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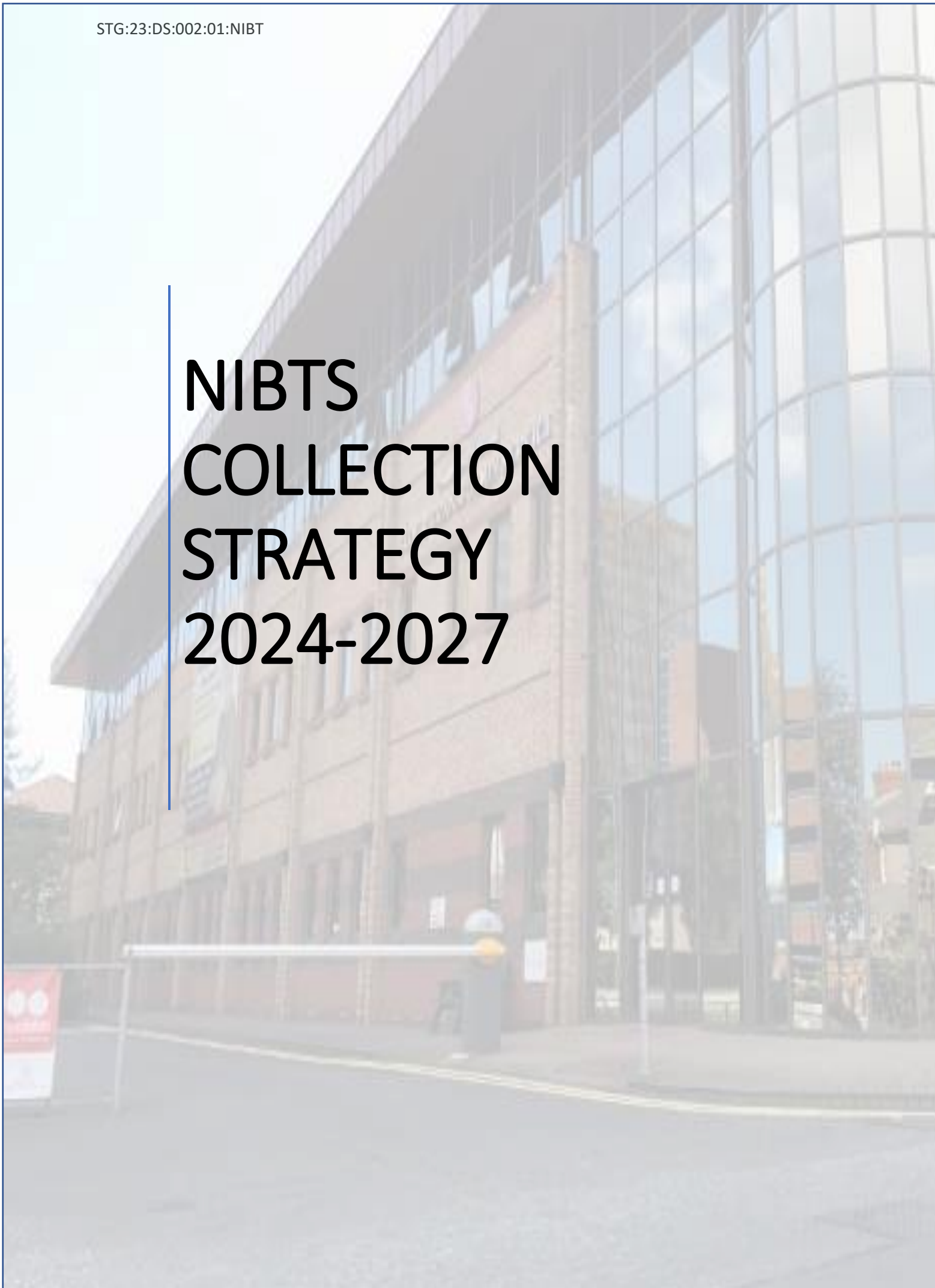

NIBTS COLLECTION STRATEGY 2024-2027

Contents

1. Introduction

The purpose of this collection strategy is to set out the anticipated demand for blood and blood components in Northern Ireland over the next three years and how the Northern Ireland Blood Transfusion Service intends to meet this demand. The strategy identifies the challenges NIBTS will face and how these will be met.

This strategy will provide a framework for departments and individuals to plan their priorities and related objectives each year which, in turn, will inform annual business plans and staff development reviews.

2. Consultation

Following initial review by the NIBTS Board, this strategy was shared with internal and external stakeholders for comment before a final strategy was presented to NIBTS Board again and given final approval.

3. Background of NIBTS

NIBTS was established in 1994 as an independent Special Agency of the Health and Personal Social Services as the sole supplier of blood and blood components to the Health and Social Care (HSC) system in Northern Ireland.

NIBTS operates from its headquarters on the Belfast City Hospital site which incorporates:

- Whole blood and plateletpheresis collection
- Processing and testing laboratories
- Donor engagement and administration
- Medical team
- Nursing team (which provides staff for headquarters and mobile blood collection teams)
- Quality and regulatory compliance department including the quality control laboratories
- Corporate functions including Finance, Human Resources (HR) and Information Technology (IT).

Additionally, NIBTS has a satellite blood collection team based in Omagh at the former Tyrone and Fermanagh Hospital. There is also a purpose-built BloodMobile Unit that supports the collection of blood across Northern Ireland.

NIBTS exists to fully supply the needs of all hospitals and clinical units in both the public and private sectors in Northern Ireland with safe and effective blood and blood components and other related services. The discharge of this function includes a commitment to the care and welfare of our voluntary donors.

NIBTS is responsible for the collection, testing and distribution of over 56,000 blood components annually and operates around 670 donation sessions per year.

4. Blood Components Supplied by NIBTS

Red Cells

Red blood cells contain haemoglobin, which distributes oxygen to body tissues, and carries carbon dioxide back to the lungs. Red blood cells are used to treat anaemia or replace heavy blood loss that can occur in an accident, during surgery or childbirth. Red cells are obtained from whole blood donations by a process known as venesection. Red cells stored in an adenine supplemented anticoagulant have a maximum shelf life of 35 days when stored at a core temperature of 4±2°C.

Platelets

Platelets help the body to form clots to stop bleeding. Platelet transfusion is indicated for the treatment and prevention of bleeding in patients with a low platelet count (thrombocytopenia) or platelet dysfunction. Platelets are obtained from whole blood donations or through a process known as platelet Apheresis. Platelets are stored in temperature-controlled incubators at a core temperature of 22±2°C with continuous gentle agitation. The introduction of automated bacterial screening by all UK Blood Services, extended the shelf life of platelets from 5 to 7 days after donation.

Platelets can be produced in two ways:

- The layer between red blood cells and plasma in a unit of whole blood after it has been spun down in a centrifuge is referred to as the buffy coat. Buffy coats from four donations are pooled and suspended in a medium comprising of approximately 30% plasma and 70% additive solution.
- An Adult Therapeutic Dose (ATD) of platelets is obtained from a single donor by apheresis.

Fresh frozen plasma (FFP)

Plasma is the liquid component of blood in which the red cells are normally suspended. Plasma contains clotting factors and is used for the treatment of bleeding. Plasma is obtained from whole blood donations and frozen rapidly to maintain the activity of the blood-clotting factors. It can be stored for a maximum of 36 months at –25°C or below and must be thawed before use.

Cryoprecipitate

Cryoprecipitate Pooled, Leucocyte Depleted is the cryoglobulin fraction of plasma obtained by thawing and pooling five single cryoprecipitate components immediately after production from thawed fresh frozen plasma. The component should be stored at a core temperature of -25°C or below for a maximum of 36 months and must be thawed before use. The pooled component represents a source of concentrated FVIII, fibrinogen and von Willebrand factors and is also used in the treatment of bleeding, mainly as a more concentrated, hence lower volume, source of fibrinogen than FFP.

Blood products for Neonates and infants under one year

In addition to the products detailed above NIBTS also supply, red cells, platelets, FFP and cryoprecipitate for neonates and infants under 1 year. Neonates is defined as children less than 1 month old and infants is defined as children 1 month to 1 year old. Neonatal and infant/paediatric blood components have a different specification to adult products. Donors must meet additional criteria to be eligible to donate blood or platelets for neonatal or infant/paediatric use.

Plasma for Medicines

Donated human plasma can also be used to produce a great number of medicinal products or immunoglobulin medicines. At present these are obtained from non-UK donors. However recent guidance changes mean that plasma from UK donors can be used in the manufacture of immunoglobulin medicines. While not currently collecting plasma for production of medicines this may develop over the next few years. NIBTS will work closely with the other UK Blood Services and the Department of Health to ensure the supply of immunoglobulin products to the Health and Social Care (HSC) system in Northern Ireland.

5. Current Demand for Blood Components

Tables 1 and 2 show the donation and issue activity from April 2022 until March 2024. Whilst issues of red cells have broadly remained stable over the two years, there has been a 4% increase in demand for platelets.

Table 1: Blood Component Issues in 2023/24 and 2022/23

Blood Component	2023/24	2022/23
Red cell units (adult)	39,955	39,439
Platelets (adult therapeutic doses)	8,702	8,305
Fresh Frozen Plasma components	4,157	4,290
Pooled cryoprecipitate	779	850
Total	53,593	52,884

Table 2: Donation Activity in 2023/24 and 2022/23

Blood Component		2023/24	2022/23
Whole blood attendance		47,311	41,652
New donor attendance		4,128	3,023
Whole blood donations		41,540	37,080
Haemochromatosis donations		783	744
Platelet donations		3,495	3,627
Total donations		45,818	41,451
Red cells imported from other blood services		404	1,668
Deferral* rate (%)	- of overall attend	10.44	9
	- of new donors	17.74	18

*A donor is considered deferred if they attend an appointment but are unable to donate due to not meeting the eligibility criteria to donate blood

6. Future Demand

Current assumptions are that the demand for red cells is expected to rise by 1% each year.

FFP demand will remain broadly stable over the next three years.

Demand for Cryoprecipitate is expected to rise by 3% each year over the next 3 years.

Demand for platelets is expected to increase by around 2.5% each year based on historical (including pre-pandemic) activity, activity since 2021 and assumptions around the development and introduction of more complex cancer therapies.

See Table 3 for annual projected demand data for blood components and Table 4 for weekly projected demand data for blood components.

Table 3: Annual Projected Demand

Year	Red Cells	Platelets	Fresh Frozen Plasma	Pooled Cryoprecipitate
2024/25	40,000	8,950	4,500	875
2025/26	40,500	9,200	4,500	900
2026/27	41,000	9,500	4,500	925

Table 4: Weekly Projected Demand

Year	Red Cells	Platelets	Fresh Frozen Plasma	Pooled Cryoprecipitate
2024/25	769	172	87	17
2025/26	779	177	87	17
2026/27	788	183	87	18

Review and adjustment

This document will be reviewed annually. Any change in the expected demand for blood components will be assessed and amendments to this strategy made as required. All amendments to this strategy will be agreed with relevant stakeholders.

7. Demand for O Negative Blood

Demand O RhD Negative blood can be administered, relatively safely, to patients of any ABO blood type and is referred to as the "universal blood type". This makes its immediate availability critically important in an emergency or when a patient's blood type is unknown. Only 9.3% of the NI population are blood group O RhD Negative, but demand for O RhD Negative have been growing and exceed 16% of all red

cell issues. Working closely with Hospital Trusts, NIBTS will aim to reduce O negative usage, over the next two years, to closer to the national average of around 12% of issues.

To enable this reduction, a comprehensive engagement programme with hospital clinicians will take place supported by more detailed monitoring of O negative issues, usage and wastage across the system to ensure the appropriate use of O negative in line with accepted national and European practice. This will include a focus on the use of O positive red cells for males, reserving O negative for females of child bearing age in immediate life-threatening situations, where it is not possible to cross match patients.

8. How Much Stock does NIBTS need to hold?

In order to fully meet the demands of the HSC system and ensure resilience, NIBTS should aim to collect sufficient blood to meet unexpected events such as major incident and mass casualty events. The proposed level of stock holding is based on previous experience within NIBTS and stock holding in other blood services. Effective stock holding must balance the demand for blood components with the need to minimise the wastage of donated blood and platelets.

Red cells

NIBTS should collect sufficient blood to maintain seven days stock for each blood group, at all times.

Platelets

NIBTS should collect sufficient platelets to maintain a minimum of two days stock at all times.

FFP

NIBTS should produce sufficient FFP to maintain ten weeks stock at all times.

Cryoprecipitate

NIBTS should produce sufficient Cryoprecipitate to maintain ten weeks stock at all times.

Paediatric and neonatal products

NIBTS must hold sufficient stock of neonatal and paediatric products to meet demand.

NIBTS will monitor central stocks of all blood components daily to allow adjustment in collection activity to meet changing demand. Stock holding across HSCNI is an important factor when deciding how much stock NIBTS should hold. NIBTS will work with Hospital Trusts to encourage blood banks to hold appropriate amounts of stock for all groups based on their issuable stock index.

9. How many donations does NIBTS need to collect

To maintain the stock levels of red cells identified above, NIBTS needs to set a collection target and a booked appointments target for whole blood and apheresis platelets. These targets need to consider anticipated losses throughout the NIBTS blood supply chain.

Red Cells

The collection target is the number of units issued plus additional units to compensate for all losses that occur due to time expiry before issues and losses during the donation e.g. donor related underweight donations, or during testing and component processing e.g. positive mandatory results or non-conforming components. Recent EBA benchmarking data indicates that the red cell losses across the supply chain in NIBTS equates to 11.5%. This figure is made up of 3.5% losses at collection, 1% at processing and 7% at time expired. *The collection target for red cells is therefore the issues average plus 11.5%.*

The appointments target is the number of units we need to collect plus additional appointments to compensate for losses that occur pre-donation such as donors do not attend (DNA) or are deferred as not eligible to meet donation criteria on the day of appointment. Currently 6% of blood donors who book an appointment do not attend. In addition, EBA benchmarking indicates that whole blood deferrals in NIBTS equates to 11%. *The appointment target is therefore the collection target plus 17%.*

Appointment fill level

NIBTS currently aims to provide appointments at a range of times to suit donors, however filling 100% of appointments is challenging. The appointments at the beginning and end of a donation session often prove more popular than appointments in the middle of the day. Based on current performance, NIBTS needs to provide an excess of 20% appointments to ensure the booked appointment target is met. Collection target also needs to consider the breakdown of red cells by blood group as demand differs. See Table 5 for current collection and appointment targets for Red cells by blood group in NIBTS. These targets should remain flexible to allow for building stock as a result of unexpected demand or unexpected supply of particular blood groups.

Table 5: Current collection and appointment targets for Red cells

Red Cells	O+	A+	B+	AB+	O-	A-	B-	AB-	TOTAL
Current Group Split	43%	22%	8%	2%	16%	7%	1.5%	0.5%	100%
Average Issues Per Week (2023/24 data)	330	169	61	15	123	54	12	4	768
Weekly collection target (Average Issues + 11.5%)	368	188	68	17	137	60	13	5	856
Weekly booked appointment target (Collection target +17%)	431	220	80	20	160	70	15	6	1002
Weekly available appointment target (appointment target + 20%)	517	264	96	24	192	84	18	7	1202

Platelets

NIBTS currently aims to obtain 80% of its platelets by Apheresis with the other 20% being made by pooling platelet rich buffy coat (BC) components derived from whole blood donations. Apheresis platelets are required for some but not all patients and require a significant commitment from donors. Other UK blood services obtain 40% of their platelets from pooling BC components.

Currently DNA and deferral for apheresis donors accounts for 10% losses and post donation losses account for 5.1% of units collected, figure being made up of 1% processing losses and 4.1% expiry losses. *The collection target for platelets is therefore the issues average plus 5.1%.* As apheresis donors can donate a single, double or triple dose platelet component then the appointments booked should be managed to ensure the required yield of platelet doses are achieved to meet demand. See Table 6 for current collection/manufacture targets for platelets by blood group in NIBTS.

Table 6: Current collection/manufacture targets for Platelets

Platelets	O+	A+	B+	AB+	O-	A-	B-	AB-	TOTAL
Current Group Split	44%	30%	6%	0%	11%	7%	1%	0%	100%
Average Issues Per Week (2023/24 data)	73	50	10	1	18	12	2	1	167
Weekly platelet Target (Average Issues + 5.1%)	77	52	11	1	19	13	2	1	176

FFP and Cryoprecipitate

FFP and Cryoprecipitate are manufactured from male whole blood donations only. The manufacture of frozen products must be balanced against the production of pooled platelets which are manufactured from the same pool of donors but need to be bled into a different initial collection pack. Previous experience within NIBTS has shown that the proposed collection target for red cells, in table 5 above, will ensure sufficient eligible donors of the correct groups are available to meet the current and expected demand for plasma products.

Ensuring we have enough of the right donors at each session

To ensure we collect the correct number of each blood group NIBTS invites donors of each blood group to every donation session. When stock of a particular blood group is low, donors of that blood group are contacted to encourage them to book an appointment. Where stocks of particular blood groups are sufficient NIBTS should contact donors to educate and explain that they should not make appointments until contacted to avoid wastage and to allow appointments to be filled by donors whose blood group is required.

Units for paediatric or neonatal use are selected from the collected units. If additional neonatal or paediatric components are required, eligible donors are selected and contacted individually to invite them to donate. Blood products for patients who require specific antigen negative blood also require individual donors to be identified and contacted. This approach creates challenges when blood stocks are low.

10. How many donation sessions do we need to provide?

NIBTS must provide an appropriate number of donation sessions of the correct size, each week, to meet the appointment targets identified previously. When deciding how many sessions are required per week several factors must be taken into consideration;

Previous performance

Previous performance is the single biggest indicator of how productive a donation session will be. NIBTS compiles and uses data on previous performance to help ensure the sessions planned for each week will meet our requirements

Frequency of donation

Men are able to donate whole blood every twelve weeks, women every sixteen weeks. In line with other blood services NIBTS utilises a sixteen-week session cycle that is repeated throughout the year. This model includes core venues that are visited once every sixteen-week cycle and a number of other venues that are visited less frequently.

The frequency of return is determined by the population size of the surrounding area, the donor panel sizes and historical activity data about collection numbers from that panel.

Apheresis platelet donors may donate every four weeks.

Appointments vs Walk in Sessions

Prior to March 2020 all NIBTS donation sessions were operated on a walk-in basis. In response to the COVID pandemic NIBTS had to ensure that the number of donors at sessions were limited so that social distancing requirements could be maintained. In order to do this an appointment system was introduced, which was already successfully in use in all other UK Blood Services.

The appointment system brought many benefits including; reduced waiting times, predictable appointment lengths for donors, better forecasting of what blood would be collected at each session, regular finish times for session staff and reduced ad hoc overtime requirement for session staff.

Feedback from donors indicate that the majority are very content with the appointment system as it allows them to plan their donation. However, some donors prefer walk-in appointments as this allows them to arrive at session whenever it is convenient for them. At some sessions, a hybrid system of appointments and walk-ins is facilitated. This model needs to be refined to ensure that those who make appointments can still donate at their designated time irrespective of walk-ins. The provision of walk-ins must also be carefully balanced in relation to collection and appointment targets.

11. Venues

Historically, smaller, community venues such as church halls and parish centres have been used for donation sessions with nominal fees charged to cover costs. During the COVID pandemic larger venues such as leisure centres and hotels were used to facilitate social distancing requirements. Post-pandemic, it has been more challenging to access leisure centres as these are once again used for sports activities.

Currently NIBTS utilises a number of community venues coupled with hotels and some educational venues. Due to the increased costs to heat and light the majority of these venues incur hire charges well above those incurred pre-pandemic.

As well as cost a number of other factors must be taken into consideration when planning the donation calendar:

- Whilst many communities are content to attend donation sessions at diverse venues, there are a number of communities where this remains challenging and this must be taken into consideration.
- In recent years, a number of sessions have been cancelled at short notice as the venue has been deemed unsuitable on the day for several reasons including poor heating and cleanliness.
- Donors have also complained about the lack of free car parking close to the donation venue.

Single Day or Two-Day Sessions

Data from the past two years shows that appointments on the first day of a two-day session will typically book up very quickly. However, the performance of the second day at the same venue is often much lower with the two days not yielding double collections. NIBTS will review the use of two-day sessions to ensure they are only provided where they are efficient and productive to meet required collection targets.

Weekend Sessions

Routinely, NIBTS donation sessions operate Monday to Friday, including Bank Holidays (except Christmas Day and New Year's Day). Other UK blood services also provide opportunities to donate on weekends. Considering the general demographic of blood donors and the probability that they will be working Monday to Friday the benefit of some weekend sessions needs to be evaluated. However, weekend collections have an impact on testing and processing activities which need to occur within a specified time after collection. NIBTS will use donor surveys to assess the demand for donation sessions at weekends and to review the feasibility of delivering donation sessions on a Saturday or Sunday.

12. Session Staffing

Blood Safety and Quality Regulations (BSQR) state that personnel directly involved in the collection, testing, processing, storage and distribution of human blood and blood components for the blood establishment are qualified to perform those tasks and are provided with timely, relevant and regularly updated training. Guidelines for the Blood Transfusion Services in the UK further state that blood establishments must ensure that there is an appropriate staffing levels and skill mix to ensure donor safety and adequate monitoring of the equipment in use.

The current collection staffing model in NIBTS has remained broadly unchanged for more than ten years. During this time, the staffing models and skills mix approach in other blood services across the UK and Europe has changed dramatically as have the expectations of donors and service users. Whilst there is no standard model, other blood establishments, staffing skills mix has progressed to a more agile approach to facilitate more flexibility across the session. NIBTS will review our practises and adapt a model that best suits the needs of NIBTS.

13. Donor Administration and Donor Engagement team

The Donor administration and Donor Engagement team manage a number of different touch points with the donor throughout their donation journey.

The Donor administration team are responsible for booking appointments via our phone line booking system and managing all elements of donor records. This includes but is not limited to updating personal details, cancelling appointments, inputting results post donation and updating of communication preferences. At present this team are also responsible for finding exchange matches for specific units of blood and maintaining communication with platelet donors to encourage them to book appointments. Alongside this, members of this team will be present at all donation sessions to manage the check-in/check-out process for donors at mobile session.

The Donor engagement team are split into two core functions – Marketing & Transport/Planning.

The Marketing team are responsible for all elements of strategic communication that NIBTS have with donors to attract new donors and reengage existing donors. This includes texts, social media, partnership working, school and university talks, event management and e-mail communication. The develop all content in house from copy, social posts and video creation. The team are also responsible for the management of our donor rewards strategy. The team also undertake donor engagement through surveys to research into how we can better engage with donors and improve their experience with NIBTS. Integral to all we do is ensure we have the right donors attending at the right time.

The Transport and Planning team have responsibility for where NIBTS will host sessions and ensuring our team can get there safely. The transport team function to manage the NIBTS fleet. This includes all legal responsibility's, fuel costs, maintenance costs, contract management and general management of the fleet. The planning team are responsible for planning the location of sessions through NI and sourcing new venues to go to. The venue inspections are undertaken, consideration is given to when and where to go depending on panels available, venue availability, times of the year and days of the week. The venue team also manage cost of venues in line with cost per donation methodology.

All of the above teams are involved in the management of our online booking systems and updating of PULSE system.

14. Regional Transformation Programme.

There are a number of regional transformation programmes currently ongoing across HSCNI. At least three of these programmes will have an impact on NIBTS within the next three years.

The regional Laboratory Information Management System (LIMS). This programme will roll out one IT system for Laboratory services within HSCNI

The regional Blood Production and Tracking (BPAT) system. This programme will replace the current core blood management IT system in NIBTS and the blood tracking systems used within hospital trusts.

The Pathology Blueprint Programme. This programme will explore options for moving the management of laboratory services from each Trust and NIBTS into a single regional pathology management structure.

15. Measuring What Good Looks Like

When assessing what good looks like a number of operational metrics are reviewed as well as data from the annual European Blood Alliance benchmarking exercise and donor and clinical feedback. Key performance indicators (KPIs) are already established and measure the performance of the service. These metrics are reported to the Senior Management Team monthly and quarterly to the Board.

A new Performance Management Framework for NIBTS has been developed to outline our commitment to promoting continuous improvement, responsibility, accountability, and staff development within our organisation. Through this framework, we aim to establish clear performance expectations for all areas that make up the organisation and explains how management will provide feedback, recognise achievements, and support professional growth.