NHS
Blood and Transplant

Therapeutic Apheresis Services (TAS)

Who we are and what we do.

Caring Expert Quality

Shiji Biju and Elvio Pereira, 2018

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Content

- Overview of TAS
- Treatments & Technology
- Overview of Sickle Cell disease
- NICE Guidelines
- Case Study
- Questions

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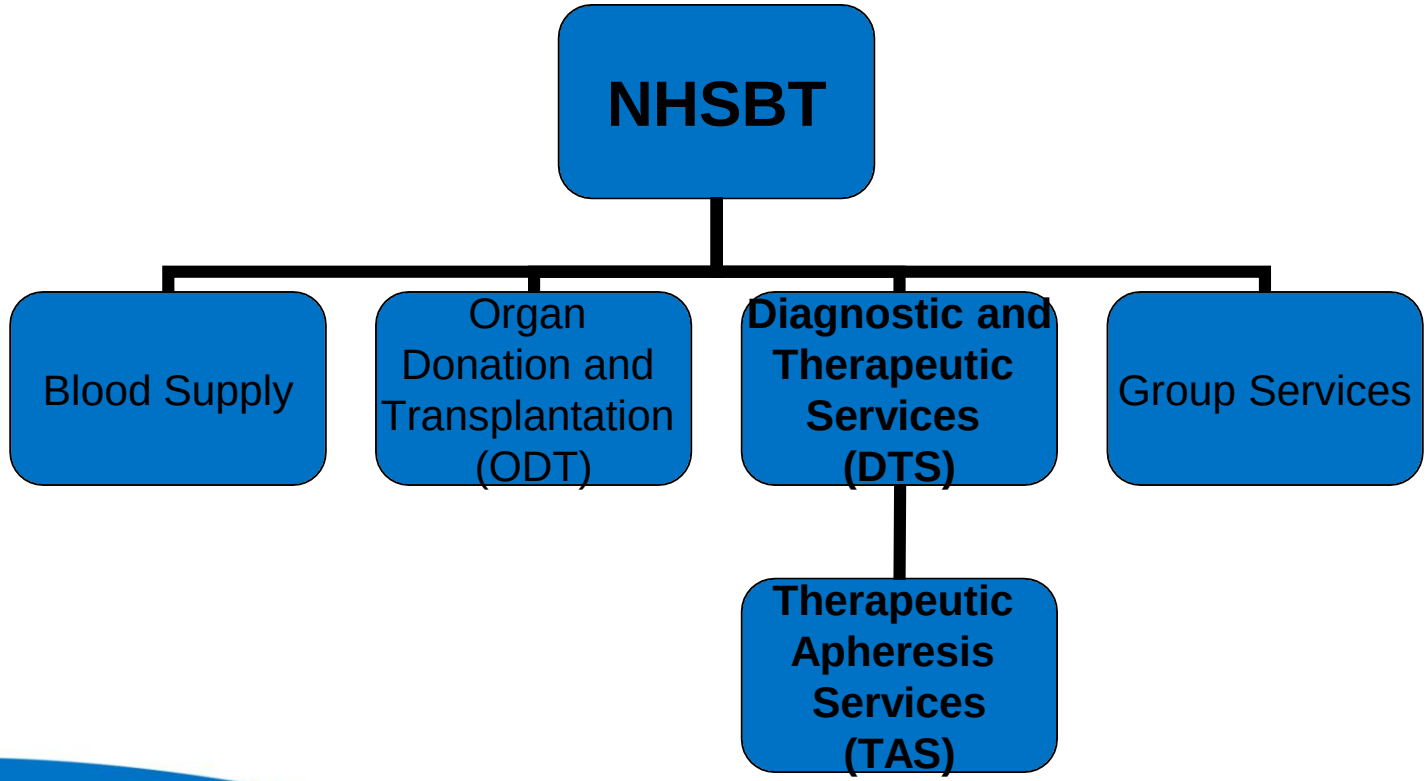
NHSBT Organisation Structure



TAS Services

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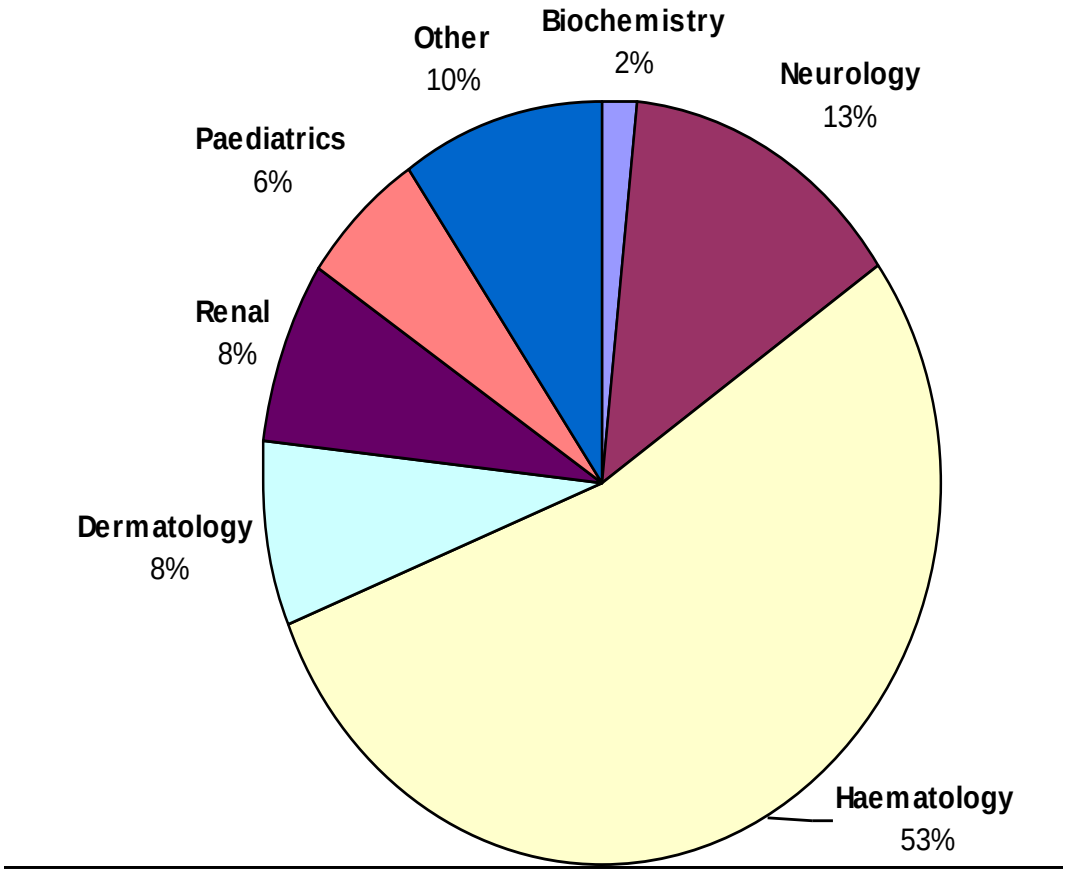
- Eight services across England
- 24/7, 365 emergency service provision
- Adults and peadiatrics
- Services delivered from NHS Acute Trusts
- Managed as regional and national network
- Range of different treatment options in each unit
- Approx 8,000 treatments each year (approx 1,500 patients)

Apheresis Services

TAS provide a large portfolio of apheresis treatments to adult and paediatric patients, including:

- Therapeutic Plasma Exchange
- Extracorporeal Photopheresis
- Automated Red Cell Exchange
- Peripheral Stem Cell Collection
- Low Density Lipoprotein
- White Cell Depletion



Technology

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OPTIA

Multi Purpose Platform

(30)

CELLEX

Photopheresis

(12)

DALI

Lipid Removal

(2)

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Therapeutic Apheresis Unit - Birmingham

- 2 Nurse Practitioners
- Automated Red cell Exchange
- Open 08:00-16:00 Monday to Friday
- 24/7 service via on call system

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Sickle Cell Disease

Pathology, complications, treatment options, NICE guidelines

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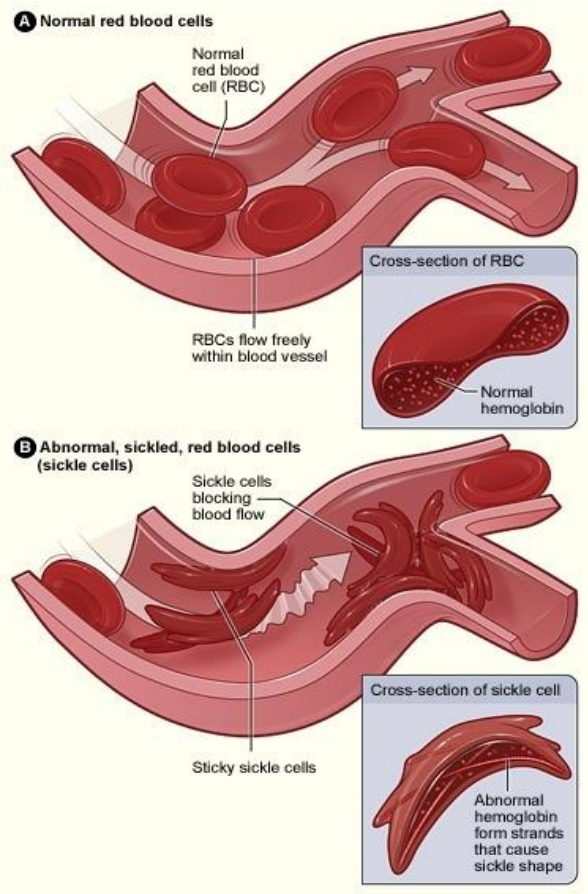
Pathology

- Genetic disease.
- Affects the haemoglobin.
- Produce abnormal RBC.
- Increased viscosity.
- Abnormal RBC have shorter life span.



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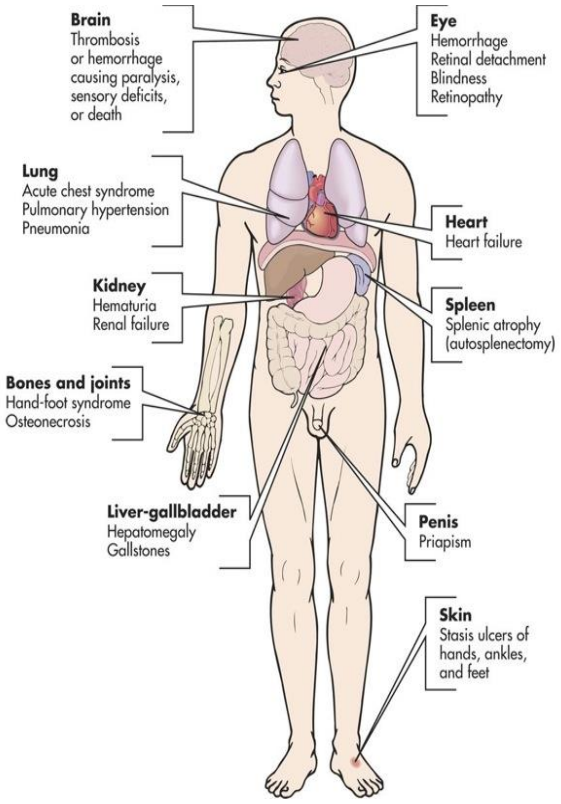
Complications

- Small vessel obstruction.
- Lack of tissue oxygenation.
- Anaemia.
- Increased viscosity.
- Increased risk of infection.
- Death.



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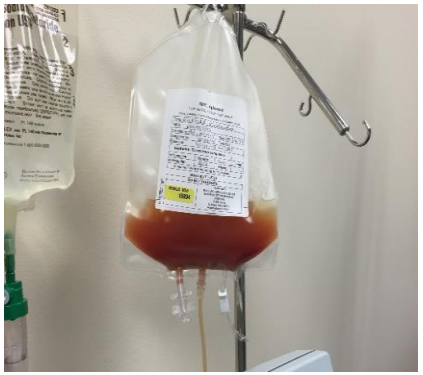
Treatment Options



City Hospital Birmingham

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- SCAT Centre was started in the year 2000
- 550 Sickle cell patients
- Regional Centre
- Covers Birmingham, Stoke, Stafford, Worcester, Wolverhampton
- Prior to Automated Red cell Exchange, was doing Manual Exchange
- Manual Red cell Exchanges were done only in Emergency situations

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City Hospital - Birmingham

- Patients who required regular Red cell Exchange were travelling to London
- Works with NHSBT since 2016 August
- 17 patients on regular Automated red cell exchange and approx. 30 emergency treatment over 12 months period.

Collaborative working

- **Communication**

Between TAS and SCAT on a daily basis

- **Cannulation**

Vein assessments are carried prior to the treatment, requested by the Haematologist Consultant in City Hospital.

If veins are not suitable for peripheral cannulation, patients are admitted the day before(managed by SCAT centre) and a central line will be inserted.

- **MDT meetings**

Carried out every 6 months.

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Treatments

- Outpatients treated at City Hospital.
- Treated offsite.
- Treated as outreach.

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Red Cell Exchange

- Known as automated exchange or exchange-transfusion
- Defective RBC are removed and normal RBC are simultaneously infused
- Can rapidly adjust the HCT% and HBS% concentration of the patient achieving targets.
- Avoids fluid overload, increased viscosity and iron overload associated with transfusions
- Can perform also perform depletion/ exchange

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Technology

- Cell separator
- Continual flow
- Centrifugal force
- Optical detection technology

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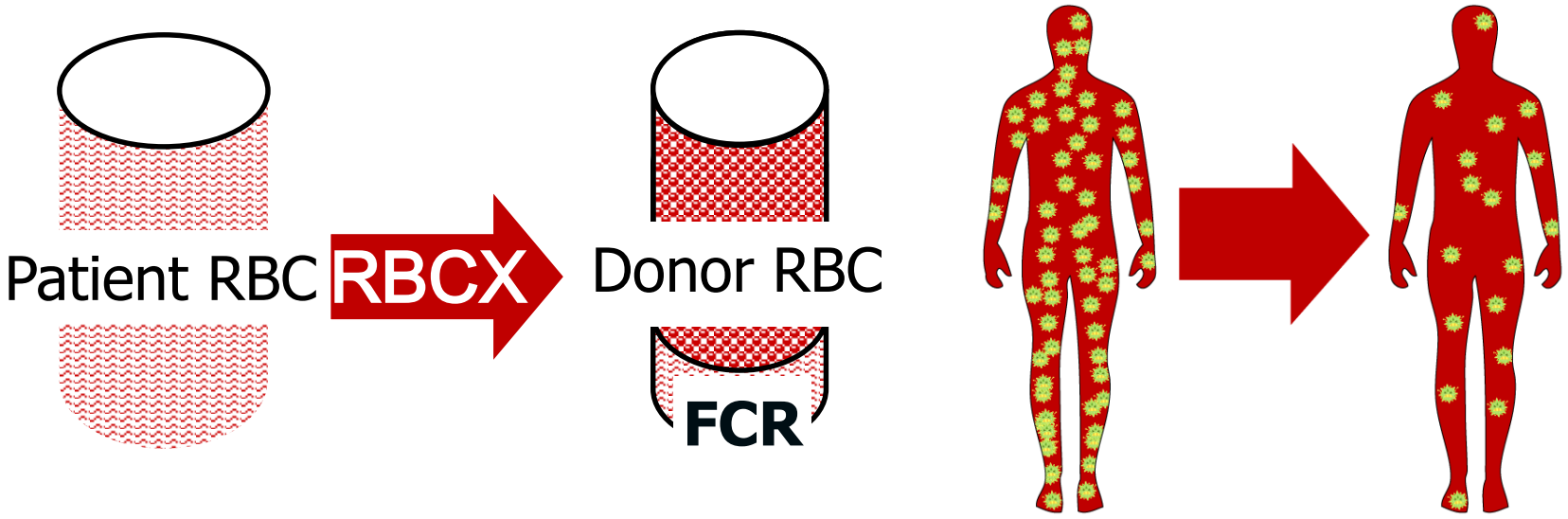
How it works…



NICE National Institute for Health and Care Excellence

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Spectra Optia for Automated Red Blood Cell Exchange in Patients With Sickle cell Disease

- RBCX should be considered for automated red blood cell exchange in patients with sickle cell disease who need regular transfusion.
- Automated exchange is faster to use and needs to be done less often than manual red blood cell exchange

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NICE National Institute for Health and Care Excellence

- The benefits include being cost effective compared to manual exchanges.

- When comparing Optia with manual exchange or top up transfusion. It is estimated to save £18,100 per patient per year. Totalling £12.9 million each year.

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Patient Benefits

- Less frequent treatment.
- Shorter treatment duration.
- Manages iron overloading and blood viscosity.
- Reduced hospital stay and staff time.
- Reduced complications from sickle cell disease leading to reduced hospitalisation and associated treatment.
- Better use of donor blood.
- Improve quality of life for the patient.

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Case Study

- 23 year old male.
- Diagnosed at the age 4 years in Zimbabwe, when became ill. Migrated to U.K at the age 5.
- Monthly Top up Blood transfusions at Children's hospital.
- On Iron chelation.
- City hospital since 2012.

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Case Study

- On Red cell exchange since August 2016.
- Average Pre HbS is 35% and post HbS is 15%.
- No Hospital admission since then.

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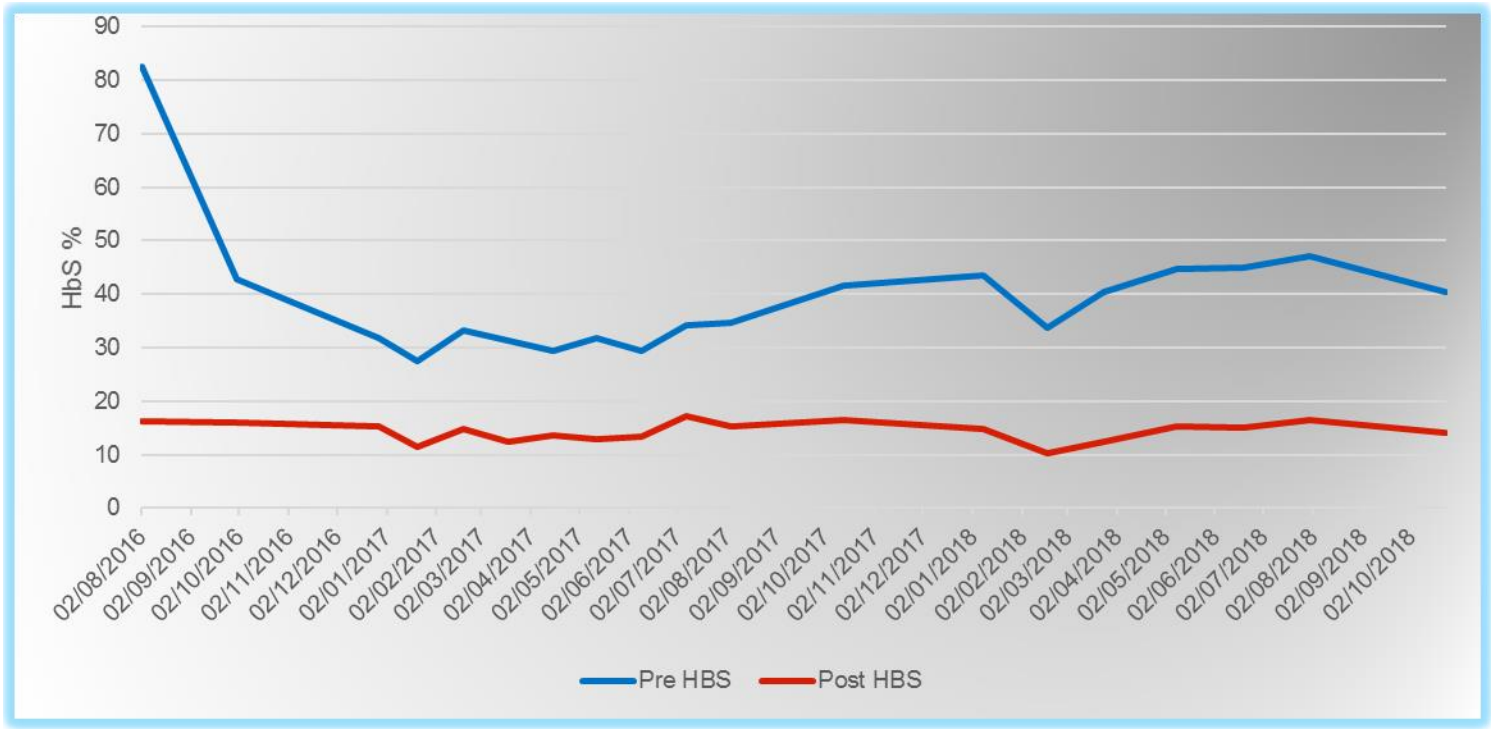
Reduction in HbS



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Summary

- Automated exchanges remove red blood cells containing haemoglobin S and rapidly replaces them with healthy RBCs while maintaining isovolaemia.
- They help to manage HCT, Iron and Viscosity of the blood.
- They can be performed on any patient of any size with the right vascular access.
- Treatments are more cost effective in the long term.

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THANK YOU.

ANY QUESTIONS?