Improving Access to Therapeutic Apheresis Services in the South West of England: The Development of a Web-based Roadmap to Outline Referral Pathways

Executive Summary

In the South West of England, a standardised apheresis referral pathway does not exist and service delivery failures have been reported in the region. The research completed as part of this project highlighted that 41% of Trusts in the region have experienced difficulties in gaining access to apheresis services. Time-to-treatment is a critical factor in determining patient outcomes for some conditions requiring apheresis, such as Thrombotic Thrombocytopenic Purpura (TTP). Trust-personalised webpages have been developed which clarify the apheresis referral pathways for clinical teams and outline the service providers for each clinical specialty. Direct links to referral forms are also provided where NHS Blood and Transplant (NHSBT) is the main service provider. In this way, delays in the provision of apheresis services in the South West region due to an inefficient or unclear referral process, will be avoided or minimised.

Introduction

Therapeutic apheresis machines collect, exchange or remove specified blood components to treat diseases across clinical specialties. Some Trusts have access to 7 day apheresis services through either robust in-house arrangements utilising Trust resources or outsourcing to tertiary providers such as NHSBT (which offers specialist trained staff and a 24 hour service). However, access to apheresis services is fractured or unclear for other Trusts, which has resulted in service delivery failures in the South West region.

A web-based roadmap, detailing the apheresis service providers for each Trust in the North West (NW) region, was created in 2013. This aimed to improve referral efficiency and identify gaps in service provision which needed to be addressed. Since the delivery of this work and the introduction of a regional centre for TTP treatment, no service delivery failures have been reported in the region.

NHSBT and the South West Regional Transfusion Committee (SW RTC) have collaborated to produce a similar web-based tool. The purpose of the Roadmap is to improve the clarity of the complex apheresis referral pathways for Trusts; the website will prove particularly useful for new or rotating Doctors. Improving the accessibility of referral forms and contact details of service providers will reduce avoidable delays in the provision of apheresis treatments which could impact upon patient outcomes. Apheresis service providers were identified for each speciality, within NHS Hospitals, in the

South West of England. This information is now available for the use of referring Consultants online.

Methodology

The support of the SW RTC was gained following a presentation of the prospective aims and outcomes of the project at the November 2016 Regional Transfusion Committee meeting. Contact details for members of the Hospital Transfusion Teams (HTTs) were obtained through local intelligence and collaboration with the SW RTC. A web-based snapsurvey was subsequently designed and circulated, by email, to all members of each HTT in the South West of England. One representative from each HTT provided service provider information for the specialties within their Trust. One follow-up email was sent and a response was received from all 17 Trusts (as listed in the Appendix) in the region, by the deadline in December 2016. Results were mostly obtained through completion of the web-based survey; exceptions included University Hospitals Bristol, Weston Area Health and North Bristol Trusts, where results were obtained verbally and Great Western Hospitals NHS Foundation Trust where results were obtained by email communication.

The information collated was entered into an Excel© spreadsheet and used to inform personalised referral pathway webpages for each Trust. Provisional webpages were sent to each Trust to confirm the accuracy of the information before going live on NHSBT's webpages: http://hospital.blood.co.uk/. For the purposes of this report, data was reclassified into numerical variables for analysis and the results recorded proportionately (n,%).

To maintain the value of the webpages and ensure the information provided is up-to-date, any changes to referral information or pathways, should be directed from Trust colleagues to the webpage National Administrator (contact details are available on each webpage). Links to the webpages will also be sent annually by NHSBT to the Hospital Transfusion Teams to review the accuracy of the referral information provided.

Results

The member of the HTT completing the survey was asked to detail the name of their Trust and the Hospitals to which their response applied, as displayed in the Appendix. The job titles of the HTT members completing the survey are detailed in *Table 1.*

Table 1: Number of Survey Respondents with Associated Job Titles

Job Title	**Number of Respondents**
Consultant Haematologist	11
Transfusion Practitioner	1
Transfusion Laboratory Manager	2
Haematology Clinical Nurse Specialist	1
Transfusion Nurse	1
Transfusion and Anaemia Lead	1
Total number of respondents	**17**

Figure 1 displays the split, across 17 Trusts (as detailed in the Appendix), of service providers of Plasma Exchange (PEX) for haematological conditions, such as TTP. It was reported that NHSBT provide the service in 6 Trusts. One Trust which gave no answer, did so for all questions asking about their service provider; it is however understood that this Trust has a Service Level Agreement with NHSBT for the provision of apheresis services. It is therefore suggested that approximately the same number of Trusts provide PEX for haematological conditions in-house as the number that refer to NHSBT. Of the Trusts which provide PEX in-house, the majority of procedures are undertaken by the Haematology department. Although, one Trust reported that PEX is provided in-house by the Renal team. The Trust which stated 'other' commented: 'our Intensive Care Unit will perform plasma exchange using their renal replacement units at our request for conditions such as TTP'.

Figure 1: **Service Providers of Plasma Exchange for Haematological Conditions such as TTP**

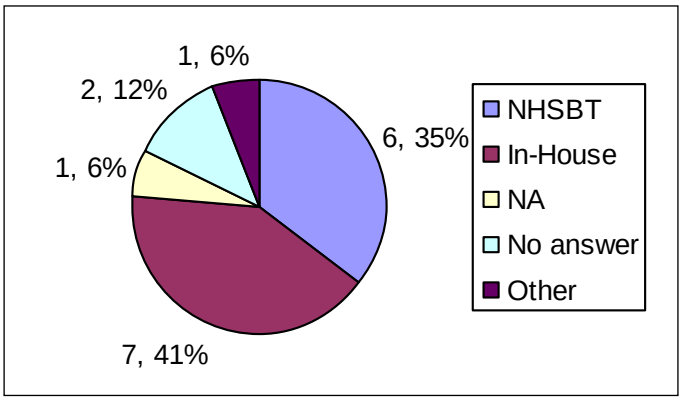


Figure 2 shows that NHSBT is the main service provider for Extracorporeal Photopheresis (59%), Leucodepletion (52%), Red cell Exchange (41%) and Low Density Lipoprotein Removal (35%) in the region. The results highlight that Low Density Lipoprotein Removal and Extracorporeal Photopheresis are not offered as in-house treatments in any Trusts. The treatments with the greatest proportion of in-house provision by Trusts were PEX for haematological conditions (41%) and Stem Cell Collection (35%).

Figure 2: **The Proportion of Service Providers for Haematological Apheresis Treatments in the South West Region**

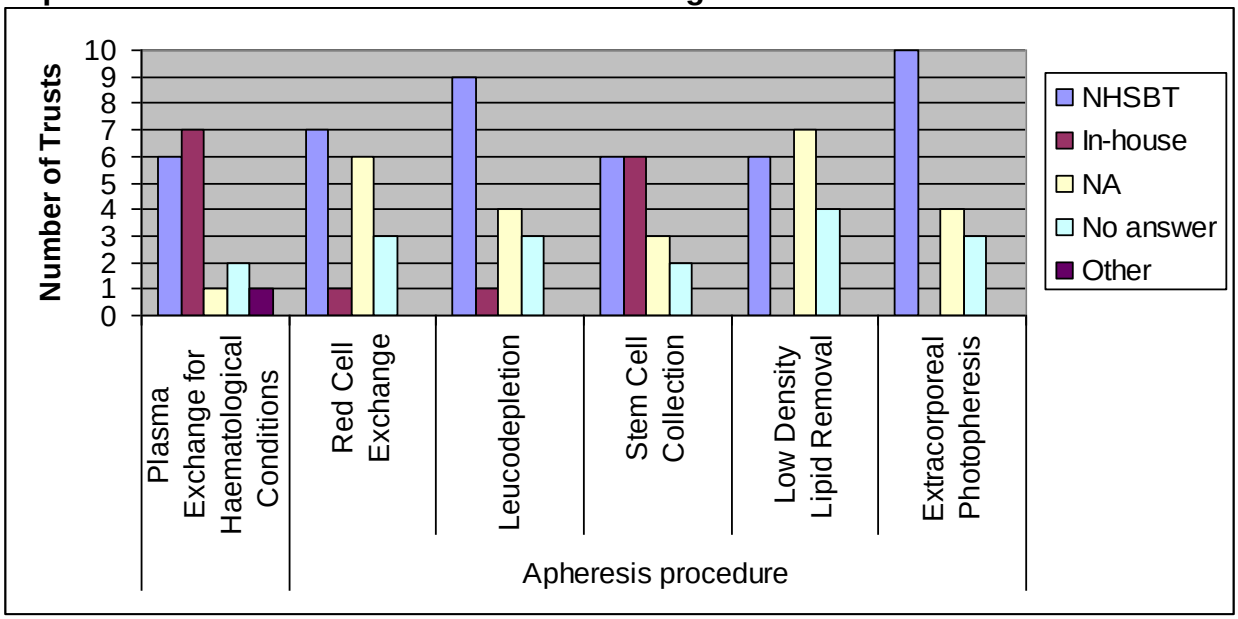


Figure 3 compares, within specialties, the proportion of each service provider for Plasma Exchange. The results suggest that Trusts typically have provisions for PEX for haematological conditions, with 82% of Trusts offering this treatment either in-house or via NHSBT. However, fewer Trusts offered PEX for the treatment of conditions of other specialties; inclusive of both in-house and tertiary service providers, 46% offered PEX for renal conditions, 41% for neurological and 35% for immunological / rheumatological conditions.

Furthermore, the proportion of Trusts which utilised NHSBT services for PEX was greater for haematological conditions (35%) than for renal (0%), neurology (18%) and immunology / rheumatology (6%). The Trust which responded 'other' when questioned on service provision of PEX for neurological conditions, commented that their Neurology Department are not aware that PEX is available in Trust and patients are instead managed with Intravenous Immunoglobulin treatment or via tertiary referrals.

Figure 3: **Proportion of Plasma Exchange Service Providers for Haematology, Renal, Neurology and Immunology/ Rheumatology Specialties**

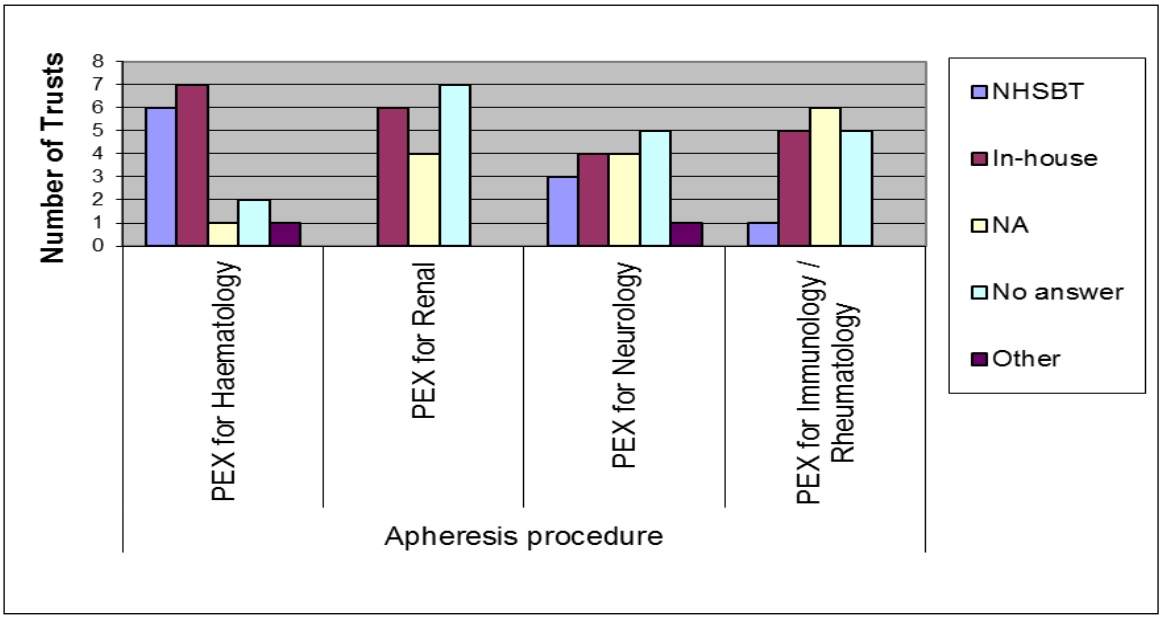


Table 2 shows a breakdown of the responses to the remaining questions in the survey. Diagrammatic representations of the results are available in the Appendix. Furthermore, a map of the region is provided in the Appendix which is labelled with some of the comments from respondents and identifies the areas in which NHSBT has Service Level Agreements with Trusts for Therapeutic Apheresis provision.

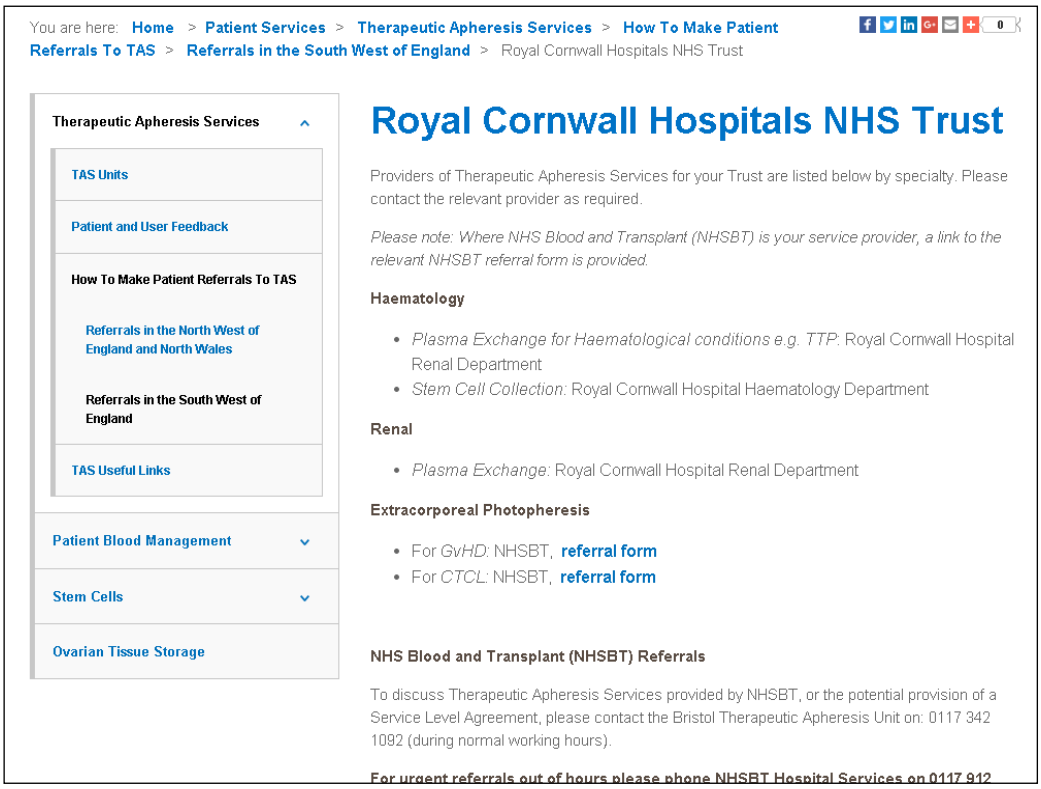
***Table 2*: Apheresis provision in the South West region**

Survey Question	Proportion of Trusts		
	Yes	**No**	**No Answer**
Can you recall any difficulties in gaining access to TAS procedures in recent years?	41%	53%	6%
Would a Roadmap be helpful?	82%	6%	12%
If your current service provider is unable to provide the service, do you have a contingency plan?	47%	41%	12%
Does your current service provider offer a weekday or out of hours service?	47%	35%	18&
Does your current service provider offer a weekend service?	53%	35%	12%

The results of this sample demonstrate that NHSBT provides at least one type of apheresis service for 59% of NHS Trusts in the South West region, either directly or indirectly. 35% of Trusts have a formal Service Level Agreement (SLA) with NHSBT, while the remainder may rely on ad hoc or one-off treatment requests. In particular, NHSBT was identified as the main service provider for Extracorporeal Photopheresis and Leucodepletion. 53% of Trusts provide at least one type of apheresis treatment in-house utilising Trust resources. The procedures with the highest proportion of in-house provision included stem cell collections and PEX for haematological or renal conditions.

The roadmap website details the service providers of the apheresis services for which the Trust has arrangements for, whether provided in-house or by a tertiary provider. The website also provides direct links to NHSBT agreement and referral forms, where relevant, as well as contact details for the Lead Nurse and Lead Consultant of the local NHSBT apheresis unit. Contact details are also provided for the arrangement of urgent referrals out of hours. *Figure 4* shows a screenshot of the roadmap webpage for the Royal Cornwall Hospitals NHS Trust.

Figure 4: Roadmap webpage for Royal Cornwall Hospitals NHS Trust as seen on the hospital.blood.co.uk website.



Discussion

The research of this project highlights that Trusts / Hospitals, in the South West region, have variable service providers and access to apheresis services. The results showed that 7 (41%) Trusts have a lack of contingency plan, 6 (35%) Trusts offer no weekday out of hours or weekend services and 7 (41%) Trusts have experienced difficulties in gaining access to Therapeutic Apheresis procedures, over the last few years. The results support the rationale for the development of a web-based roadmap to improve the accessibility of current apheresis provision through clarifying referral pathways.

Time-to-treatment for some conditions which require therapeutic apheresis services can be a critical factor in the determination of patient outcomes. In particular, it is recommended that for the treatment of TTP, PEX is administered no more than 8 hours after the presentation of symptoms; the

mortality of TTP is up to 90% if untreated (*Dutt and Scully, 2015)*. Therefore, it is imperative that any avoidable delays in the provision of treatments are minimised. Due to the variability in the apheresis service providers between Trusts and between departments in the same Trust, fractured and unclear referral pathways exist for many regions. As a result of variable service provision and delays in the delivery of apheresis treatments to patients in the North West region, a web-based roadmap to outline referral pathways was developed, in 2013. Since the development of the roadmap, as well as the introduction of a regional centre for TTP treatment, no service delivery failures have been reported.

Inefficiencies of the referral process in the SW were highlighted via direct communication with clinicians and through the analysis of responses to User Satisfaction Surveys, sent to Consultants who refer to NHSBT. The NW roadmap was used as a model for this similar incentive in the SW, to clarify referral pathways and identify service delivery gaps. As a development from the previous model, each webpage for the South West also provides direct links to referral forms and contact details for NHSBT provided services. This directly addresses concerns of Consultants relating to the accessibility of referral forms. The results support the rationale for the development of webpages to clarify referral pathways and highlight gaps in service provision to be reviewed.

Recommendations

Comments from Trusts associated with the difficulties in accessibility to TAS services are displayed in *Figure 5* (Appendix). Trusts with SLAs with NHSBT Bristol unit refer to difficulties in arranging for inpatient clinical care with University Hospital Bristol (UHBristol) NHS Foundation Trust; this information has facilitated discussions between the Bristol NHSBT apheresis Unit and other UHBristol colleagues. Other Trusts refer to difficulties with budgets and transfers to tertiary providers. This report highlights the specific gaps in apheresis service provision across the region and it is recommended that it should be used to facilitate discussions between Trusts and service providers to identify actions for addressing the difficulties in apheresis accessibility identified.

In the NW, it was difficult to accurately establish the beneficial impacts of the roadmap as it coincided with the introduction of a regional TTP centre. It is therefore recommended that the beneficial impacts of the SW roadmap, on referral form accessibility and the clarity of the referral process, is monitored; any changes in the views of clinicians who refer to NHSBT for apheresis services can be established through the annual User Satisfaction Survey. Furthermore, any changes in the quantity of service delivery failures prior to and following the introduction of the roadmap, could be established to support the development of roadmaps for further regions.

Author

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References

Dutt, T., and Scully, M., (2015), British Journal of Haematology. *A proposal: the need for thrombotic thrombocytopenic purpura Specialist Centres – providing better outcomes*, **170**, 737-742

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Disclaimer

This report is based on the responses to a survey sent out to Hospital Transfusion Teams in November 2016. The author is not responsible for the accuracy of the data provided by respondents.

Appendix

Table 3: Trusts with Associated Hospitals for the South West Roadmap

Name of Trust	**Name of Hospital/s**
Dorset County Hospitals NHS Foundation Trust	Dorset County Hospital
Gloucestershire Hospitals NHS Foundation Trust	Cheltenham General Hospital Gloucester Royal Hospital
Great Western Hospitals NHS Foundation Trust	The Great Western Hospital
North Bristol NHS Trust	Southmead Hospital
Northern Devon Healthcare NHS Trust	Northern Devon District General Hospital
Plymouth Hospitals NHS Trust	Derriford Hospital
Poole Hospital NHS Foundation Trust	Poole General Hospital
Royal Bournemouth & Christchurch Hospitals NHS Foundation Trust	The Royal Bournemouth Hospital
Royal Cornwall Hospitals NHS Trust	Royal Cornwall Hospital
Royal Devon & Exeter NHS Foundation Trust	Royal Devon and Exeter Hospital
Royal United Hospital Bath NHS Trust	Royal United Hospital
Salisbury NHS Foundation Trust	Salisbury District Hospital
South Devon Health Care NHS Foundation Trust	Torbay Hospital
Taunton & Somerset NHS Foundation Trust	Musgrove Park Hospital
University Hospitals Bristol NHS Foundation Trust	Bristol Royal Infirmary
Weston Area Health NHS Trust	Weston General Hospital
Yeovil District Hospital NHS Foundation Trust	Yeovil District Hospital

Figure 5: **Can you recall any difficulties in gaining access to Therapeutic Apheresis Services in the past few years?**

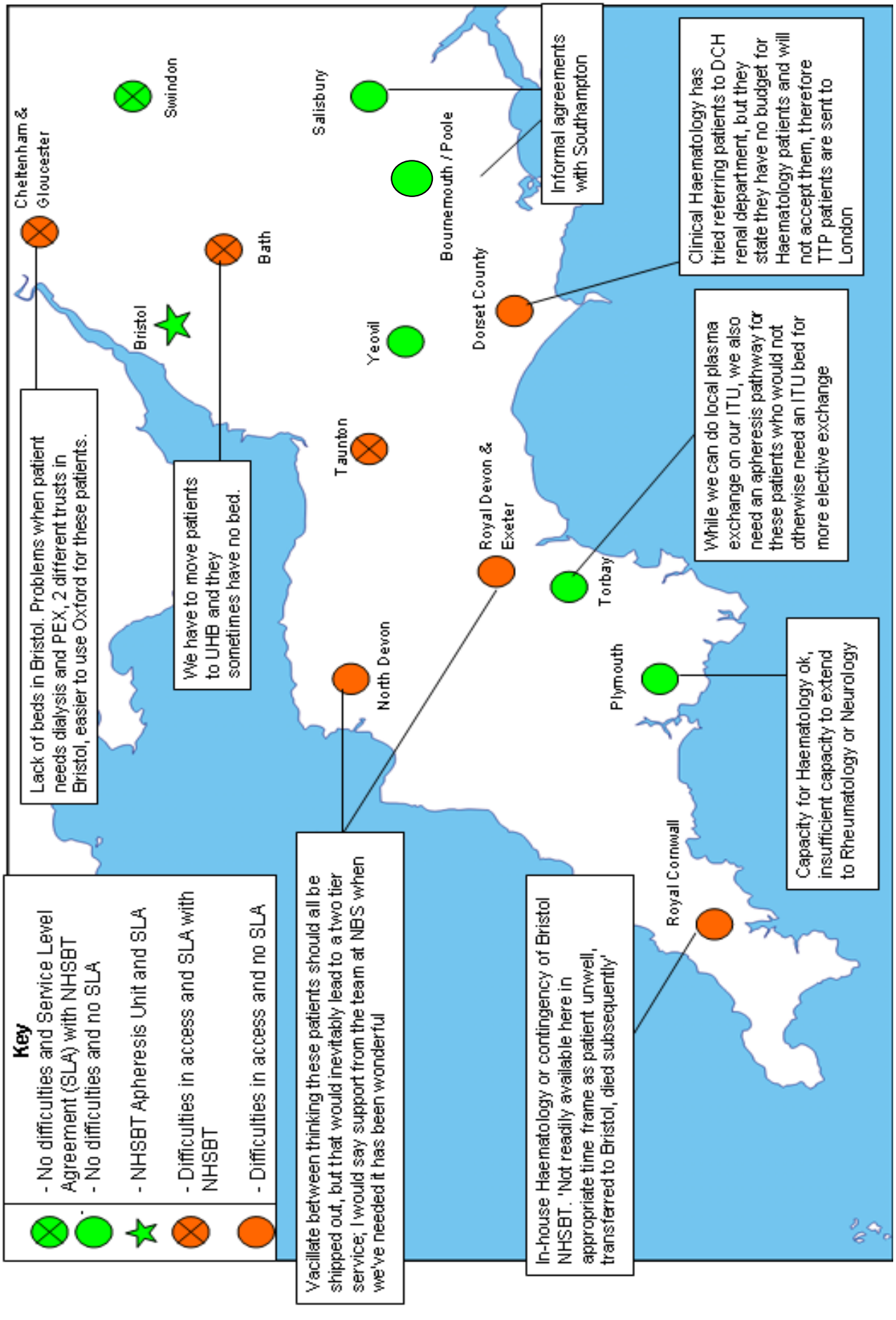

Figure 6: **Service Providers for Other Haematological Apheresis Treatments including: Red Cell Exchange, Leucodepletion, Stem Cell Collection, Low Density Lipoprotein Removal and Extracorporeal Photopheresis**

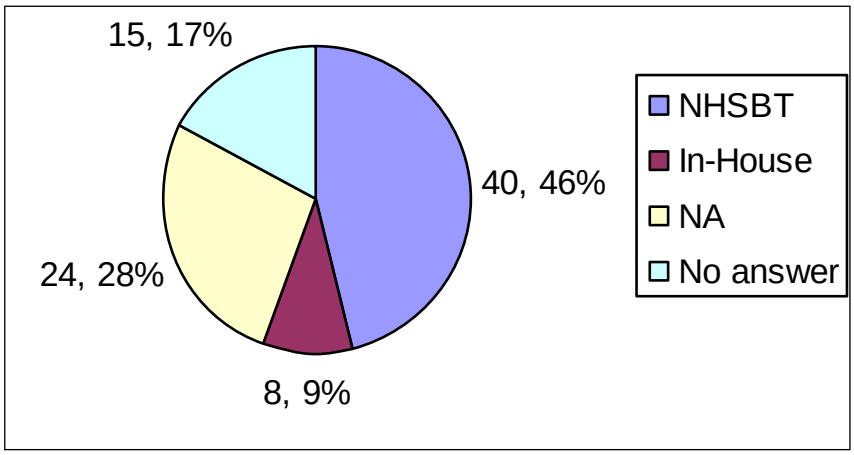

Figure 7**: If your current service provider is unable to provide the service, do you have a contingency plan in place?**

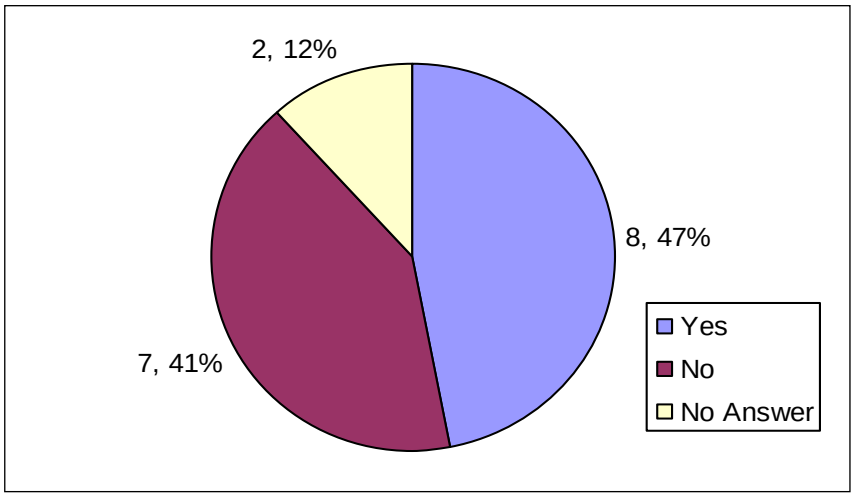

Figure 8: **Does your current service provider offer a weekday out of hours service?**

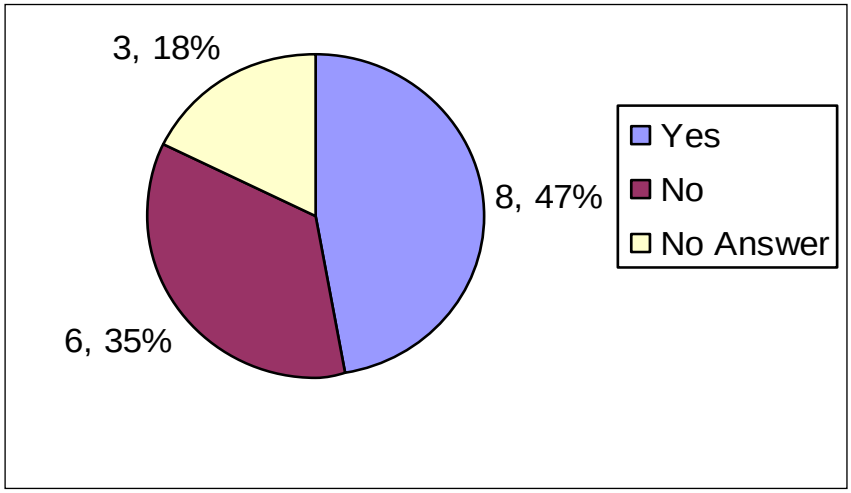

***Figure 9*: Does your current service provider offer a weekend service?**

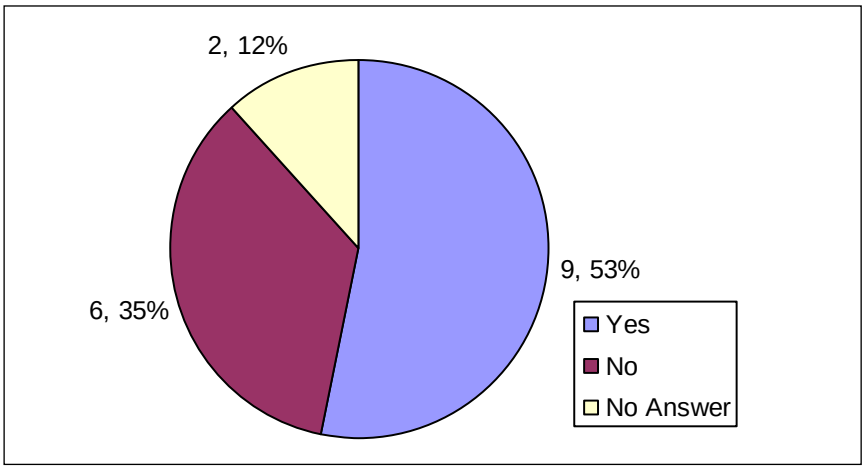

***Figure 10:* Can you recall any difficulties in gaining access to Therapeutic Apheresis procedures over the last few years?**

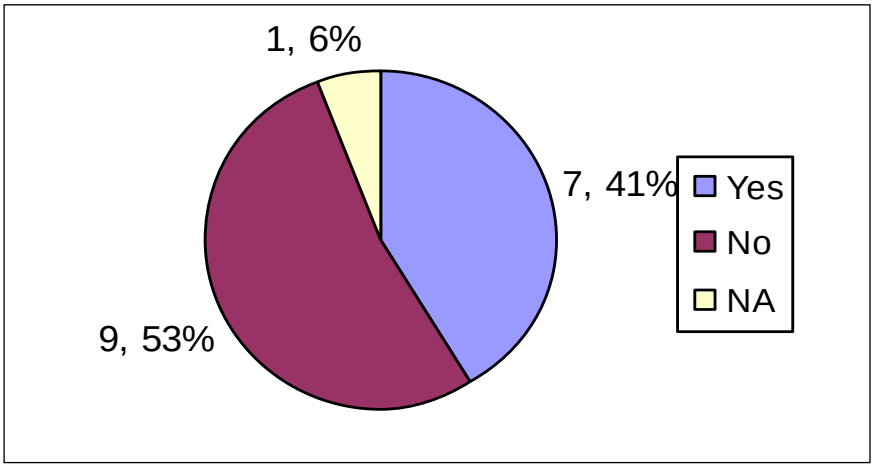

Figure 11: Would you find it helpful to have a regional roadmap available to guide the therapeutic apheresis referral process?