Irish Blood Transfusion Service
Seirbhís Fuilaistriúcháin na hÉireann

Research & Innovation
Annual Report 2025

giveblood.ie

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Research & Development Board Sub-Committee

The Research and Development Board Sub-Committee (RDC) met three times during 2025. The RDC have oversight on the implementation of the IBTS Research Strategy. The meetings are attended by the Chief Executive Officer, the Medical & Scientific Director, the Finance Director and the Head of Research and Innovation. The RDC comprises of two board members and an number of external experts, and operates under formal terms of reference, which were reviewed in 2025 and approved by the Board.

Committee	Name	Meeting 1 29-04-2025	Meeting 2 8-08-2025	Meeting 3 08-12-2025
Board Members	Stephen O'Hare (SO'H, Chair)	✓	✓	✓
	Peter Dennehy	x	x	x
External Experts	David Roberts	x	✓	x
	Alejandro Madrigal	✓	x	✓
	Paul Browne	✓	x	x
	Tor Hervig	-	x	✓
	Mary Kirwan	-	✓	✓
	Katya van den Hurk	-	✓	x
	Seamus Browne	-	✓	✓
In Attendance	Orla O'Brien	✓	✓	✓
	Andrew Godfrey	✓	✓	x
	Noel Murphy	✓	✓	✓
	Allison Waters	✓	✓	✓
	Stephanie Deane	✓	✓	✓

Table 1: Research & Development board sub-committee meetings and participants.

Research Performance

We are responsible for the national blood and tissue supply for Ireland. A core function of the IBTS, as set out in its Statutory Instrument is to 'organise, provide, assist or encourage research and the training and teaching of persons in matters relating to blood transfusion, transplantation and preparation of blood products'. The outcomes of high-quality research may positively impact many aspects throughout the vein-to-vein process, as well as a broad range of allied health-related fields. Since the launch of the first IBTS Research Strategy in 2021, we have demonstrated improvements in our research performance through our Key Performance Indicators (KPIs) of research communication, publication, collaboration and grant acquisition. The IBTS Strategy 2026–2030, A Healthier Tomorrow, provides a framework for us to deliver our new research and innovation strategy. This strategy was developed over the course of 4 months, during which there was consultation with the Medical and Scientific Directorate and the Executive Management Team, the Research and Development Board-sub-committee, experienced research staff, and the wider organisation through a staff survey.

KPI	Detail	No.
Projects	On-going	14
	In Development	10
Publications	Published	14
	Submitted for publication	3
	Manuscript in preparation	12
Presentations	Oral	9
	Poster	14
Funding Applications	On-going	1
	Successful	3

Table 2: Summary of Research performance in 2025.

Year	Senior Authorship		Total
	IBTS	Collaborator	
2021	2	6	8
2022	4	3	7
2023	6	7	13
2024	2	6	8
2025	4	10	14
Total	**18** (36%)	**32** (64%)	**50**

Table 3: IBTS Academic Publications between 2021 until 2025.

	Masters			PhD	MD	Postdoctoral	Total
	Science	Regulation	Public Health				
Complete	10	2	2	0	1	2	17
On-going	5	1	1	2	0	1	10
Total	15	3	3	2	1	3	27

Table 4: IBTS Research Postgraduate Education between 2021 until 2025.

Financial Analysis

The Research & Development budget incomes and expenditures for 2025 are outlined in Table 5.

Cost Centre

2025 Opening Balance	€3,414,315.00
1% Core Activities	€712,570.00
Total Income	**€4,126,885.00**

Expenditure

Staff Costs	€320,256.00
Motor and Travel	€8,442.00
Procurement	€2,972.00
Administrative	€101,082.00
Research Grant	€142,615.00
Maintenance	€11,380.00
Direct Costs	€9,486.00
Financial	€40.00
Total Expenditure	**€596,273.00**
2025 Closing Balance	**€3,530,612.00**

Table 5: 2025 IBTS Research & Development Cost Centre activity.

Successful acquisition of research grant funding in 2025, will significantly augment the research monies in the coming years resulting in a positive financial return on investment for the organisation's research activities throughout the 2021-2025 strategy period (Table 6).

Research Grant	Application	Status	Start Date	Time-Frame	Host Institution	IBTS Co-fund	Total Funding Requested / Awarded	Estimated Net Gain for IBTS
European Support Instrument	Successful	Completed	Apr-21	1.5	IBTS	€0	€2,504,773	€53,547
TU-Dublin Business Partnership Scheme	Successful	On-going	Jan-23	4	TU-Dublin	€25,000	€25,000	€25,000
HRB CES	Successful	Completed	Oct-22	1	IBTS	€0	€5,000	€5,000
ESTER Ireland	Successful	On-going	Jul-24	1	IBTS	€0	€11,000	€11,000
SFI Discovery Programme	Not Awarded	-	Jan-25	-	IBTS	€30,000	€51,000	-
EU COST Action	Successful	On-going	Oct-25	4	BST	€0	€600,000	€20,000
HRB Applied Partnership	Successful	On-going	Nov-25	2	RCSI	€42,000	€200,000	€200,000
Research Ireland Strategic Partnership - iABC	Successful	Awarded	Feb-26	4	RCSI	€1,000,000	€1,000,000	€1,000,000
Research Ireland Centre - IMPACT	Successful	Awarded	Jul-26	8	TCD	€360,000	€40,000,000	€1,000,000
Total						**€1,457,000**	**€44,020,404**	**€2,314,547**

Table 6: Research grant funding acquisition between 2021 until 2025.

Strategy Implementation

The Research Strategy addendum 2024-2025 identified 4 priorities – Capacity, Capability, Culture and Key research, as outlined in the table below. Each priority was progressed through specific strategic initiatives in 2025.

Capacity	Expand team	Two research scientists commenced working full-time	Q2
	Research laboratory	Scope presented to Programme board	Q2
		On-going support for project from Research & Development Committee	Q4
Capability	Publication	Academic Writing	Q2
	Innovation training	Creative problem solving	Q3
Culture	Donor Research consent	Separate research consent for the provision of unused donated biological material for research	Q3
	Social Media	LinkedIN Account launched	Q3
Key Research	HRB Applied Partnerships	Approved	Q2
		Commenced	Q3
	Research Ireland Centres Application	Submitted	Q1
		Approved	Q4
	IBTS/RCSI Research Ireland strategic partnership	Submitted	Q2
		Approved	Q4
Innovation	Lead IBTS Innovation team	5 innovation team meetings in 2025	Q4

Table 7: 2025 Research strategic initiatives.

Donor Research Consent

The IBTS provides unused blood components, free-of-charge to researchers, most of whom use buffy coats to progress their immunology or cell biology-based research. All researchers are advised to seek ethical approval through their own institution, as it is not possible for IBTS to ethically approve another laboratory's research.

An internal review of the service was a critical strategic initiative in 2025. A key action following this review was the requirement for specific donor research consent to underpin this service and allow for improved transparency and regulatory compliance. New Donor research consent was launched in Q3 and approximately 3,000 consents have been recorded in eProgesa to date. However, this change has had a significant impact on the service and the team aim propose to acquire added resources to support resumption the service, in a tiered manner, from March 2026 onwards.

Engagement

The research team continued their active participation in many working groups, societies and research consortia including the European Blood Alliance, European Haematology Association and the Biomedical Excellence for Safer Transfusion (BEST) collaborative. Learnings from these groups, as well as conferences and noted academic papers, were shared internally through the Research Journal Club.

Research collaboration at a local, national and international level is a cornerstone of the IBTS research programme, and supports both efficient progression and academic excellence. Key collaborators are Trinity College Dublin, which is leading on the creation of a new centre for personalised advanced cellular therapy (IMPACT) and the Royal College of Surgeons, as part of the Research Ireland Strategic Partnership and the Health Research Board Applied Partnership.

There is continued and increasing engagement with the IBTS social media account on LinkedIN, the IBTS Research Newsletter and website. All communications are aimed at building our network of research, clinical and academic colleagues.

Finally, the innovation principles underpinning research project development, were championed by the research team. A creative problem-solving workshop in 2025 upskilled staff and outlined need to embed innovative practices beyond research and throughout the organisation. Specifically, it was agreed that from 2026 onwards, research projects will be reviewed through an innovation 'lens', and scored appropriately, to support the development of a wider organisational recognition and adoption of innovation problem-solving frameworks.

Key Research

The research department oversee approximately 10-15 projects annually, all at varying stages of progression, and researching multiples aspects of the vein-to-vein pathay. Project progression, and more crucially, the completion of projects through publication, presentation or attainment of a postgraduate degree, is shown in figure 1. Furthermore, new projects are consistently in development, supporting the sustainability and expansion of the IBTS research programme.

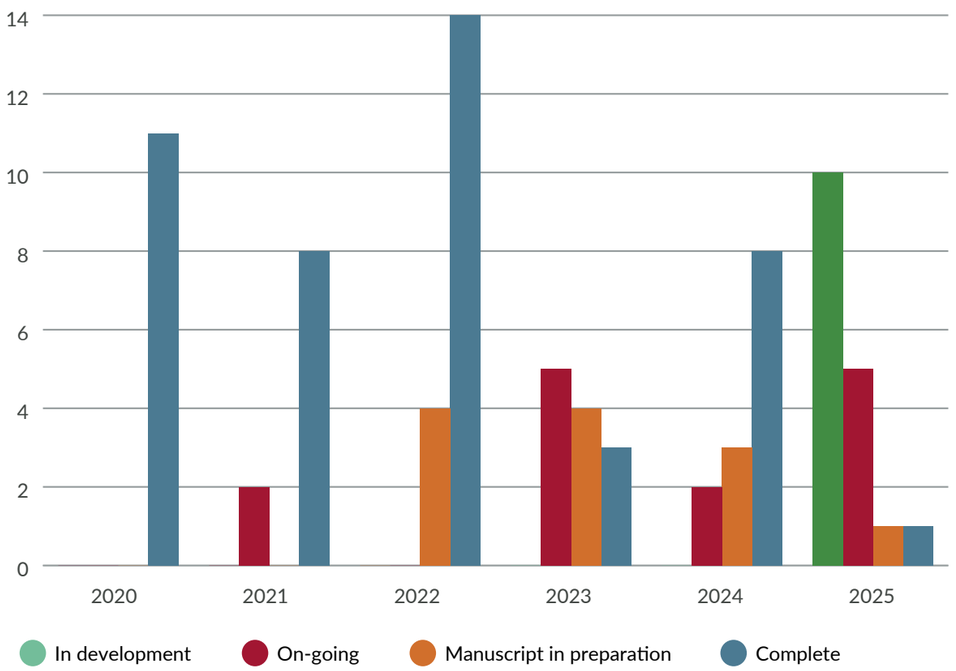

Figure 1: Research project progression between 2020 and 2025.

Donor Motivation, Qualification and Epidemiology

AIM:

Perform research that enables the collection, monitoring and analysis of donor-related information, that deepens our knowledge of (1) the motivation to donate (2) the parameters impacting donation qualification and (3) the Irish Public's infectious disease health.

Breaking down barriers: Recruiting donors of African ancestry in Ireland

(Waters A, O'Flaherty N, McSweeney E, Eltom S, Egan B, Hervig T. Vox Sang. 2025 Aug;120(8):765-775. PMID: 40410539)

The aims of the present study were to understand the motivators and barriers to young Black Irish people donating blood, to explore the views of older Black individuals who were previously excluded but may now be eligible to donate following the recent changes to donor screening, and lastly, to make recommendations for future campaigns that appeal to the Irish Black community. The main barriers to blood donation among the Irish Black community were (i) personal beliefs, (ii) distrust of healthcare organizations, (iii) previous negative donation experiences, (iv) a lack of basic information and (v) replacement donation. Motivators to donate blood included (i) altruism, (ii) Black representation, (iii) targeted information, (iv) helping the Black community and (v) building trust. Blood donor recruitment among the Irish Black community should be informed by an understanding of the varied attitudes to blood donation and the current social norms within Irish African communities. Ireland is a modern multicultural society and its blood donor pool should strive to reflect this diversity.

Hepatitis E virus screening in Irish blood donors: Seven years of individual donation nucleic acid testing reveals a frequent blood donor infection-but what is the risk?

(O'Flaherty N, Mullarkey M, Burke L, Williams P, Dean J, Szulc J, Waters A. Transfus Med. 2025 Dec 12. PMID: 41386707)

This study reports the findings of government-funded HEV RNA blood donation screening 2016-2022 and includes an estimate of residual risk. 229 HEV RNA positive donations were identified in 980 690 donations. Serological window period donations accounted for 148 (65%) of cases. HEV RNA donation positivity ranged from 1 in 6153 (0.016%) to 1 in 2314 (0.043%). In the absence of screening and with a residual plasma volume of 10 mL, >19% of the Hepatitis E virus positive Red Cell Concentrates (n = 42/220) could have resulted in transmission. The residual risk, based on a window period of 14 days was estimated at 51 per million donations. At least 15 components with infectious doses of >1 × 106 IU were interdicted. As donors with higher viral loads can lead to infectious donations, the value of screening the blood supply for HEV is evident and supported by an absence of reported TT HEV cases.

Cytomegalovirus Seroprevalence and Seroconversion in the Irish Blood Donor Population

(Butler D, O'Flaherty N, Coyne D, Williams P, Holder P, de Gascun C, Waters A. Epidemiology & Infection - Accepted for publication)

CMV seroprevalence among Irish Blood Donors in 2020 was 26.0%. Among first-time donors, CMV seroprevalence was 23.82%, whereas in Sample Only New Donors (SOND), who are first-time donors born outside of Ireland and the UK, the seroprevalence was significantly higher, at 46.49%. The estimated annual seroconversion rate was 0.76%. CMV DNA was detected in 6.5% of seroconverted donors. The study highlighted a low CMV seroprevalence in Ireland, suggesting an increased susceptibility in the Irish population to primary CMV infection. Analysis of blood donor CMV screening results are a useful epidemiological tool to assess population level risk and future mitigation strategies.

Attitudes and understanding of LGBTQ+ community towards blood donation in Ireland

This survey explored motivations, barriers and perceptions of blood donation, and the IBTS among, the LGBTQ+ community in Ireland. Findings show a strong willingness to donate, however uncertainty about the current eligibility criteria, as well as perception of discrimination remain as barriers to donation (manuscript in preparation).

Platelet Research

AIM:

Perform research that supports expansion of platelet component provision through improved quality and processing, and a better understanding of the biological factors impacting this.

Optimized pathogen reduction of double-dose platelets pooled from seven buffy coats using the TACSI® system

(Lorusso A, Morgan L, Farrelly A, Lambert M, Doyle B, Hendrick P, Elsheikh E, Godfrey A, Hervig T, Waters A. Vox Sang. 2025 Nov;120(11):1132-1142. PMID: 40829867)

This study described, for the first time, the in vitro platelet quality and function assessment of whole blood-derived double-dose (DD) pools, prepared using seven buffy coats (BCs) pooled on the Terumo Automated Centrifuge & Separator Integration (TACSI)® system and pathogen-reduced (PR) with the INTERCEPT™ Blood System (IBS). The findings support the use of the IBS for pathogen reduction in larger platelet pools and highlight the system's effectiveness in maintaining platelet functionality for transfusion purposes.

From platelets to particles: Optimizing extracellular vesicle isolation in a National Blood Centre

(Chintala Y, Waters A, McGrath F, Lorusso A, Wynne C, Meaney S. Vox Sang. 2026 Jan 26. PMID: 41587796)

Platelet-derived extracellular vesicles (PEVs) remain insufficiently characterized in blood products. This study compared four isolation methods to evaluate their impact on PEV yield, purity and characteristics, aiming to identify a practical approach for transfusion service workflows. PEVs were successfully isolated by all methods, although at varying yields. Comparison of the physical and biochemical characteristics of the PEVs isolated by each method reveals that the affinity method was superior to other methods. In addition, its simplicity, cost effectiveness and accessibility make it a practical option for blood transfusion services to further explore the role of PEVs.

Health Research Board Applied Partnership

This partnership led by Dr. Ingmar Schoen, RCSI, commenced in October 2025 and is funded by the Health Research Board (HRB). This applied research initiative aims to assess the impact of storage conditions on platelet function and clearance and better understand how the functionality of platelet concentrates from apheresis donations may be better maintained during extended storage. The knowledge generated by this research will provide an evidence base to facilitate local decision-making at the IBTS regarding the introduction of CSP as a new product, and at a European level by providing information on CSP-specific quality control parameters, optimal storage conditions, and delineating needs and suitable approaches for further research into CSP.

Irish Medicines centre for Personalised Advanced Cellular Therapeutics (IMPACT)

AIM:

Create a new research centre to support the provision of advanced therapeutic medicinal products (ATMPs) to Irish patients.

The IBTS is one of the collaborating organisations of the IMPACT consortium. IBTS research, as part of the IMPACT programme, will focus on understanding the role that the blood services will play in the provision of ATMPs in Ireland. The outcomes of this work will directly impact future IBTS strategic direction. In addition, the IMPACT consortium will support partnership with patient advocacy groups and provide research opportunities to explore the following; (i) requirements for allogeneic donation, (ii) protocols for ATMP donor recruitment and screening, (iii) Leucopheresis collection model, (iv) GMP requirements for ATMP production, (v) Usage of by-products of blood donation in ATMP production and (vi) ATMP quality control, regulation and licencing. This funding was successful and the project will officially begin in Q3 2026.

COST action BTCs4ATMPs

The BTCs4ATMP EU-COST Action commenced in October 2025 and aims to create a European collaborative network of Blood, Tissue and Cell processing centres (BTCs) involved in the development and/or manufacturing of Advanced Therapy Medical Products (ATMP). This initiative will provide a framework for successful development and validation of cost-effective manufacturing and reliable quality control (QC) testing, in compliance with strict pharmaceutical quality management standards to promote standardisation of procedures and harmonisation of assays by sharing protocols and reagents through biobanks. This network includes all the relevant stakeholders: procurement of substance of Human Origin (SoHO) and processing centres, biobanks supplying starting materials and reagents used in bioprocesses and QC; Good Manufacturing Practice (GMP)-compliant laboratories, immunology experts, safety testing laboratories, chemistry and manufacturing controls, regulatory bodies, National Agencies, and ethics experts. The Irish Blood Transfusion Service is leading Working Group 1, which is tasked with (1) Defining donor eligibility criteria and (2) Mapping the European Substance of Human Origin (SoHO) regulatory and ethical frameworks.

Immune reconstitution following bone marrow and CART cell transplantation

This PhD project is co-supervised by Trinity College Dublin, St. James's Hospital, and Irish Blood Transfusion Service. The PhD candidate, Hayley Foy-Stones has presented her data at numerous conferences and ultimately aims to provide recommendations for monitoring patients following stem cell and CAR-T transplantation. In 2025, a paper outlining the Impact of CD19 CAR T-cell Therapy on Pathogen-Specific Antibody Titres in Lymphoma Patients was accepted for publication in Transplant Infectious Diseases.

Irish ABO and Coagulation (iABC) Strategic Partnership

AIM:

Investigate the role of ABO blood group in regulating primary haemostasis and its clinical relevance in the context of major bleeding.

This strategic partnership is led by Prof. O'Donnell, RCSI, and was successfully awarded funding by Research Ireland in December 2025. ABO blood group impacts multiple aspects of primary haemostasis and thereby impacts risk of major bleeding complications. Research will commence in 2026 and will involve the recruitment of three postdoctoral and three PhD candidates. The programme will consist of the three pillars (1) To characterize the relationships between bleeding, ABO blood group, and coagulation parameters in the Irish blood donor population; (2) To define the biological mechanisms through which ABO blood group influences VWF-FVIII biology and (3) To investigate VWF-independent effects of ABO blood group on coagulation.

Pan-European transfusion Research Infrastructure (PETRA)

AIM:

Initiate the development of aligned 'vein-to-vein' donor to patient datasets at a European level.

PETRA commenced in 2023 and is funded by the European Blood alliance and jointly led by Sanquin and European Haematology Association. The initiative aimed to (1) Create an inventory of existing databases and research projects on donors and recipients across European countries; (2) Carry out a 'Proof-of-concept' study on the use of blood using electronic extractions of data and (3) Develop a strategic plan for further alignment of existing research efforts, methodologies and databases, working towards a Pan-European research infrastructure. Ultimately the PETRA consortium aims to understand 'Where does the blood go?'

Opportunities for Vein-to-Vein Datasets from a Blood Establishment Perspective: towards a "Pan-European Transfusion Research InfrAstructure" (PETRA)"

(Wehrens S, Arvas M, Fustolo-Gunnink S, Vinković Vlah M, Waters A, Erikstrup C, Ørnskov Drechsler L, Di Angelantonio E, Stanworth S9, van den Hurk K. Submitted for publication)

The majority of European Blood Establishments could link their donor data to product data and recipient data for research purposes. However, capabilities were limited. Significant challenges to achieve full vein-to-vein linkage were reported. First steps in working towards a PETRA may be assistance to navigate legal frameworks as well as investing in resources and quality and harmonisation of data collections

Other Contributions

Human respiratory syncytial virus genetic diversity and lineage replacement in Ireland pre- and post-COVID-19 pandemic

Rice A, Gonzalez G, Carr M, Dean J, O'Byrne E, Aarts L, Vennema H, Banka W, Bennett C, Cleary S, Domegan L, O'Donnell J, O'Leary M, Goya S, Presser L, Meijer A, Martin G, Sawa H, Waters A, De Gascun C, Hare D. Microb Genom. 2025 Mar;11(3):001379. PMID: 40096248.

The 2024 international survey of platelet products and practice

Ohto H, Flegel WA, van der Meer PF, Ngoma AM, Nollet KE, Choudhury N, Legler TJ, with the International Platelet Survey Investigators. Transfus Apher Sci. 2025 Apr;64(2):104086. PMID: 39970652.

Investigation of an outbreak of novel hepatitis of unknown aetiology in children and adolescents, Ireland, 2021 to 2023

Liddy E, Murphy N, Mereckiene J, Fitzpatrick E, Broderick A, Egan R, Verbruggen TF, Houlihan JA, Campbell C, Carr M, Gonzalez G, Dean J, Hagan R, De Gascun C, Cotter S; Incident Management Team. Euro Surveill. 2025 Apr;30(14):2400536. PMID: 40211974.

Anti-Ce in haemolytic disease of the foetus and newborn

O'Grady R, Fitzgerald J, Miletin J, Regan C, Guilfoyle F, Scally E, Flynn C. Transfus Med. 2025 Jun;35(3):287-290. PMID: 40045711.

Medical, Societal, and Ethical Considerations for Directed Blood Donation in 2025

Jacobs JW, Booth GS, Lewis-Newby M, Saifee NH, Ferguson E, Cohn CS, Delaney M, Morley S, Thomas S, Thorpe R, Raza S, Weaver MS, Woo JS, Sharma D, So-Osman C, Yurtsever N, Tormey CA, Waters A, Goldman M, Yan MTS, Fasano RM, Stephens LD, Allen ES, Erikstrup C, Infanti L, Schlafer TD, Warner MA, Winters JL, Tobian AAR, Bloch EM. Ann Intern Med. 2025 Jul;178(7):1021-1026. PMID: 40354666.

Biomedical Excellence for Safer Transfusion (BEST) Collaborative. Blood donor characteristics and blood safety before and during the COVID-19 pandemic: A BEST Collaborative international survey

Lewin A, Goldman M, O'Brien SF, Irving DO, Vassallo R, Tiberghien P, Goto N, Waters A, van de Laar T, Jacquot C, Fachini R, Germain M. Vox Sang. 2025 Aug;120(8):776-783. PMID: 40467295.

Evaluation of 6 years of fetal RHD screening in Ireland: From implementation to practice

Ryan H, Lambert M, Ní Loingsigh S, Hagan R, O'Donghaile D. Vox Sang. 2025 Dec;120(12):1259-1262. PMID: 40930720.

An international survey of blood operator human T-cell lymphotropic virus-1/2 testing practices

Drews SJ, Baroti-Toth K, Cheng A, Erikstrup C, Gallian P, Grubešić D, Gubbe K, Harritshøj LH, Heinricy A, Janner-Jarnetti T, Jarvis L, Laperche S, Mathy G, Mayr W, Nordberg J, O'Flaherty N, Øfsteng HS, Oprea G, Oyonarte S, Palukka T, Pati I, Prati D, Radmilli D, Rodenbach MP, Samec VF, Sousa AP, Stramer SL, Ushiro-Lumb I, van Gaever V, Lieshout-Krikke R.. Transfusion. 2025 Dec;65(12):2433-2436. PMID: 41122863.

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