Foundation.

2007

January • Implementation of bacteria testing for all apheresis platelets.

2009

September • The archive sample bank built at Hsinchu Blood Center was launched.

2013

January • Implementation of Nucleic Acid Amplification Testing (NAT).

2015

July • The TRALI (transfusion-related acute lung injury) prevention policy was initiated with the following two initiatives: 1) male plasma was prioritized for transfusions. 2) HLA & HNA antibody screening for female apheresis donors.

November • Implementation of cholesterol, LDL-C, and HbA1c tests every 3 years for those who have donated blood in the past 2 years and are above 40 years old.

2016

October • Implementation of the mobile social communication app LINE official account named " i-Blood " with intelligent query, personalized notification and instant push broadcast functions.

2017

February • Haemovigilance reporting system was launched.

April • Hualien blood center was reorganized and merged into Taipei and Kaohsiung blood centers.

2018

August • The new Blood Information Management System based on Internet Data Center was launched.

December • The universal screening of Mia antigen have been introduced.

• The TBSF hosted at the 5th APEC Blood Safety Policy Forum in Taipei.

2019

June • The singer, Miss Fang Wu, our blood donation spokesperson, composed the song to encourage the public to give blood.

November • Testing and labeling of RBC antigens C, c, E, e, Jka, and Jkb for leukocyte-reduced RBCs.

2020

March • Hsinchu Blood Center has added the supply of " irradiation of blood products " since March 1.

March • In response to the COVID-19 pandemic, we have set up the TBSF Epidemic Prevention Command Center.

June • To introduce the concept of patient blood management, we have published the " Practical Blood Transfusion Manual " and distributed it to hospitals.

August • The Hsinchu Blood Center has built a laboratory for "Emerging Infectious disease," which has been since September 25 approved as a "Designated Testing Agency for Reported Cases of Severe Special Infectious Pneumonia" by the Central Epidemic Command Center.

2021

August • Leukocyte-Reduced RBCs are comprehensively supplied to various medical institutions, opening an important milestone for blood transfusion safety.

October • Fubon Financial Holding donated "Taiwan's first electric blood donation mobile - Fubon" to Taipei Blood Center, not only providing a blood donation environment without exhaust gas but also making a contribution to the reduction of carbon dioxide for the earth.

2022

May • The Association of Tsai Ingwen's Friends", a civilian group founded by the fans of President Tsai Ing-wen, donated the "Little Ing" environmentally friendly electric energy blood donation mobile and blood delivery vehicle. The donation ceremony together with a blood donation drive was held in Daan Forest Park. TBSF President Sheng-Mao Hou represented to receive the gifts under the witness of President Tsai Ing-wen and others.

July • TBSF first issued its "2021 Sustainability Report".

2023

March • Each blood center has completed the installation of automatic blood bag labeling machines.

June • On the World Blood Donor Day, Taiwan's first blood knowledge illustrated book specifically tailored for teenagers: "The Children's Illustrated Guide To Blood"was unveiled.

Additionally, this book also received the 2023 Openbook Award.

August • Due to the high sensitivity of nucleic acid amplification testing (NAT), the screening criteria for serum alanine aminotransferase (ALT) has been adjusted to ≦200 U/L as qualified.

OUR PERFORMANCE

OUR PERFORMANCE

Blood Donation Concepts Take Root, Diverse Blood Donation Promotion

2023 Blood Donation Month - "Blood donation is love, because you are there!

The blood donation month in 2023 falls between December 20, 2022 and January 20, 2023. Around the time of the lunar New Year, blood shortages tend to occur. The extended holiday period, combined with cold weather and increased cases of the common cold, leads to a significant decrease in blood donors. To address this, it's essential to proactively manage blood inventory and ensure an adequate supply for patients who may need blood during the holiday season.

On December 20, 2022, Taiwan Blood Services Foundation (TBSF) organized a press conference for Blood Donation Month and

The 2023 Blood Donation Month Press Conference (with Sheng-Mou Hou, President of Taiwan Blood Services Foundation, third from left; Sheng-Tang Wei, CEO, fourth from left)

invited renowned author and young donor to share their experiences.

“The Children's Illustrated Guide To Blood", a general education course on life education for teenagers, won the 2023 Openbook Awards.

To help young people understand blood and the history of human blood donation, TBSF has created Taiwan’s first blood knowledge illustrated book specifically tailored for teenagers: "The Children's Illustrated Guide To Blood". This book uses a combination of images and simple language to help young people understand blood donation information and the importance of donating blood. It was co-published by CommonWealth Education Media & Publishing.

In an effort to introduce the concept of blood donation and saving lives to more young students, TBSF has presented this book to President Tsai Ing-wen. The hope is that, with the President’s support, the idea of blood donation will take root.

TBSF Prisident Sheng-Mou Hou presented “The Children's Illustrated Guide To Blood” to Taiwan President Tsai Ing-wen in the hope that with the President's support, the concept of blood donation will take root.

At the book launch of "The Children's Illustrated Guide To Blood" and the World Blood Donor Day press conference, the VIPs took a group photo with nearly 60 teachers, students and parents in the hope that the vision of blood donation will be gradually realized.

"The Children's Illustrated Guide To Blood" won the 2023 Openbook Awards.

"The Children's Illustrated Guide To Blood" book launch event was held on World Blood Donor Day. Nearly 60 teachers and students from Tamkang High School and self-study organizations were invited to participate. The event provided a comprehensive tour of the entire process of blood donation, from donation to testing, components, and supply. This allowed the young participants to gain a firsthand understanding of the process of blood from leaving the human body to being supplied to hospitals. It also helped them understand that blood is irreplaceable and that the donation and dispensing of blood is a strictly controlled process. The event aimed to instill healthy blood donation concepts in the younger generation and have a subtle and lasting impact.

Additionally, this book also received the 2023 Openbook Awards. The @openbooktaiwan organization, a non-profit book review media, promotes all award-winning books through different means and aims to spark deeper, more diversified discussions through reading. To achieve this, they invited Taiwan's National Library and over 500 public and private libraries across the country to collaborate on an exhibition, showcasing carefully selected excellent books in various towns and cities throughout Taiwan.

Ten-year achievements of NAT implementation

TBSF is marking the 10th anniversary of its full implementation of nucleic acid testing (NAT) for blood safety. Since February 1, 2013, there have been no cases of HIV, hepatitis B, or hepatitis C infection transmitted through blood transfusions, a testament to TBSF's commitment to providing the highest level of safety for medical blood.

Prior to the implementation of NAT testing, there were occasional cases of blood transfusion infections. Determined to prevent such tragedies, former TBSF President, Lin Kuo-hsing tirelessly

advocated for the universal implementation of NAT testing for donated blood. After years of effort, the government finally approved the adoption of NAT in 2013. Combined with existing serological testing (EIA), NAT testing provides a two-pronged approach to detecting HIV, hepatitis B, and hepatitis C, effectively reducing the window period for these viruses.

Establishment of an environmentally friendly bloodmobile fleet conjunction with ESG

Beyond ensuring the balance between blood donation and supply, TBSF is extending its corporate social responsibility and sustainable development principles by actively aligning with government policies and international trends. TBSF has set short-term goals to increase the number of fixed-location or towable blood donation vans to reduce the frequency of diesel blood donation van deployments. In the medium to long term, TBSF aims to partner with corporations, organizations, and the public to gradually replace diesel blood donation vans with fully electric ones. This initiative will address the noise and exhaust emissions generated by diesel blood donation van during operation and blood donation activities. TBSF's environmentally friendly bloodmobile fleet and donor-friendly environment have been recognized with Bronze Medals at the 2023 Third Taiwan Sustainability Action Awards (TSAA) for its "SDG 13 Climate Action: Establishing an Environmentally Friendly Bloodmobile Fleet" and "SDG 3 Health and Well-being: Ensuring Blood Safety through Nucleic Acid Testing."

Promoting Blood Donation Among the New Generation: Diversifying Campus Outreach

"Be the 1" is a global blood donor recruitment program initiated by Abbott Laboratories. The program has been implemented in various countries with different recruitment and promotional strategies. For instance, international football superstar Cristiano Ronaldo has served as a global ambassador for blood donation. In 2016, the program was authorized in Taiwan, with blood donation advertisements featuring Ronaldo displayed in metro carriages and on platforms, capturing public attention.

From April 27 to May 31, 2023, the "Be the 1, Donate and GO+!" campaign was launched in Taiwan. As the population structure shifts towards a smaller and older population, recruiting young blood donors has become increasingly challenging. Educating and promoting blood donation among the younger generation is crucial and must be an ongoing effort. Leveraging social media platforms popular among young people to spread blood donation information through online activities is a necessary approach.

Furthermore, collaborating with entertainers, internet celebrities, and key opinion leaders (KOLs) who are popular among young people to donate blood and exert their influence can encourage the new generation to step up and donate blood. "Donate and Go+" symbolizes a renewed start over and doing something meaningful to empower oneself. The campaign hopes to encourage young people to take action through direct and clear messaging.

Numerous renowned entertainers and KOLs have participated in blood donation drives and used social media to promote blood donation, generating significant buzz.

"Shiba" took to the streets of Taipei to promote the campaign and encourage more people to donate blood.

The Chinese Blood Donation Association, in collaboration with "Shiba Says", a long-time supporter of blood donation advocate, launched the "Your Blood Donation makes Shiba Powerful!" campaign to encourage young people to donate blood. As part of this initiative, limited edition multi-functional pendants have been created featuring adorable "Shiba" illustrations with encouraging messages for blood donors. The goal is to bring warmth and positivity to blood donators.

Delivering Love to Remote Villages: Heartfelt Efforts Multiplied

Taiwan Children Are Us Foundation (CAUF), founded by parents of individuals with intellectual disabilities, is a non-profit

organization dedicated to providing lifelong care and education for these individuals, transforming their lives and changing the perception of values associated with intellectual disabilities. Since August 1, 2023, TBSF and CAUF have been working together to provide a unique initiative: blood donors can redeem 20 donation points for four heart-filled meal boxes prepared by CAUF individuals. These meal boxes are then delivered to elementary schools in remote areas, providing nutritious meals to underprivileged students, allowing them to focus on the study and thrive. This initiative not only benefits underprivileged children but also empowers the CAUF individuals by providing them with job training, a sense of purpose, and a stable source of income, easing the burden of their families.

International Exchange

Daumantas Gutauskas, Director of National Blood Center of Lithuania, visited Taiwan to learn about the country's world-leading blood donation rate and exchange ideas on blood donation and supply processes. On June 8, he visited Taipei Blood Center to observe various aspects of blood operations, including donation procedures, blood component processing, testing, and blood supply.

Ho Lai Kei and Lam Siu Yuk, two senior nurse practitioners from Hong Kong Red Cross Blood Transfusion Service, visited Taipei Blood Center for four days from August 14 to 17 to share their experiences and learn about Taiwan's practices.

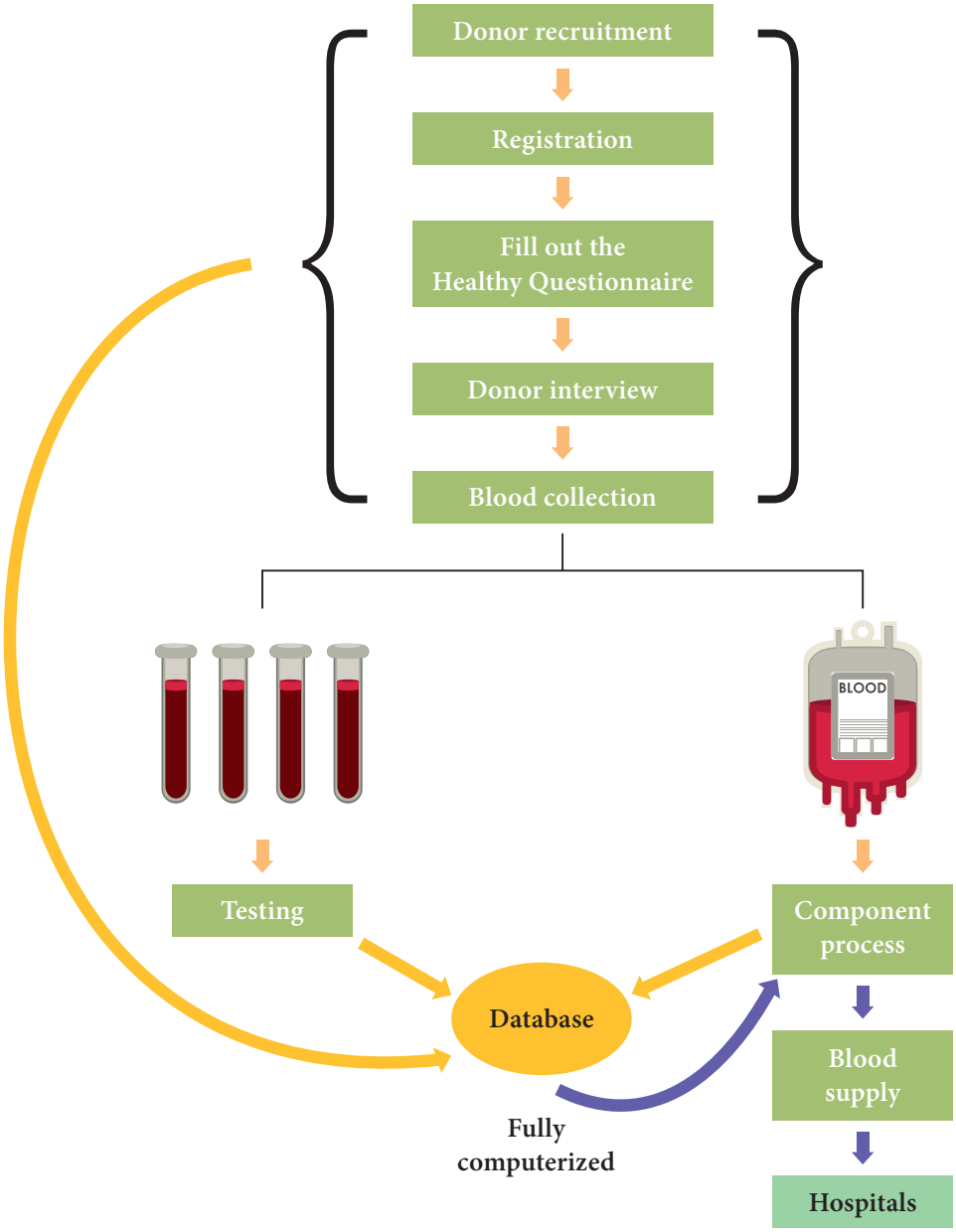
The focus of their visit was to gain an in-depth understanding of Taiwan's apheresis platelet donation techniques and management practices. This included sharing

Daumantas Gutauskas, Director of National Blood Center of Lithuania visited Taipei Blood Center.

International visitors' photo (From left to right: Li Lei, Director of Public Relations, TBSF; Yu-Ping Lin, Chief Nursing Officer, Nanhai Blood Donation Room; Sheng-Tang Wei, Executive Director, TBSF; Lam Siu Yuk and Ho Lai Kei, Nurses, Hong Kong Red Cross Blood Transfusion Service.)

experiences on topics such as electronic questionnaires for apheresis donation, apheresis donation appointment systems, donor safety considerations and care, apheresis donor recruitment strategies, and apheresis donation nursing skills training.

Blood operation process



The production of each bag of blood results from regional blood donation activities held after the evaluation and planning by the Donor Recruitment Section of the Blood Center. The personal information of each blood donor is filed and stored after the blood donor completes the blood donation registration form, the physical examination interview, and the blood collecting process. Then, each tube of collected blood is sent to the Laboratory for viral, biochemical, & blood-type testing. The testing results are automatically delivered to the computer for product labeling. Each blood bag is sent to the Blood Component Processing Section to be further processed, such as packed RBCs, platelets, and so on. Finally, each qualified blood unit will be sent to the Distribution Section based on the need of the hospitals.

Blood donation operation process

A "Private Interview Space" is arranged in each blood center, blood donation room, and blood donation van so that each blood donor can honestly complete the survey and relevant questions in private surroundings. The following is an introduction to the blood donation process:

A photo ID, such as an Identification Card of Taiwan is needed to verify the identity of a blood donor during the blood donation process. In 2023, more than one million people donated their blood so the blood supply reached approximately 6 billion milliliters.

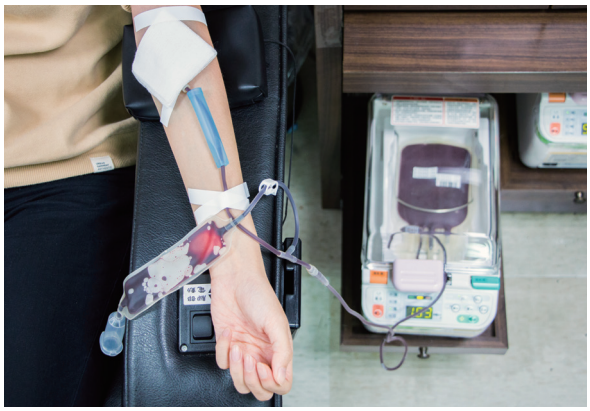
Each person needs to fill in the blood donation registration form, which in addition to basic information, also asks questions concerning recent individual health status and whether there is a high risk of sexual behavior and other issues that need to be answered honestly. Lastly, each person needs to sign the form.

Inside the blood donation van, each seat is equipped with a monitor that plays a health lesson video about blood donation to remind blood donors of the importance of blood safety.

The "Private Interview Space" is arranged to enable blood donors to honestly answer the questionnaire and related questions in private surroundings.

In addition to measuring weight, body temperature, blood pressure and hemoglobin, a staff will provide health education about blood safety and ensure that the blood donor is qualified. This is the first step for blood safety check.

The “Conscience Call Back” sheet can remind blood donors to call the blood center back via the phone number on the sheet to ensure appropriate follow-up treatment of the blood can be carried out if they have not told health professionals of high-risk behaviors or any issues that they think may affect the safety of the blood.



During the blood collection process, each blood bag is put in the automatic oscillator for weight measurement, and the quantity of collected blood is monitored to protect the safety of blood donors.

Each blood donation will have four sample tubes reserved. Three of them are for blood grouping, biochemical and infectious disease test, and the rest one is for archive storage.

The collected blood will be temporarily stored in a temperature-controlled container to maintain quality.

In the bright and open blood donation rest area, snacks like cookies and milk are served. Magazines and TVs are also provided in the area so that blood donors can relax after the process.

The collected blood and tubes will be delivered to the blood center by professionals in dedicated incubators and trolleys.

The following table lists relevant criteria and conditions for blood donation:

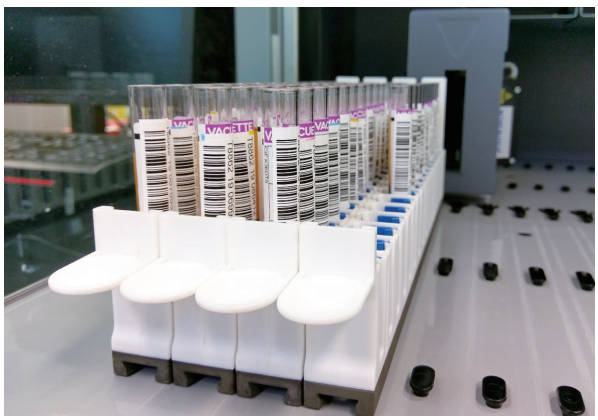
	Whole blood		Platelet apheresis	
Volume	250 ml	500 ml	1 unit	2 units
Age	17-65	17-65	17-65	17-65
Body weight	male: 50 kg female: 45 kg	60 kg	60 kg	60 kg
Oral Temperature	35.5~37.5°C			
Hemoglobin	male: 13g% female: 12g%			
Platelet count			180,000/uL	Trima: 250,000/uL MCS: 300,000/uL Amicus: 250,000/uL
Interval	2 months	3 months	2 weeks	
Max donations per year	male: 1,500 cc female: 1,000 cc		24 donations	

Blood testing

Donor screening is mainly performed in two sites, Taipei and Kaohsiung. Routine donor screening includes ABO, D, Mia antigen, irregular antibody, ALT, HBsAg, anti-HCV, anti-HTLV, anti-HIV, syphilis, and nucleic acid testing (HBV, HCV, and HIV). Testing volume is around 5,000 per day using fully automated testing equipment. Test results are delivered via an exclusive network to each blood center to meet the goals of speed, accuracy, and safety.

The testing procedures are as follows:

The specimen centrifugation.



Tube ranking.

Alinity s:

Test for HBsAg, anti-HCV, anti-HTLV, anti-HIV, and syphilis.

Beckman PK7400:

Test for ABO, D, Mia, C, c, E, e, Jka and Jkb.

Canon TBA-nx360:

Test for ALT, Cholesterol, and LDL-Cholesterol.

Procleix Panther:

Test for HBV, HCV, and HIV

Donor services

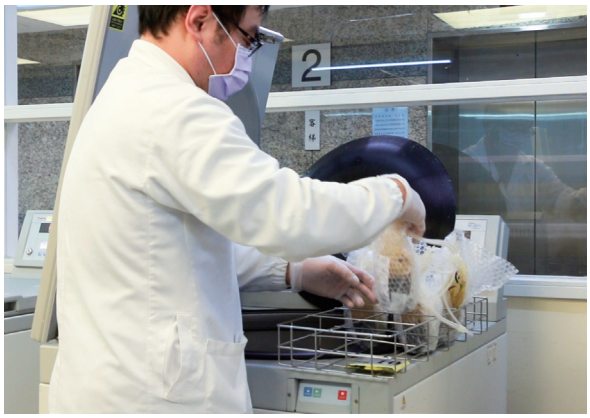
In addition to the routine donation testing, our Foundation has performed total cholesterol, LDL-cholesterol, and HbA1c test for regular blood donors of 40 years old or more.

Component processing

After non-remunerated blood donated is returned to the blood donation center, it will go through the counting process, computer input, blood component processing, checking and bacteria testing (Apheresis platelets) to be made into a variety of final blood products. These final products will be supplied to each hospital for patient blood transfusions after undergoing strict blood testing processes.

The number of blood units is counted and recorded in the computer.

Generally, blood will be sent to the Component Process Section within 8 hours of blood collection.



Based on different centrifugal criteria, different final blood products can be produced.

Blood can be separated into plasma in the upper layer and red blood cells in the lower layer based on the principle of different blood composition density. The automatic blood components extractor can squeeze plasma out into adjunct bags to be sealed.

Packed RBC is sealed into four sections for blood group testing and cross matching in the future.
Each blood bag tubing has a unique section number for further tracing, checking, and testing.

Using a leukocyte reduction filter or inline filtration blood bags, white blood cells are removed to make the blood safer for transfusion recipients.

Every blood bag has a unique barcode and blood type label for further tracing, checking, and testing.

Qualified blood products are put in blue baskets while unqualified ones are put in red baskets; while ones with quarantined blood products are put in green baskets, and ones that have not been examined are in yellow baskets.

Each qualified component needs to be labeled and placed neatly in blue baskets. These items are then managed in the warehouse according to different temperature conditions.

Separated plasma and each final product needs to be carefully placed neatly to avoid stacking for uniform freezing.

Bacterial testing

Each unit of apheresis platelets is supplied only after passing bacteria testing to ensure the safety of transfusion recipients.

The preservation time, temperature, and material cost for each final product are listed in the table below:

Component	Expiration	Storage temperature	Cost (Dollar/ unit)
Washed red blood cells	24 hours	1~6°C	675
Deglyceride Frozen RBCs	24 hours	1~6°C	1,375
Whole blood	35 days	1~6°C	575
Leukocyte-Reduced RBCs	35 days	1~6°C	925
PLT Concentrate	5 days	20~24°C	300
Apheresis platelets	5 days	20~24°C	4,300
Pre-storage Leukocyte-Reduced Apheresis Platelet	5 days	20~24°C	7,300
White blood cell	1 day	20~24°C	300
Cryoprecipitates	1 year	< -20°C	150
Fresh frozen plasma	1 year	< -20°C	300
Frozen plasma	5 years	< -18°C	200

Distribution

The management, allocation, and transportation of blood for medical use are monitored based on the strictest standards in the five blood donation centers. The blood storage warehouse in each blood donation center sets different conditions for preservation temperature, environment, and equipment for different blood products. Blood supplies for hospitals are always available 24 hours. Specific refrigerator vans for blood freezing/storage are responsible for the allocation and transportation of blood for medical use in each hospital blood bank.

Current blood supply channels include five blood centers, 13 blood stations, and several proxy-supply hospitals. Each blood storage warehouse of a blood center is equipped with a central temperature monitoring system to monitor blood temperature 24 hours/day. In addition to written documents, relevant information about temperature is filed and stored in electronic files so the records are more complete and accurate, and both the blood items and the equipment are safer and more secure. Each blood transportation vehicle of a blood donation center is equipped with the latest cold-storage/freezing system to monitor whether the temperature is stable and maintained within the standardized range so that the quality of each blood item can be ensured. Blood supplies are currently classified into two categories: individual and group. Individual blood supply refers to the approach for an individual to get blood from the blood center when patients in hospitals that neither have blood banks nor a signed group-supply contract for the need of a blood transfusion. Group blood supply refers to hospitals that have blood banks or have signed a "group-supply contract" with a blood center. With this approach, the blood center will regularly deliver blood products needed to each hospital for storage so that blood is ready for transfusion at any time. Meanwhile, each blood center has established a list of blood donors filed by red blood cell antigen. If a blood usage emergency occurs, the center will contact blood donors for immediate support.

The blood supplies of each blood center are available to hospitals 24 hours/day.

The quantity of stored blood in each blood center needs to be maintained at more than seven days for safety concerns. Four to seven days of storage are a bit lower, while less than four days of storage is considered dangerous. There is a safe storage quantity signal display set up on the official website of Taiwan Blood Services Foundation so that people can check the latest information of each blood donation center.

Based on the needs of each hospital, final products are put into boxes with clear labels for blood-type and blood item name.

Each kind of final blood product to be dispatched to hospitals will be checked by computer one by one to ensure safety.

Each packaged box of blood items will be put into a dedicated incubator bags.

They are put in specific transportation vehicles according to the temperature requirement of the blood item with temperature-monitored equipment and are ready to be delivered to each hospital.

In line with the health policy of "National blood used by the nation", our Foundation started to collect source plasma in January 2007 to ease the difficult situation of a lack of blood plasma derivatives in Taiwan. The collected blood plasma's original material is delivered by batch to the CSL plasma fractionation factory in Australia to be further processed into blood plasma derivatives. Three blood plasma derivatives of the TBSF are made: 20% Human albumin for Intravenous Use, Human Immunoglobulin for Intravenous Use, and 250IU Blood Coagulation Factor VIII Concentrate.

Research

To improve blood quality and safety, we continue our research programs. All studies have been reviewed by IRB (Institutional Review Board). Our research is primarily published in peer-reviewed journals. We conducted a surveillance study of SARS-COV-2 and its antibody among blood donors after a nosocomial infection in Taiwan, and an evaluation of red cell phenotypes testing using an automated analyzer and commercial kits, these reports were published in AABB or ISBT congress meeting.

Blood transfusion safety

To assist the hospitals in seeking possible causes of blood transfusion adverse reactions, we have established Taiwan Haemovigilance System with Taiwan Society of Blood Transfusion since 2016, which five hospitals (namely National Taiwan University Hospital, Taipei Veterans General Hospital, Far Eastern Memorial Hospital, Linkou Chang Gung Memorial Hospital, and Tri-Service General Hospital) have taken the lead in demonstrating how to send notifications since 2017. In the year of 2023, 79 hospitals have been qualified for notification. It is expected that after the system is gradually expanded to all the hospitals in Taiwan, we will be able to collect and analyze blood data from patients, provide better blood transfusion strategies to solve those issues related to blood donation and transfusion, and help to improve blood transfusion safety. On the other hand, we have re-written the “Handbook of Blood Component Therapy”. Adding the concept of PBM (Patient Blood Management). We published brand new “Handbook of Precise and Practical Blood Transfusion” which has been distributed to hospitals since June, 2020. Due to the continuous advancement of medical technology, we believe it is necessary to revise it.

"Precise and Practical Blood Transfusion Handbook"

We convened the original editors and a review team to re-examine the content in 2021. We officially published the second edition of "Precise and Practical Blood Transfusion Handbook" in May 2022. The content of this guideline is mainly based on indications, supplemented by evidence-based medicine, and provides doctors with a more comprehensive blood transfusion model. We look forward those patients who really need blood therapy could be transfused with various blood components more accurately and effectively, and at the same time achieve the goal of preventing adverse blood transfusion reactions and effectively reducing medical costs, so that the quality of blood transfusion for patients is safer and better. Further, to reduce the risk of transfusion-related acute lung injury (TRALI), the policy of supplying male-donor-predominant plasma has been implemented since July 11th, 2015. Female blood donors for apheresis donation must pass the leukocyte antibody screening, which has led to the reduction in donations of antibody-positive blood. Therefore, more protection is provided for our blood supply.

BMS, blood information management system

The blood donation and supply information management system that was used since 1999, until 2011 the hardware and software were gradually inadequate. All its software and hardware were no longer able to carry and calculate millions of pieces of data. In the face of the leap forward in digital technology and the need to update many functional requirements. Therefore, it is imperative to upgrade the information system. Realizing that the package system may not be suitable for Taiwan, decided to customize it in 2015, re-evaluated its user requirements, network architecture, programming language, and database.

Adopt a cloud website, develop an ubiquitous, intelligent and paperless system, and integrate big data from each blood donation center.

The "Blood Management Information System" enabled in 2018, Undergoing the process of system analysis, program writing, unit testing, integration testing, user acceptance testing, data conversion, parallel testing, environmental construction, and education and training.

BMS with two major features:

Ubiquitous: Let the blood donation cart be able to do blood donation wherever there is a mobile network. The "Blood Donor Area" can download test reports, blood donation records, and make appointments for blood donation. The "Hospital Network Operating Platform" provides online order blood and EDI (Electronic Data Interchange) download.

Intelligence: Automatically review blood donation and blood product eligibility. The establishment of a quarantine code mechanism can set multiple controls and quarantine on blood donors and blood products, and comprehensively control the safety of blood products. The special blood product intelligence matching function improves the quality and efficiency.

TBSF has not only overcome the overwhelming challenge in transferring the information on blood donors that has been accumulated for more than 40 years to the new system, but has also incorporated the databases originally scattered in the blood donation centers across the country into the era of cloud synchronization and virtual and real integration. In the part of the blood donation process, the TBSF has used the cross-platform APPs in the cloud technology to import by a single click the blood donor's data into the database, making the work and service processes even more rigorous and smoother. All high-end information devices are placed in the professional IDC (Internet Data Center) computer rooms, so as to synchronize remote backup and improve system stability and availability.

The biggest change for blood donors is the electronization of the process and the simultaneous uploading of the blood donor data to the database. Blood donors can complete the

registration and health questionnaire on a tablet, and confirm their personal information with a digital signature. As this data collection process is digitized and can be carried out online in advance.

This paperless movement is not only more environmentally friendly but also more convenient in that a blood donor can either insert his or her health insurance card or read the barcode on his or her ID card to get his or her name and other personal information, accelerating the data display time and replacing the manual operation with automation for double certification to greatly reduce human errors. It is particularly worth mentioning that the health questionnaire is designed to be more rigorous. This is to strengthen blood safety management by linking a donor's reply to each question in the front-end health questionnaire to each of the blood products and the control code of donors in the blood management information system.

If any condition that makes someone unsuitable for blood donation is triggered, the system will automatically flag the donor and trace back all their previous blood products, based on the system's preset conditions, forming a completely monitored protection network in the blood safety management.

In order to shorten the waiting time for the blood donors, the Blood Management Information System provides an appointment service for making blood donations. Those who donate whole blood can make appointments in advance within one month, and the system will take the initiative to remind the donors by email 2 days before the appointment date. Those who donate blood by apheresis can make 2 appointments within a month, but if your blood donation conditions are not met, the system will suspend your appointment for blood donation.

In the "Blood Donor Area" system, you can check the previous blood donation records, the next donation date, the records of praise and recognition, and even download the blood donation certificate online. All of these operations can be done not only on a personal computer, but also on your mobile phone or tablet.

The processes and services before and after blood donation are more convenient, and closer to the donors, making blood donation a convenient and simple good thing! For the hospitals, we have also constructed a "hospital network operation platform" on the system. Not only can the hospital blood bank directly subscribe to various required blood products through the platform, but it can also answer in the system such information as blood uses, blood transfusion investigation, blood consultation application, etc. This horizontal integration of the hospital's blood and blood supply operations improves the response efficiency, making the two-way management of blood products more rapidly and more reliably. It not only provides better and more efficient services for the hospitals, but also improves the blood quality for medical uses.

BMS certified by Symbol of National Quality (SNQ) with "Comprehensive Blood Quality Control - The Unique Blood Management System

with Ubiquitous Intelligence in Taiwan". In addition, awarded the Bronze of 2021 National Biotechnology and Medical Care Quality Award in the Public Services, Medical Supplies and Services Category.

Information security issue is never ending

TBSF officially has an ISO 27001 certification in Feb 2022. ISO 27001 is an international standard for Information Security management. It provides a model to establish, implement, maintain and continually improve a risk-managed Information Security Management System (ISMS).

We build the information security system on the Gateway of the TBSF main office and the end points of each of the TBSF Blood Centers so as to strengthen information security and meet the requirements of the regulations. To ensure

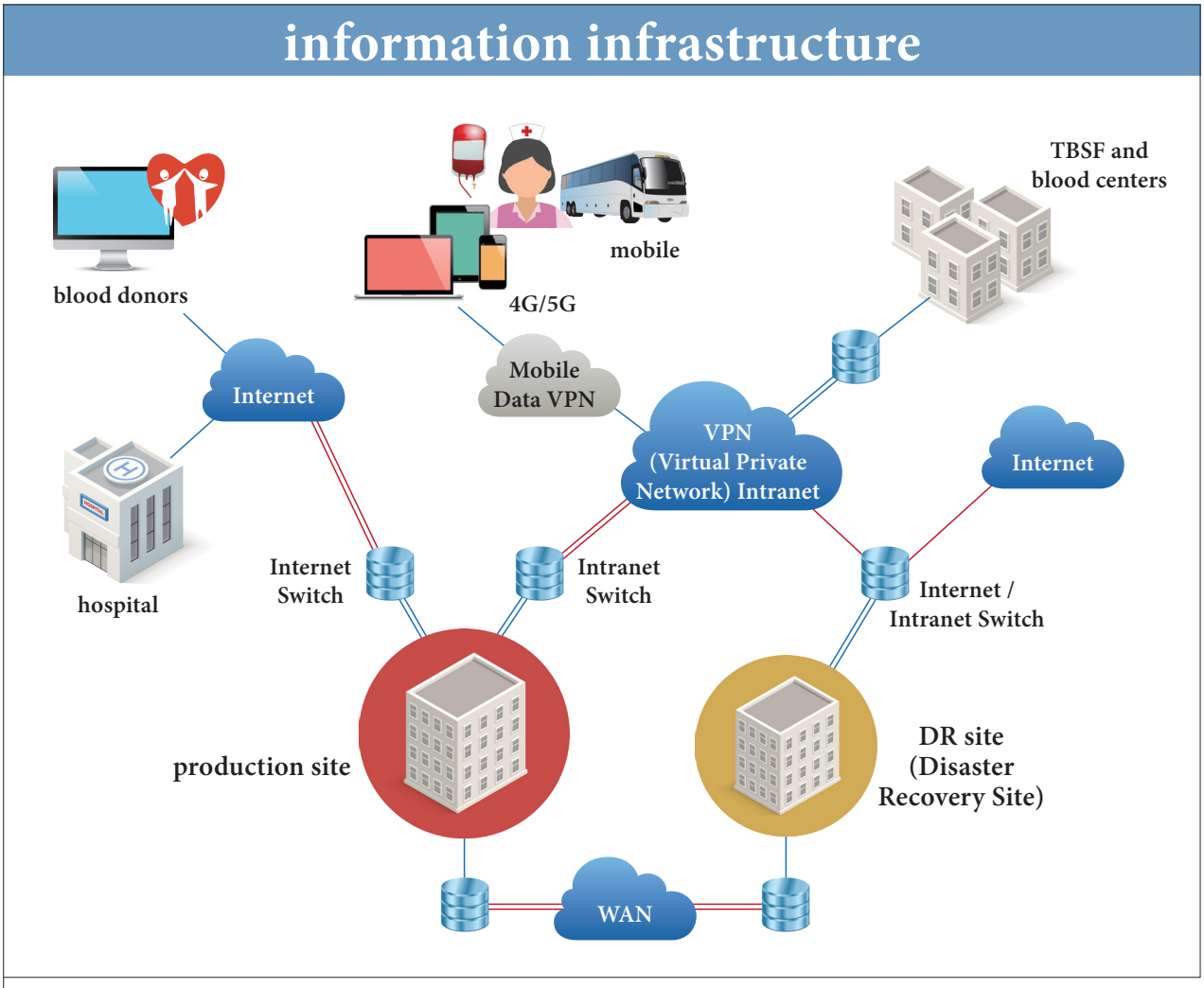


Illustration: The blood donation and supply system is supported by our Foundation's information infrastructure. With high-speed network connections, donor information can be verified quickly and accurately at each donation site.

the security of the TBSF computer information system, we need not only to continuously update the antivirus software, but also to establish the gateway to enhance the filtering of malware and viruses from the email and URL system. When the system judges an attachment of an email to be malicious software, the email attachment will be deleted automatically by the system. We conduct information asset risk assessments on information equipment and materials every year and control the possible risk levels to a low risk range. Outsourcing Security Operation Center (SOC) to continuously monitor and improve security posture while preventing, detecting, analyzing, and responding to cybersecurity incidents.

The enhancement of information security requires a high degree of cooperation from all our colleagues. As everyone must have a correct concept, we hold annual all-round education and training to give lectures and conduct assessments and continue to deepen the publicity of security issues, so that our colleagues can collect, handle and utilize personal information according to relevant laws, administrative orders or internal norms.

Practice of Social Responsibility and Sustainable Development

In 2015, the United Nations proposed 17 Sustainable Development Goals (SDGs) as a guideline for countries to promote sustainable development before 2030 and to address the issues and challenges faced by mankind. Although TBSF is a medical institution, we still must do our best for sustainability.

TBSF has since 2022 officially launched its First Year of Corporate Sustainability and set up its Sustainable Development Promotion Committee, with Chairman Hou serving as its chairman, CEO as its executive member, and the heads of various departments and centers as committee members. They plan, implement and supervise the strategies and actions related to corporate sustainability for our Foundation and four blood centers, so as to gradually accomplish the sustainability goals.

Aiming to provide the most comprehensive services to blood donors and recipients, ensure a secure supply of medical blood, and communicate with stakeholders, TBSF has completed its first 'Taiwan Blood Services Foundation 2021 Sustainability Report'.

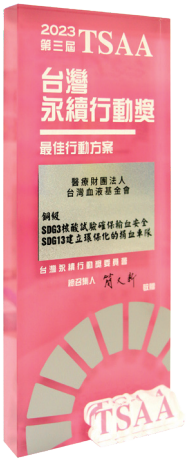
Reward records

2023

"2023 Third Taiwan Sustainability Action Awards (TSAA)" contest for our project titled "SDG 3 Health and Well-being: Ensuring Blood Safety through Nucleic Acid Testing."

"2023 Third TSAA" contest for our project titled "SDG 13 Climate Action: Establishing an Environmentally Friendly Bloodmobile Fleet."

The certification of SNQ (Symbol of National Quality) The Theme: "Establishment of a high-efficiency surveillance laboratory for emergency infection diseases to ensure blood transfusion safety."




SNQ 國家品質標章證書

Certificate of the Symbol of National Quality

台灣血液基金會新竹捐血中心

建立高效能之新興傳染病監測實驗室，確保輸血安全

參加 2023 SNQ 國家品質標章 公益服務類 評選，

經評審委員會三階段審查及決議，核定通過認證，特此證明。

認證效期：至 2024 年 12 月 31 日止

This is to certify that

Establishment of a high-efficiency surveillance laboratory for emergency infectious diseases to ensure blood transfusion safety

by

Hsinchu Blood Center, Taiwan Blood Services Foundation

has been awarded the Symbol of National Quality.

Category: Public & Community Services

This certificate is valid until December 31, 2024

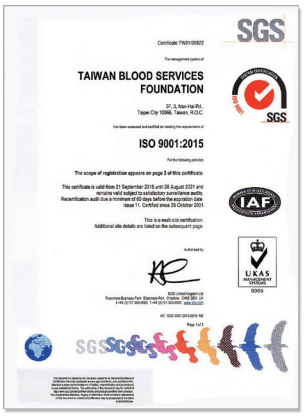
Quality assurance

1999

Approval of the Medicines Control Agency (MCA, UK) to meet their standards of the blood quality.

2001

Implementation of the ISO 9001 quality system.


SGS

TAIWAN BLOOD SERVICES FOUNDATION

ISO 9001:2015

2006

Approval of the Therapeutic Goods Administration (TGA, Australia) to meet their standards of the blood quality.

2010

The testing laboratories accredited by the Taiwan CDC for syphilis, HIV and HCV.

2012

ISO 15189 laboratory accreditation.

2012

GMP manufacturing facilities licensed by the Taiwan Food and Drug Administration (TFDA).

2018

GDP Distribution facilities licensed by the TFDA.

2021

Implementation of the ISO27001 quality system.


SGS

TAIWAN BLOOD SERVICES FOUNDATION

ISO/IEC 27001: 2013

2022

CNS 27001: 2014 accreditation.

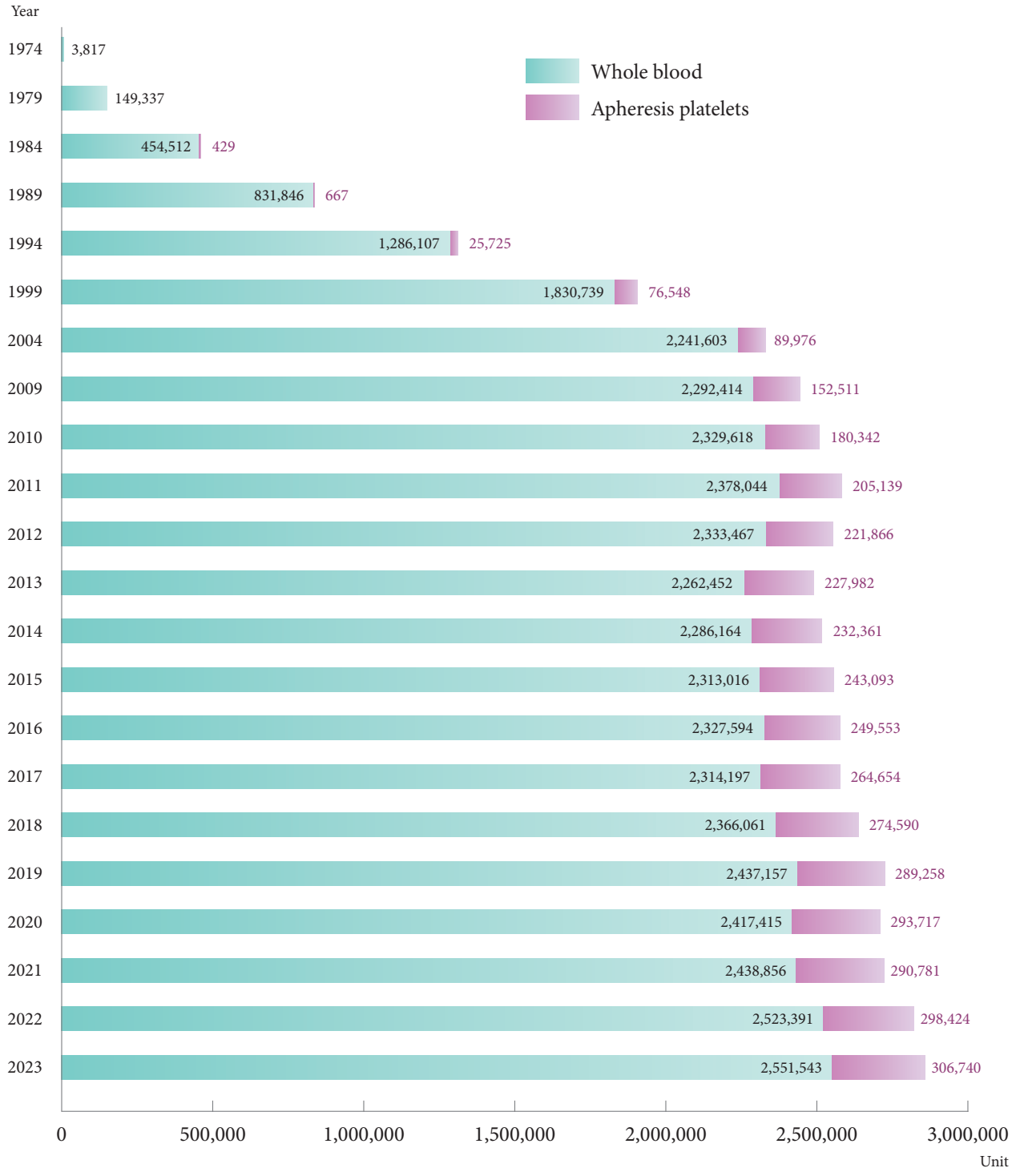

SGS

醫療財團法人台灣血液基金會

CNS 27001:2014

STATISTICS

Annual blood collection, 1974-2023



Note: 1. 250ml per unit for whole blood and 500ml counts for 2 units.

2. Single adult dose per unit for apheresis platelet and double dose counts for 2 units.

Annual blood collection by blood centers, 1974-2023

Unit

Year \ Blood centers	Taipei blood center	Hsinchu blood center	Taichung blood center	Tainan blood center	Kaohsiung blood center	Hualien blood center	Total
1974	3,817	-	-	-	-	-	3,817
1979	92,730	-	24,723	-	31,884	-	149,337
1984	187,362	-	101,219	60,123	106,237	-	454,941
1989	312,578	-	231,199	119,179	169,557	-	832,513
1994	406,604	161,765	252,889	173,297	252,897	64,380	1,311,832
1999	553,940	266,497	378,516	257,309	360,060	90,965	1,907,287
2004	642,945	333,898	489,079	321,441	437,362	106,854	2,331,579
2009	718,841	326,619	487,230	382,251	420,616	109,368	2,444,925
2010	738,274	343,531	500,298	389,938	423,333	114,586	2,509,960
2011	753,611	347,807	507,104	405,553	453,274	115,834	2,583,183
2012	752,304	343,225	504,362	405,409	434,767	115,266	2,555,333
2013	737,642	336,853	487,170	401,442	414,876	112,451	2,490,434
2014	743,926	337,408	485,767	409,314	431,181	110,929	2,518,525
2015	744,106	355,943	498,956	418,909	423,721	114,474	2,556,109
2016	771,779	364,244	507,973	421,457	447,145	64,549	2,577,147
2017	841,241	360,146	520,231	420,428	436,805	-	2,578,851
2018	869,019	373,358	536,306	424,617	437,351	-	2,640,651
2019	894,031	393,568	551,889	426,291	460,636	-	2,726,415
2020	896,115	387,625	620,102	362,506	444,784	-	2,711,132
2021	860,089	391,556	643,307	375,515	459,170	-	2,729,637
2022	888,189	414,233	665,895	378,916	474,582	-	2,821,815
2023	907,568	427,890	683,462	-	839,363	-	2,858,283

Note: 1. Total blood collection units: calculated by both whole blood and apheresis collection.

2. 250ml per unit for whole blood and 500ml counts for 2 units.

3. Single adult dose per unit for apheresis platelet and double dose counts for 2 units.

Blood and blood components issued in 2023

1. Whole blood

Unit

Blood \ Blood centers		Taipei blood center	Hsinchu blood center	Taichung blood center	Kaohsiung blood center	Total	%
RBCs	Whole blood	7,081	4,690	1,320	2,488	15,579	0.63
	Washed RBCs	7,605	1,764	3,023	8,982	21,374	0.86
	Leukocyte-reduced RBCs	763,770	361,935	596,525	732,160	2,454,390	98.51
	Frozen thawed deglycerolized RBCs	2	2	0	0	4	0.0002
Subtotal		778,458	368,391	600,868	743,630	2,491,347	100.00
Plasma	Fresh frozen plasma	317,895	150,124	243,942	262,841	974,802	85.10
	Frozen plasma	40,532	29,997	42,067	58,107	170,703	14.90
Subtotal		358,427	180,121	286,009	320,948	1,145,505	100.00
Cryoprecipitate		145,492	53,394	105,512	104,270	408,668	
Platelet concentrate		296	2,486	1,928	0	4,710	
WBC concentrate		9,350	350	276	16	9,992	
Total units issued		1,292,023	604,742	994,593	1,168,864	4,060,222	

2. Apheresis

Unit

Blood \ Blood centers	Taipei blood center	Hsinchu blood center	Taichung blood center	Kaohsiung blood center	Total
Apheresis platelets	37,200	8,103	16,792	23,072	85,167
Leukocyte-reduced apheresis platelets	80,617	27,824	49,005	60,790	218,236
Total	117,817	35,927	65,797	83,862	303,403

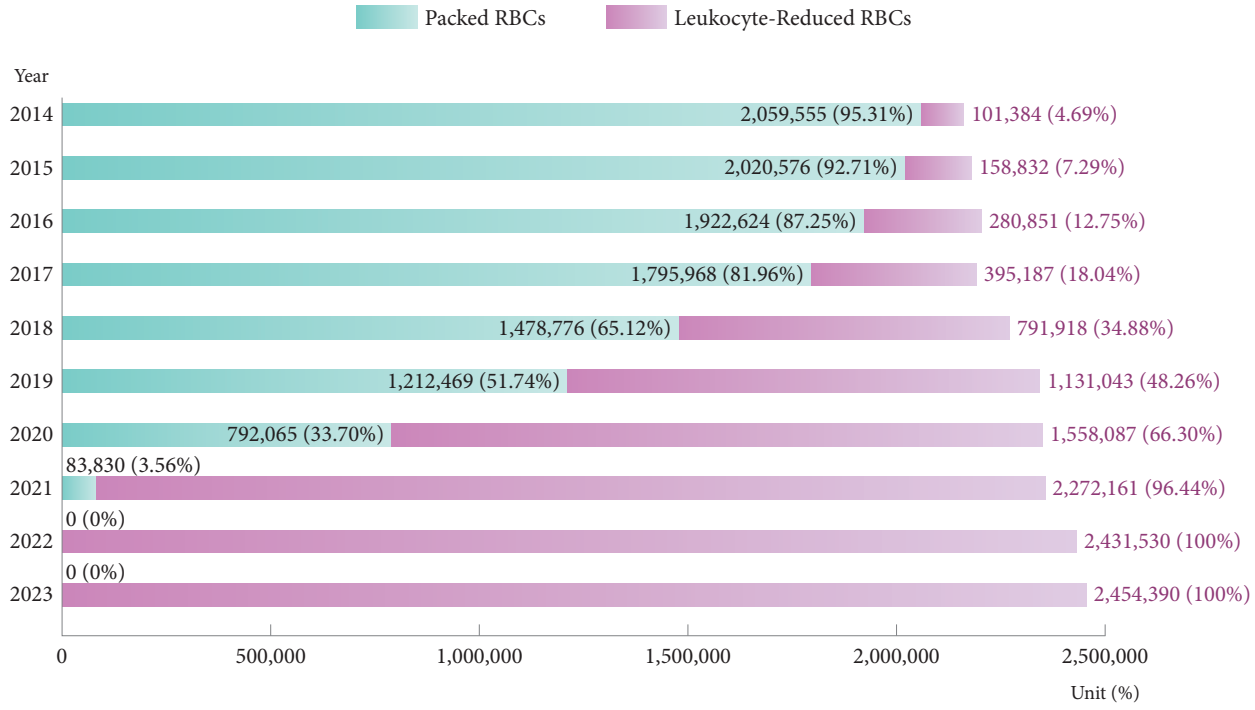
Note: 1. 250ml per unit for whole blood and 500ml counts for 2 units.

2. Single adult dose per unit for apheresis platelet and double dose counts for 2 units.

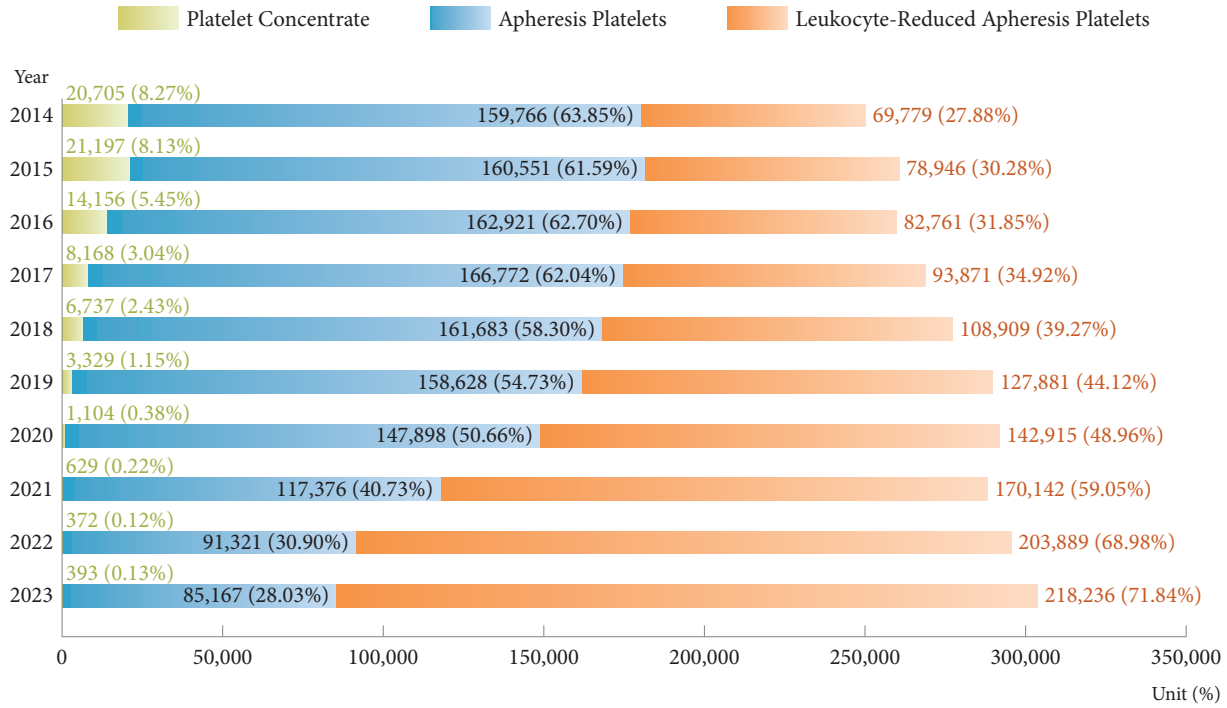
3. The plasma numbers issued are for medical usage only,plasma for fractionation not included.

Annual blood supply, 2014-2023

Red blood cell products



Platelet products

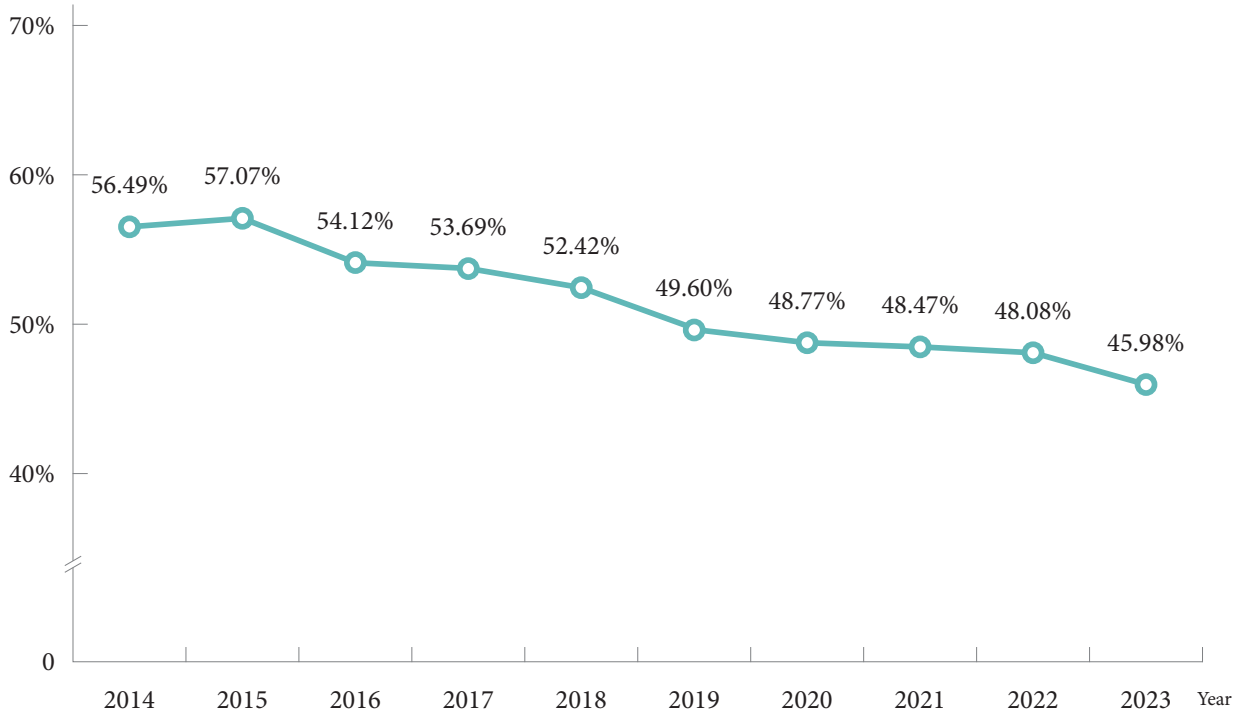


Note: 1. 250ml per unit for whole blood and 500ml counts for 2 units.

2. Single adult dose per unit for apheresis platelet and double dose counts for 2 units.

3. Platelet concentrate per dose for adults 12 units.

Supply rate of plasma products/red blood cell products, 2014-2023



Note: supply rate= plasma products supply donation/red blood cell products supply donation.

Types of blood donation in 2023

Donation

Type / Blood centers	Whole blood					Apheresis					Total
	250ml	%	500ml	%	Subtotal	Apheresis - 1U	%	Apheresis - 2U	%	Subtotal	
Taipei blood center	284,680	52.90	253,512	47.10	538,192	30,478	41.65	42,693	58.35	73,171	611,363
Hsinchu blood center	142,551	53.57	123,568	46.43	266,119	8,041	34.78	15,081	65.22	23,122	289,241
Taichung blood center	207,372	50.41	204,038	49.59	411,410	4,046	11.23	31,984	88.77	36,030	447,440
Kaohsiung blood center	263,812	51.80	245,446	48.20	509,258	2,779	6.36	40,940	93.64	43,719	552,977
Subtotal	898,415	52.08	826,564	47.92	1,724,979	45,344	25.76	130,698	74.24	176,042	1,901,021

Whole blood collection per 1000 head of population, 2014-2023

Liter / 1,000 population

Blood centers / Year	Taipei blood center	Hsinchu blood center	Taichung blood center	Tainan blood center	Kaohsiung blood center	Hualien blood center	Total
2014	22.97	21.81	24.94	27.71	26.14	24.58	24.43
2015	22.90	22.63	25.33	28.32	25.64	25.33	24.65
2016	22.97	22.57	25.52	28.63	25.69	24.73	24.73
2017	23.18	21.99	25.85	28.28	25.13	-	24.56
2018	24.01	22.48	26.60	28.63	24.97	-	25.09
2019	24.63	23.37	27.31	28.64	26.51	-	25.83
2020	24.67	22.96	26.58	30.49	25.59	-	25.63
2021	23.78	23.10	27.69	32.15	26.68	-	25.96
2022	25.18	24.62	28.93	32.76	27.77	-	27.21
2023	25.32	25.12	29.49	-	29.20	-	27.29

Note: 1. Mid-year population, data from the ministry of interior.
2. 250ml per unit for whole blood.

Donation rate by blood centers, 2014-2023

Donation rate

Blood centers / Year	Taipei blood center	Hsinchu blood center	Taichung blood center	Tainan blood center	Kaohsiung blood center	Hualien blood center	Total
2014	7.12%	6.70%	7.64%	8.71%	7.72%	7.55%	7.50%
2015	7.09%	6.94%	7.71%	8.77%	7.59%	7.73%	7.54%
2016	7.10%	6.86%	7.67%	8.73%	7.53%	7.42%	7.49%
2017	7.15%	6.70%	7.80%	8.58%	7.33%	-	7.44%
2018	7.41%	6.84%	7.89%	8.45%	7.34%	-	7.55%
2019	7.64%	7.11%	8.00%	8.55%	7.74%	-	7.77%
2020	7.65%	6.91%	7.74%	9.11%	7.46%	-	7.68%
2021	7.39%	6.93%	8.06%	9.50%	7.76%	-	7.76%
2022	7.76%	7.30%	8.36%	9.65%	8.08%	-	8.08%
2023	7.82%	7.46%	8.58%	-	8.56%	-	8.13%

Note: 1. Mid-year population, data from the ministry of interior.
2. Both whole blood and apheresis donations are included.

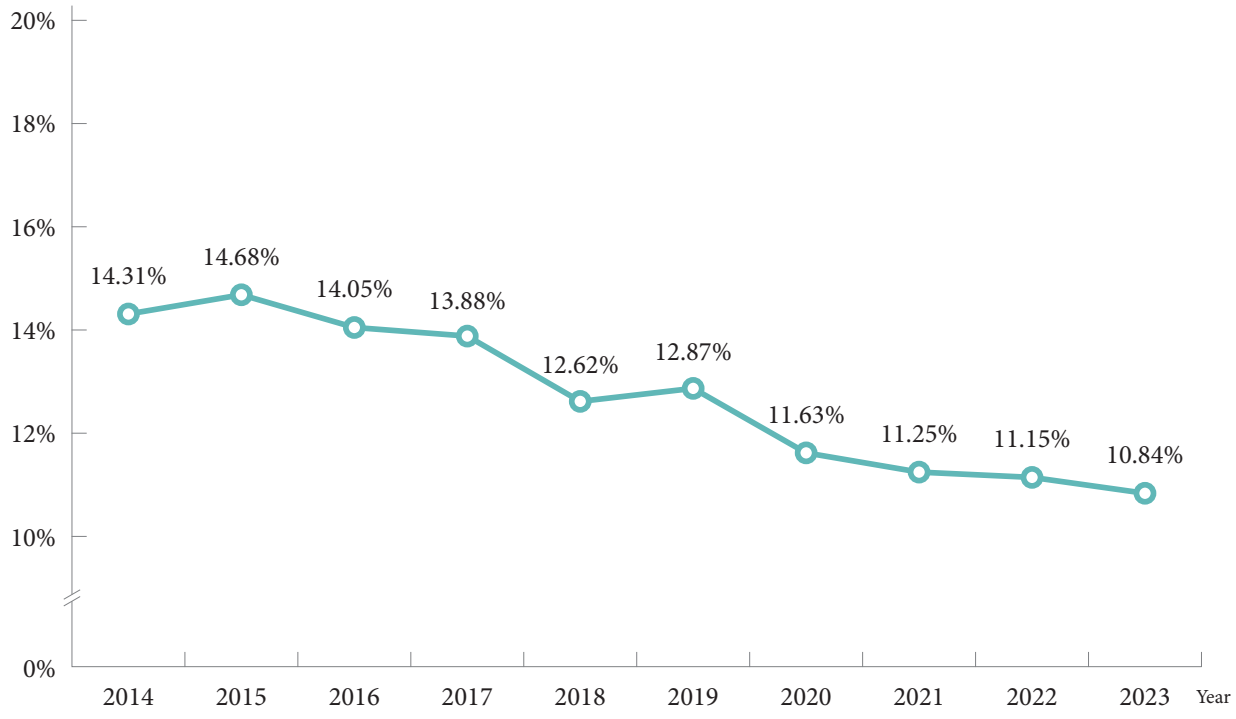
First-time Donors in 2023

Donor

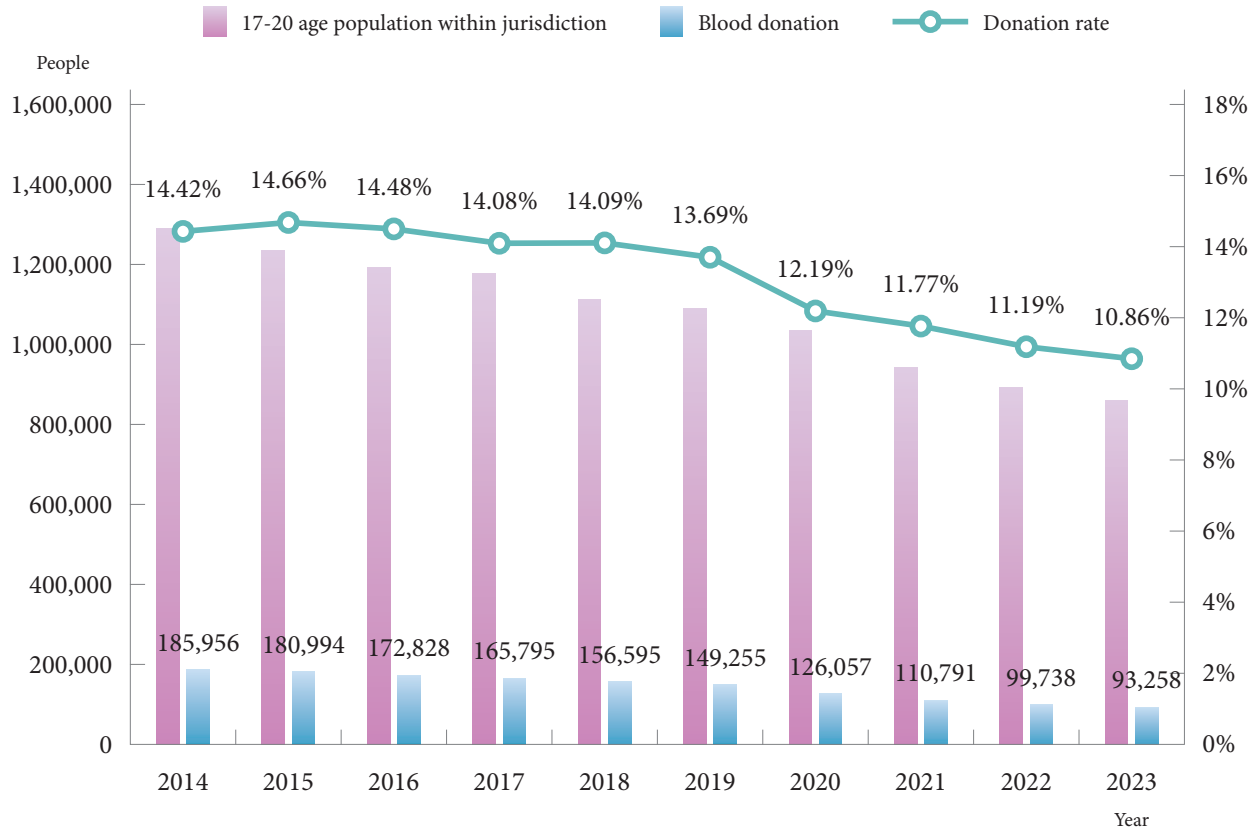
Item \ Blood centers		Taipei blood center	Hsinchu blood center	Taichung blood center	Kaohsiung blood center	Total
Total donors(A)		349,481	170,940	262,553	305,864	1,059,292
First-time donors	No.(B)	37,394	18,923	26,294	32,189	114,800
	%(B/A)	10.70%	11.07%	10.01%	10.52%	10.84%
First-time donors Age≦24	No.(C)	17,242	8,376	13,708	19,732	59,058
	%(C/B)	46.11%	44.26%	52.13%	61.30%	51.44%

Note: Total donors refer to the sum of individuals donating blood one or more times in the year.

Rates of first-time donors, 2014-2023



≦20 age of blood donation and donation rate



Distribution of donor by gender and age in 2023

Donor

Gender \ Age	≤20	21~30	31~40	41~50	51~65	>65	Total
Male	32,910 (5.35%)	116,980 (19.02%)	159,290 (25.90%)	170,671 (27.75%)	146,543 (23.83%)	1,797 (0.29%)	614,959 (58.05%)
Female	36,932 (8.31%)	95,518 (21.50%)	104,612 (23.54%)	105,205 (23.68%)	108,678 (24.46%)	1,004 (0.23%)	444,337 (41.95%)
Total	69,842 (6.59%)	212,498 (20.06%)	263,902 (24.91%)	275,876 (26.04%)	255,221 (24.09%)	2,801 (0.26%)	1,059,292 (100.00%)

Note: Both whole blood and apheresis donations are included.

Donation frequency by gender and age in 2023

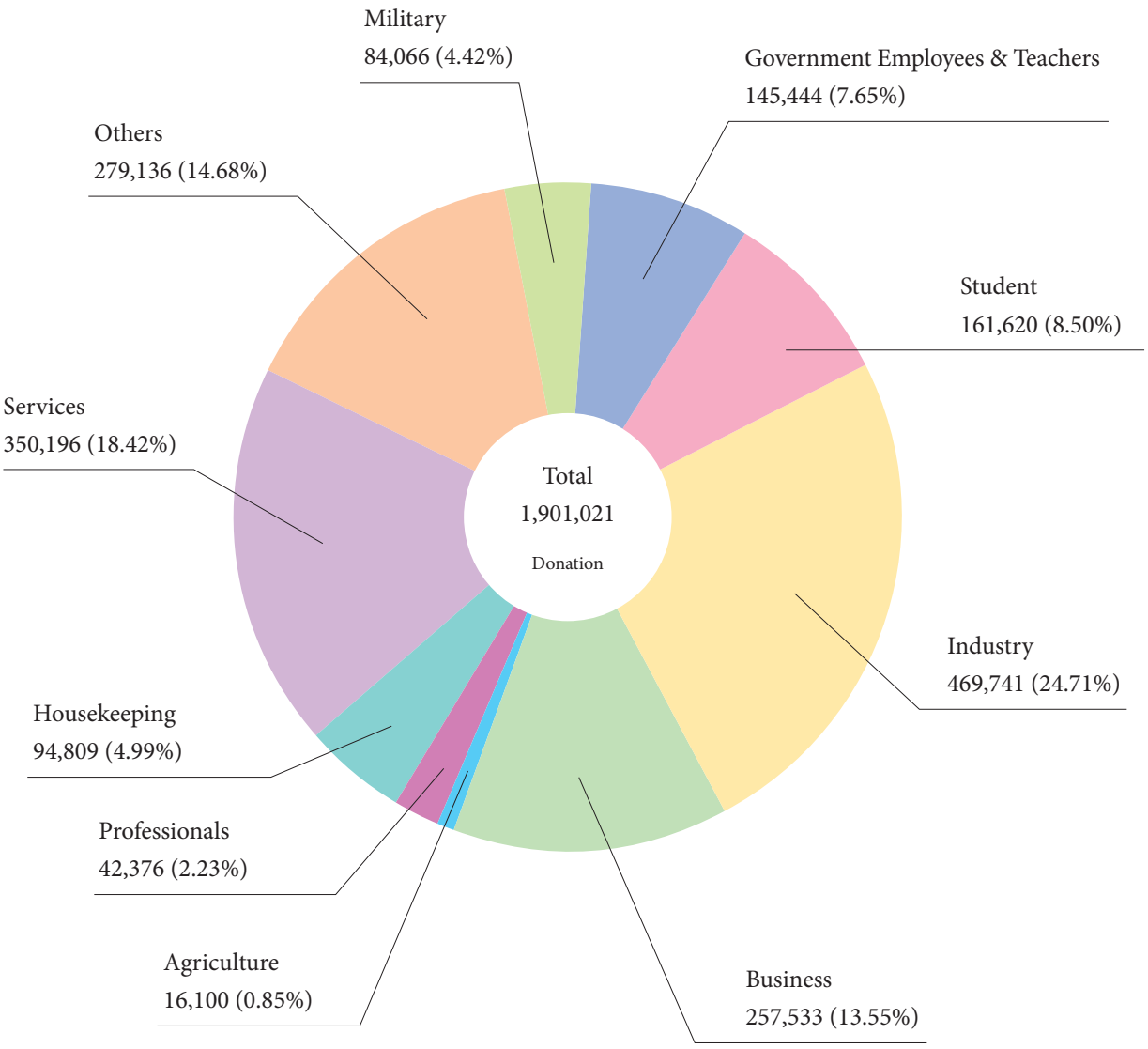
Age / Gender		Donation frequence	
≤20	Male	1.31	1.34
	Female	1.36	
21-30	Male	1.52	1.49
	Female	1.46	
31-40	Male	1.79	1.68
	Female	1.51	
41-50	Male	2.03	1.87
	Female	1.62	
51-65	Male	2.23	2.04
	Female	1.79	
>65	Male	3.13	2.82
	Female	2.27	
Total	Male	1.93	1.79
	Female	1.61	

Blood collection by sites in 2023

Donation

Blood centers / Sites	Taipei blood center	Hsinchu blood center	Taichung blood center	Kaohsiung blood center	Total
Fixed site	324,064	132,289	223,313	300,548	980,214
	53.01%	45.74%	49.91%	54.35%	51.56%
Mobiles	287,299	156,952	224,127	252,429	920,807
	46.99%	54.26%	50.09%	45.65%	48.44%
Total	611,363	289,241	447,440	552,977	1,901,021

Occupational distribution of donors in 2023



Pre-donation deferral in 2023

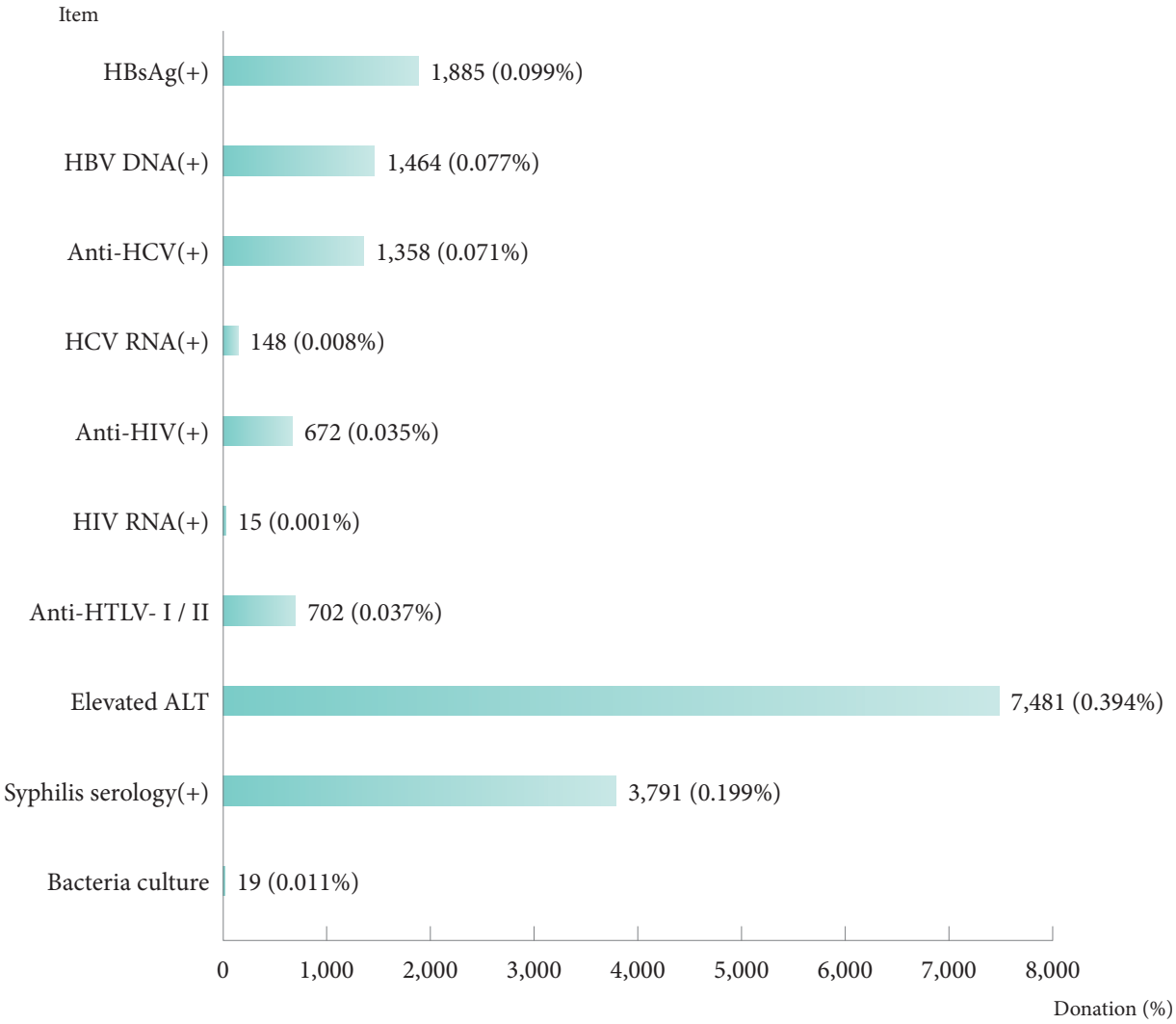
Participants

Reasons of deferral \ Blood centers		Taipei blood center	Hsinchu blood center	Taichung blood center	Kaohsiung blood center	Total
1	Low hemoglobin	36,429	6,569	31,090	38,917	113,005
2	Health questionnaire defferal	34,104	9,887	17,554	20,536	82,081
3	Blood pressure too high or too low	4,407	2,390	3,716	1,557	12,070
4	Blood vessels too thin	443	217	569	523	1,752
5	Low body weigh	491	245	175	457	1,368
6	Platelet count less than 150,000/μl or more than 600,000/μl	392	71	259	300	1,022
7	Tension	48	36	80	110	274
8	Body temperature too high	53	68	30	141	292
9	Other abnormalities	7,218	2,466	2,855	4,199	16,738
Total deferral		83,585	21,949	56,328	66,740	228,602
Total participants		694,948	311,190	503,768	619,717	2,129,623
%		12.03%	7.05%	11.18%	10.77%	10.73%

Note: Total participants include deferred participants and successful donations.

Positive rate of blood screening in 2023

Total positive rate: 0.86%



Note: Only platelet apheresis donations were tested for bacteria culture.

Inventory of rare RBCs

Blood groups		Unit
Rare blood groups	ABO blood groups	
para-Bombay	A	8
	O	11
	AB	2
RzRz	A	4
	B	8
	O	22
	AB	2
s(-)	O	24
Lu(a-b-)	A	22
	O	10
K_0	A	6
Fy(a-)	A	6
	B	2
	O	23
Fy(a-)s(-)	O	12
Fy(a-b+)Jk(a-b-)	A	2
D(-)Fy(a-b-)	O	2
Jk(a-b-)	A	44
	B	40
	O	52
	AB	2
Di(b-)	A	4
	O	10
i adult cell	A	2
	B	1
	O	5
Jr(a-)	O	4
p phenotype	A	2
	B	1
	O	1
Lan(-)	AB	3
Dc-	O	8
D--	A	6
JENU-	O	3

Human resources in 2023

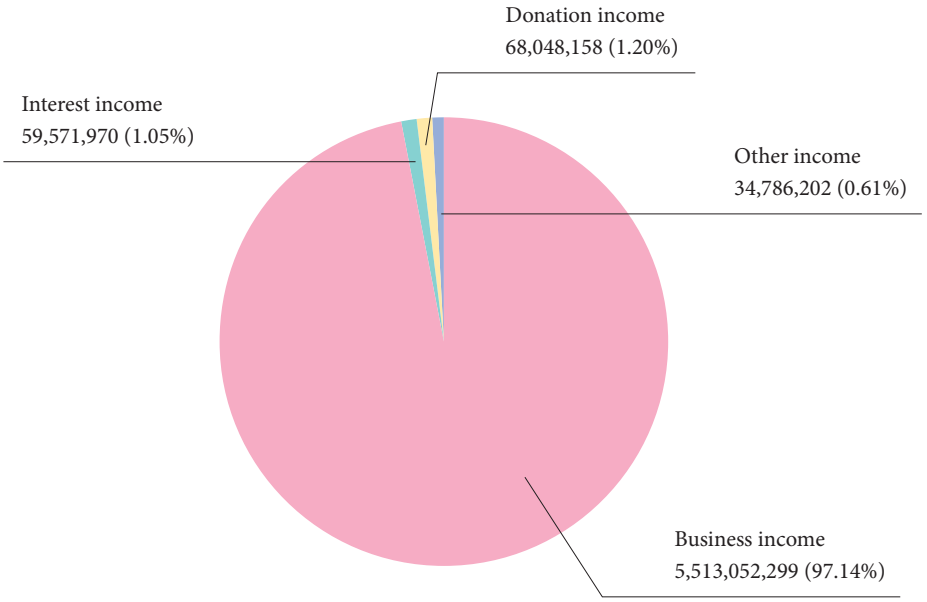
Person

Classification / Blood centers	Physician	Technician and researcher	Nursing staff	Administrative staff	Temporary	Total	%
Head Office	1	15	0	28	0	44	3.63
Taipei blood center	12	156	154	96	22	440	36.34
Hsinchu blood center	3	54	57	42	2	158	13.05
Taichung blood center	3	69	89	54	3	218	18.00
Kaohsiung blood center	9	121	118	79	24	351	28.98
Total	28	415	418	299	51	1,211	

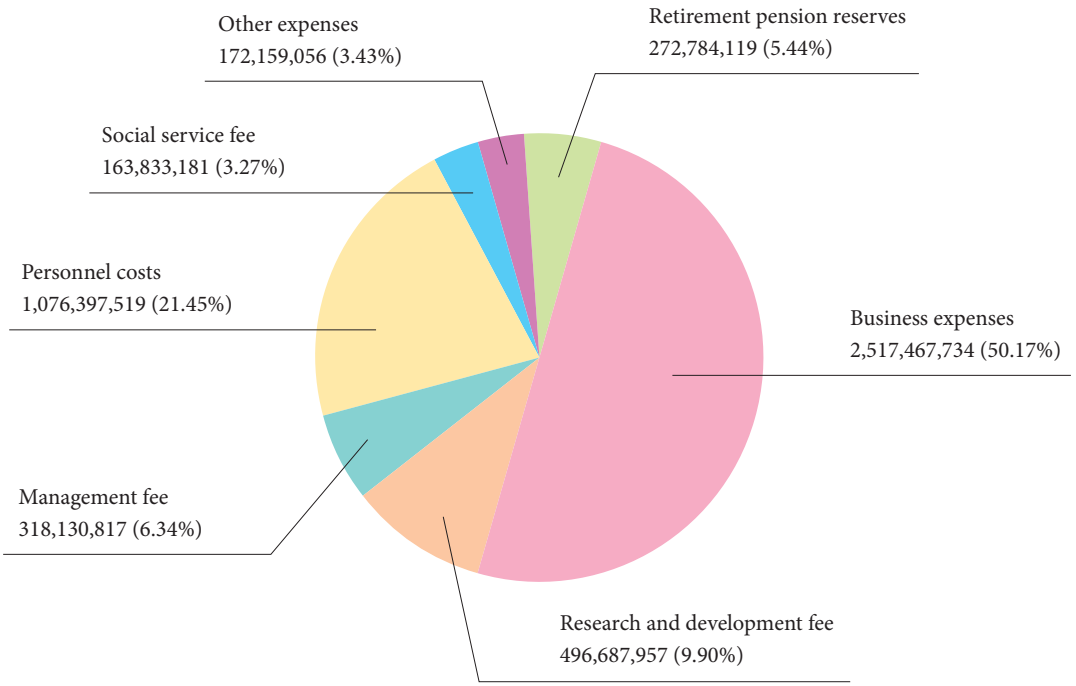
Incomes and expenditures in 2023

NT Dollar

1. Total incomes: NT$ 5,675,458,629



2. Total expenditures: NT$ 5,017,460,383



3. Balance after tax: NT$ 657,998,246

4. Capital expenditures: NT$ 375,038,603 (Equipments purchase)

APPENDIX

Locations

Head office

Taiwan Blood Services Foundation

3 FL. No. 3, Nan-Hai Road, Taipei 10066, Taiwan, R.O.C.
TEL: 886-2-2351-1600 FAX: 886-2-2395-1002
Website: www.blood.org.tw

Blood Centers

Taipei Blood Center

No. 123, Lih-Der Road, Taipei 112, Taiwan, R.O.C.
TEL: 886-2-2897-1600 FAX: 886-2-2897-1601
Website: www.tp.blood.org.tw
Service area: Taipei City, New Taipei City, Keelung City, Kinmen County, Matsu County, Hualien County, Yilan County.

Hsinchu Blood Center

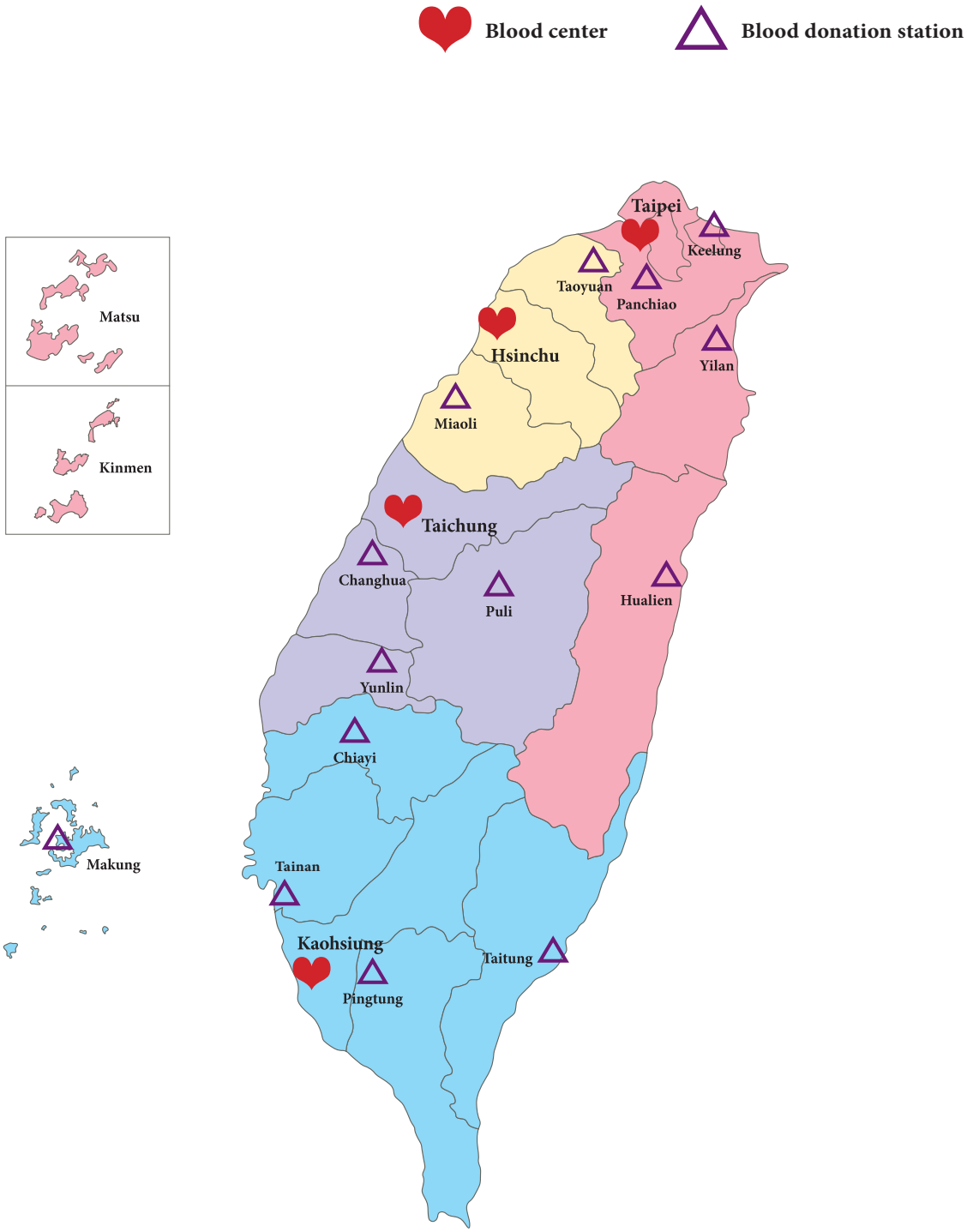
No. 8, Lane 215, Guangming 11th Road, Jhubie City, Hsinchu County 302, Taiwan, R.O.C.
TEL: 886-3-555-6111 FAX: 886-3-555-0305
Website: www.sc.blood.org.tw
Service area: Taoyuan County, Hsinchu City & County, Miaoli County

Taichung Blood Center

No. 1176, Sec. 4, Taiwan Boulevard, Xitun Dist., Taichung City 407, Taiwan, R.O.C.
TEL: 886-4-2461-2345 FAX: 886-4-2461-3939
Website: www.tc.blood.org.tw
Service area: Taichung City, Changhwa County, Nantou County, Yunlin County

Kaohsiung Blood Center

No. 1837, Gaonan Highway, Nanzi Dist., Kaohsiung City 811, Taiwan, R.O.C.
TEL: 886-7-366-0999 FAX: 886-7-364-1556
Website: www.ks.blood.org.tw
Service area: Tainan City, Chiayi City, Chiayi County, Kaohsiung City, Pingtung County, Penghus County, Taitung County


Blood center
Blood donation station
Matsu
Kinmen
Makung
Taipei
Keelung
Taoyuan
Panchiao
Hsinchu
Yilan
Miaoli
Taichung
Changhua
Puli
Hualien
Yunlin
Chiayi
Tainan
Kaohsiung
Taitung
Pingtung

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台灣血液基金會
捐血統人 Taiwan Blood Services Foundation

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