NHS
Blood and Transplant

Red Cell Exchange

September 2024 – Cambridge Symposium

Bridget Audsley

TAS - Senior Nurse Manager Education

Expert Apheresis Education

Therapeutic Apheresis Services

NHS Blood and Transplant

8 Main units and 2 spoke units

2024 – 2 new units planned:
- Cambridge
- Middlesbrough

Staff:

~ 150 in total

~ 120 clinical staff

Including:

Education team

Governance team

trainee ACP's

Student Nurse Associates

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Around 20% of all procedures in 2023/24 were red cell exchange

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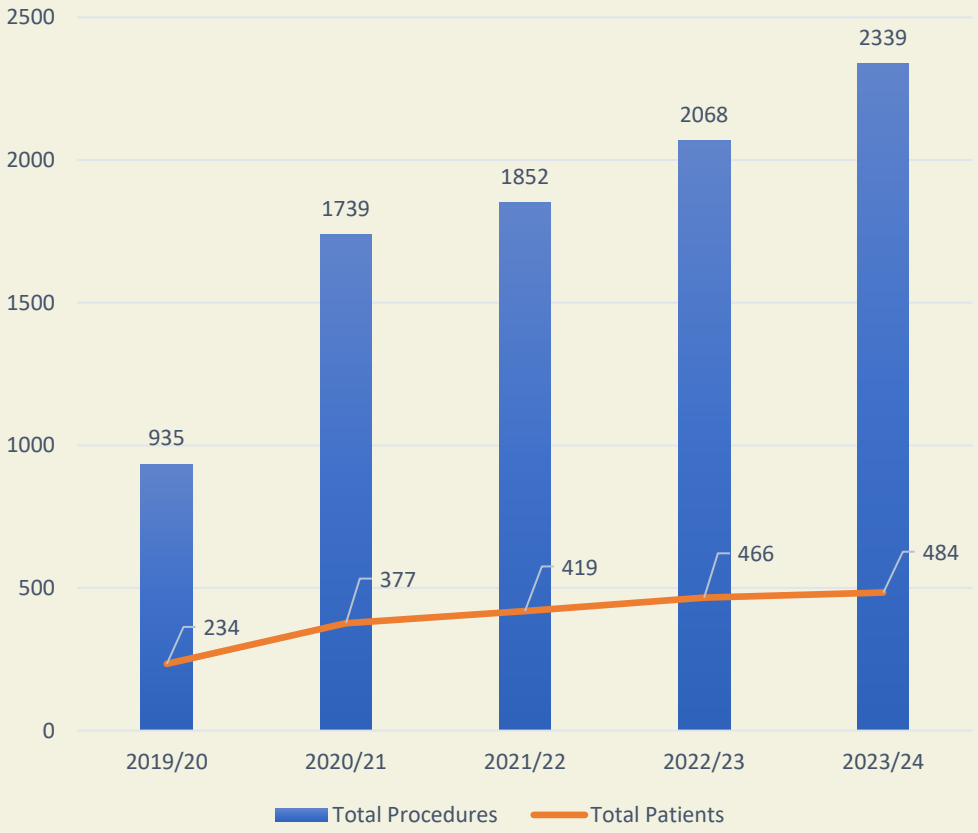
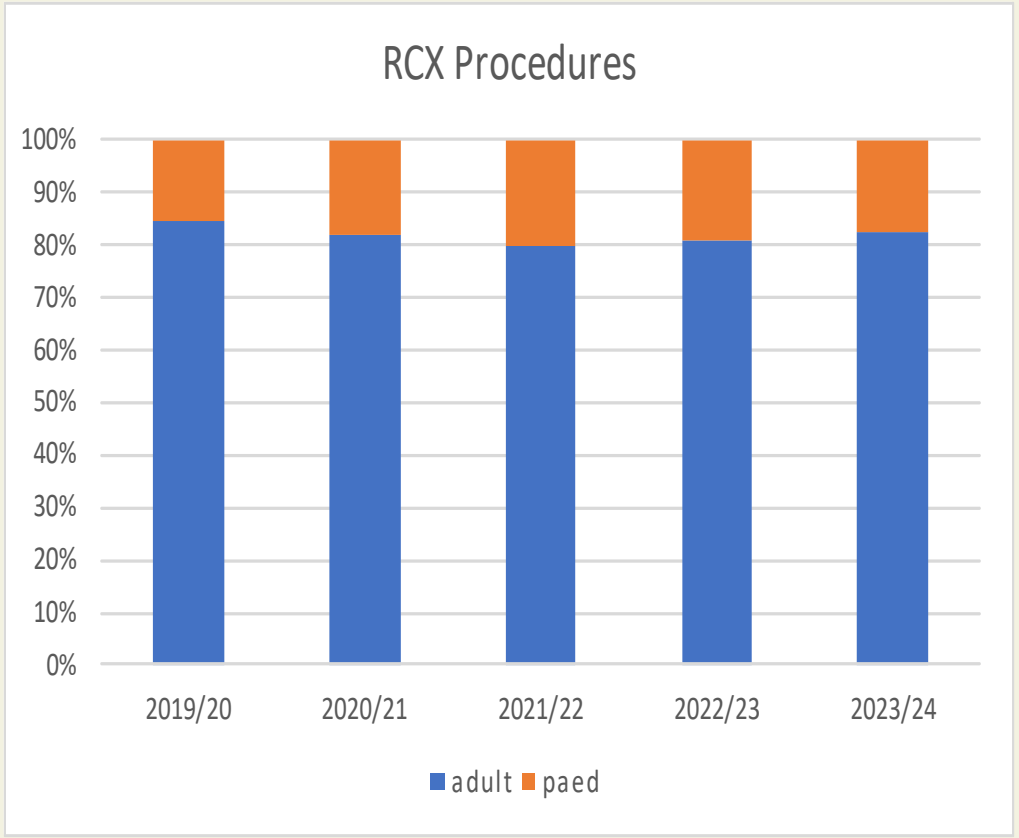
RCX Procedures and Patients





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Sickle Cell Disorder Prevalence

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Affects 1 in every 2000 live births

2016/17 the NHS screening for SCD and thalassaemia identified

- 274 babies with SCD
- 8530 babies with sickle trait

12 500 – 15 000 people with SCD

Africa

50–90% of children die before the age of 5 years

UK

Childhood mortality is rare with 99% of children surviving to adulthood

Relevant Red Cell Disorders

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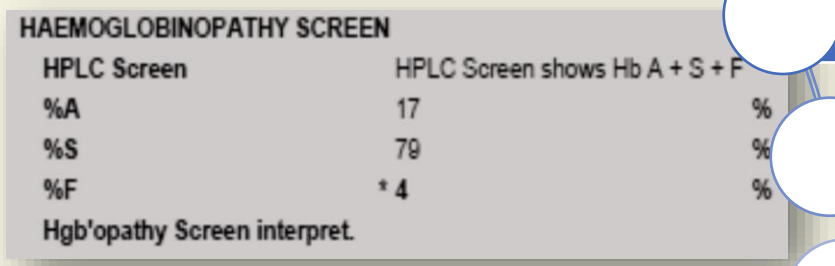
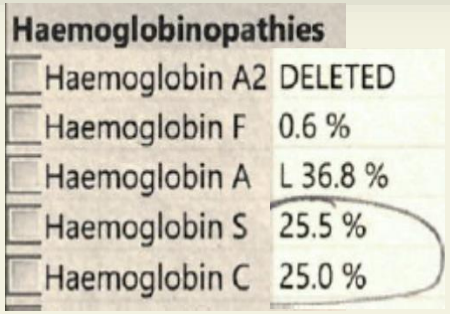


HAEMOGLOBINOPATHY SCREEN		
HPLC Screen	HPLC Screen shows Hb A + S + F	
%A	17	%
%S	79	%
%F	* 4	%
Hgb'opathy Screen interpret.		



Haemoglobinopathies	
Haemoglobin A2	DELETED
Haemoglobin F	0.6 %
Haemoglobin A	L 36.8 %
Haemoglobin S	25.5 %
Haemoglobin C	25.0 %

- HbSS
- HbSC
- HbS beta-thalassaemia
- HbSD
- HbSE
- HbSO
- HbAS- sickle cell trait

Pathophysiology of sickle crises

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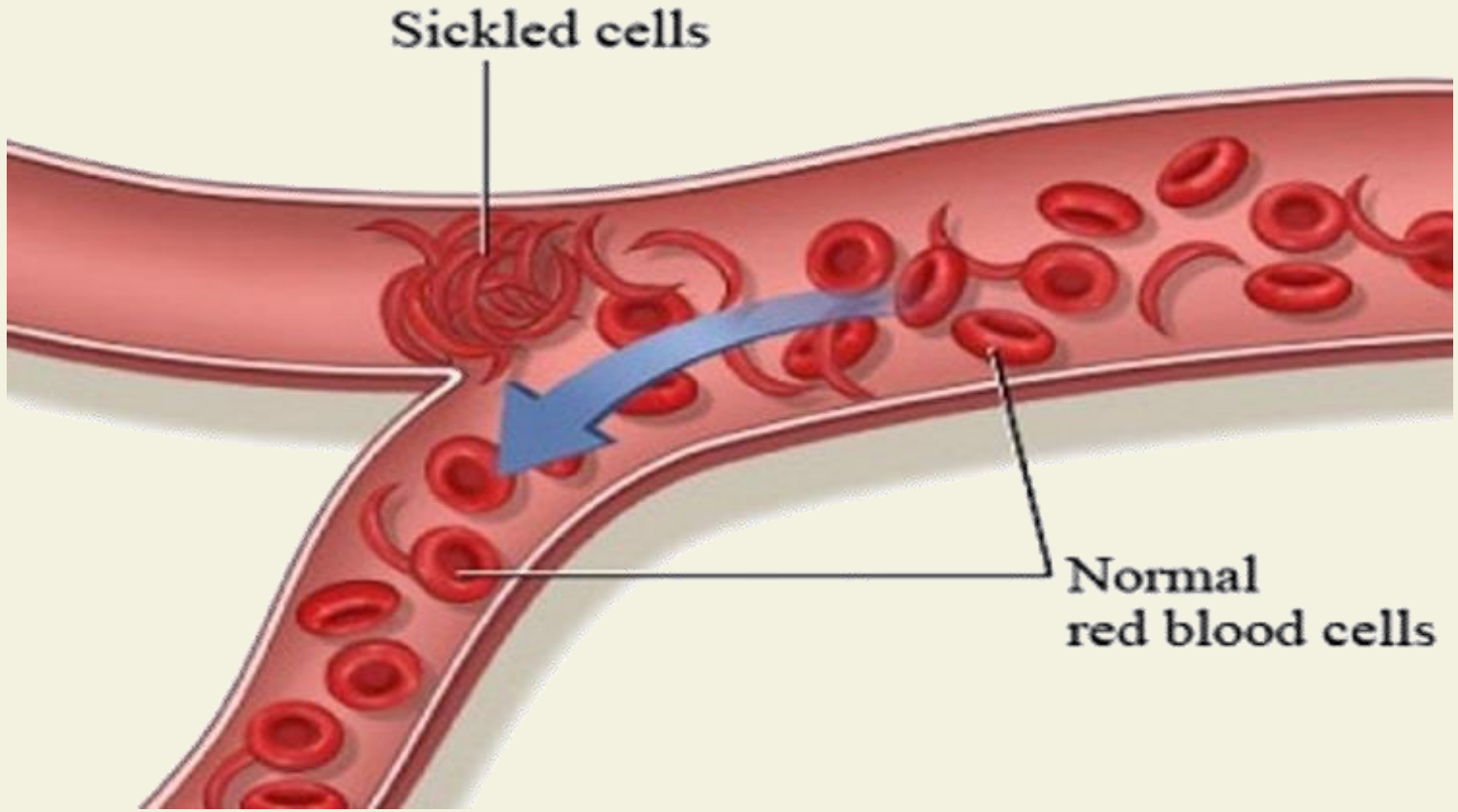

Triggers

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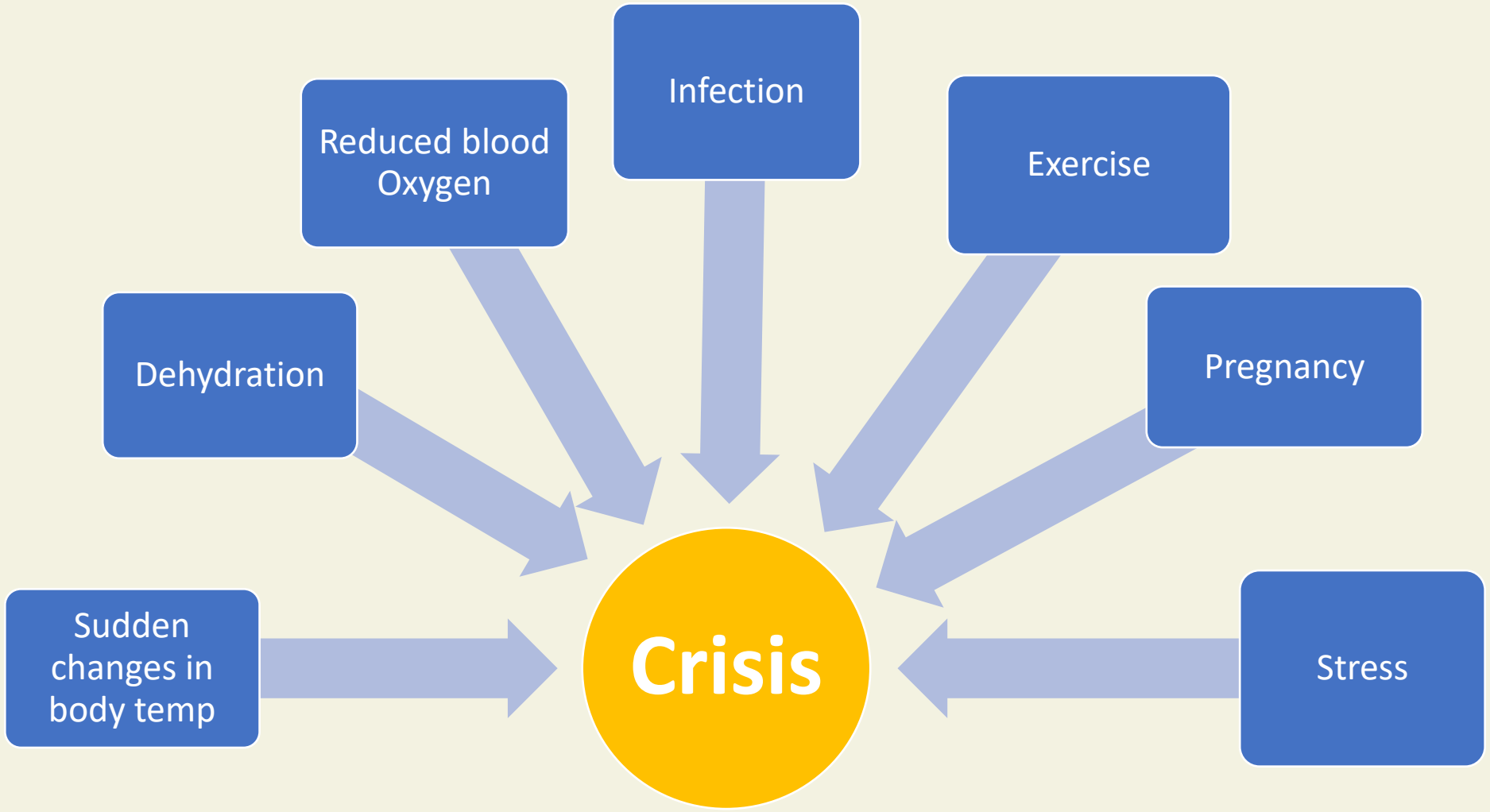

Treatment Options

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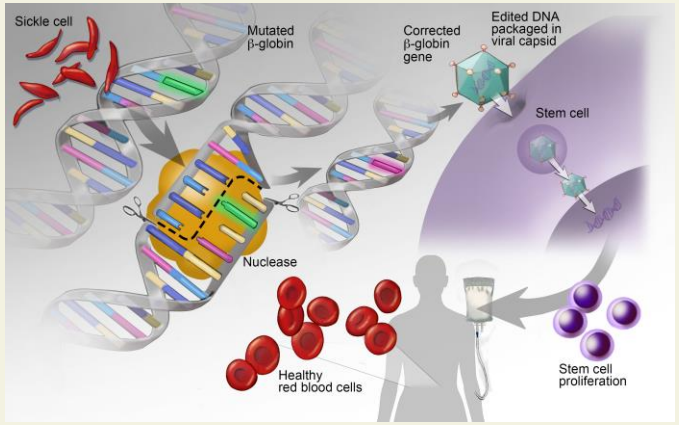

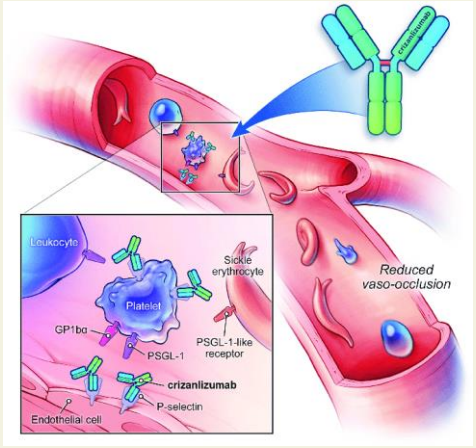

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NICE Guidelines

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NICE guidance

Spectra Optia for automatic red blood cell exchange in patients with sickle cell disease

Medical technology guidance
Published: 2 March 2016
nice.org.uk/guidance/mtg28

NICE published recommendations in March 2016 around automated red cell exchange (Reviewed in Aug 2020)

This was followed by:

Do Not Do Recommendation

Top-up transfusion is not generally suitable as a long-term regime for sickle cell disease because it is iron positive.

Do Not Do Recommendation Details

Recommendation: Top-up transfusion is not generally suitable as a long-term regime for sickle cell disease because it is iron positive.

Interventions: Top-up transfusion

American Society for Apheresis (ASFA)

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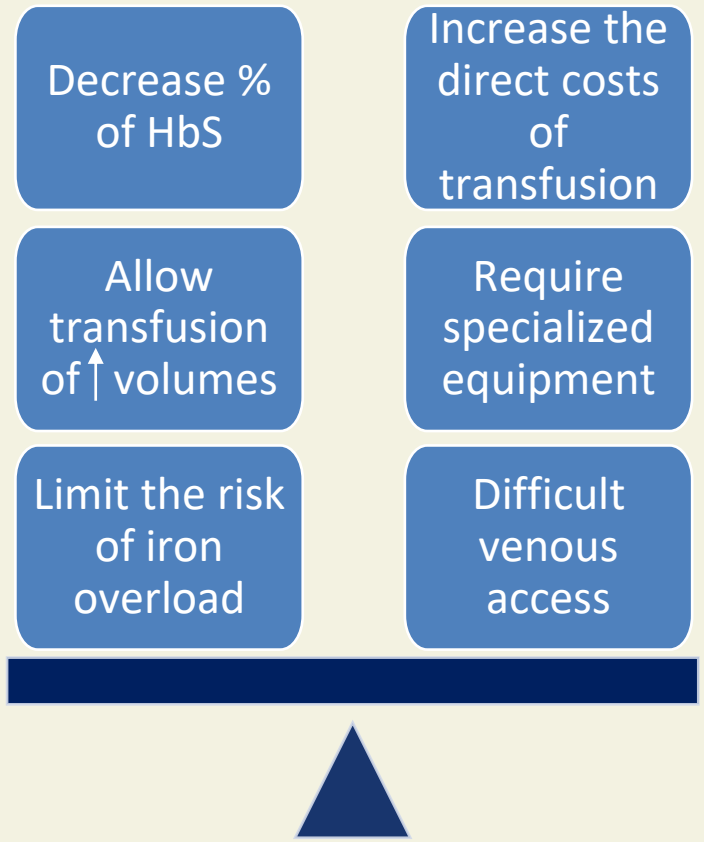
Disease Name	Therapeutic Apheresis Modality	Disease Condition	Category	Grade
Sickle cell disease, acute	RBC exchange	Acute stroke	I	1C
		Acute chest syndrome, severe	II	1C
		Other Complications*	III	2C
Sickle cell disease, non-acute	RBC exchange	Stroke prophylaxis	I	1A
		Vaso-occlusive pain crisis	II	2B
		Pregnancy	II	2B
		Pre-op management	III	2A

AUTOMATED RED CELL EXCHANGE



2.10 Regular exchange transfusions are considered to be the best options for patients at high risk of vaso-occlusive events because, unlike top up transfusion, they do not increase blood viscosity. High risk patients include those who have had recurrent hospitalisations because of disease complications such as secondary stroke, painful crises, acute chest syndrome and priaprism.

NICE, 2016, p.35

Red Cell Exchange: Patient Pathway

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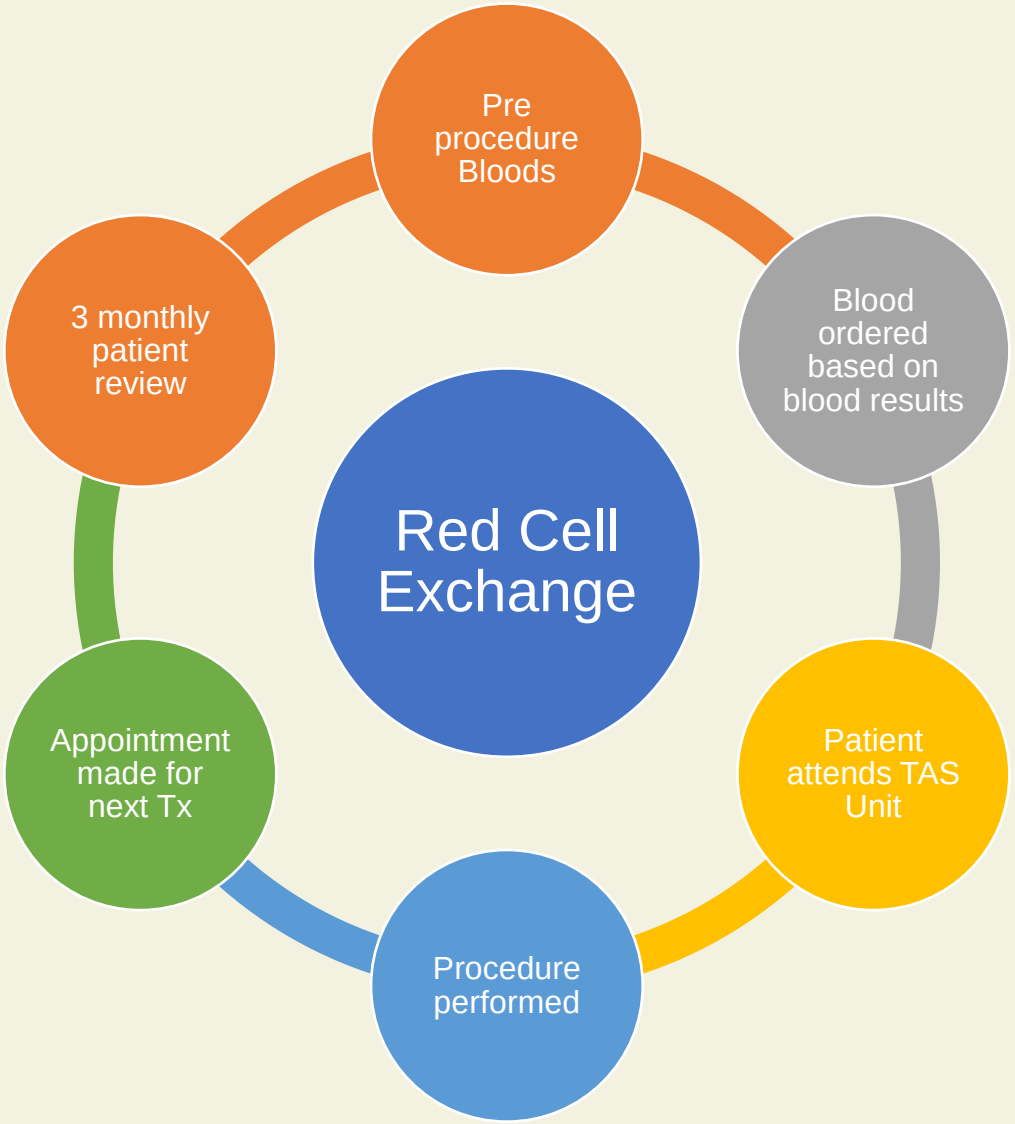

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Transfusion Requirements

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Optia - Programming

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- Height and weight and the % of Red cells in their full blood count
- Pre treatment sickle level and target sickle level
- Level of patients own RBC to remain
- Volume of donor RBC needed

How Red Cell Exchange works...

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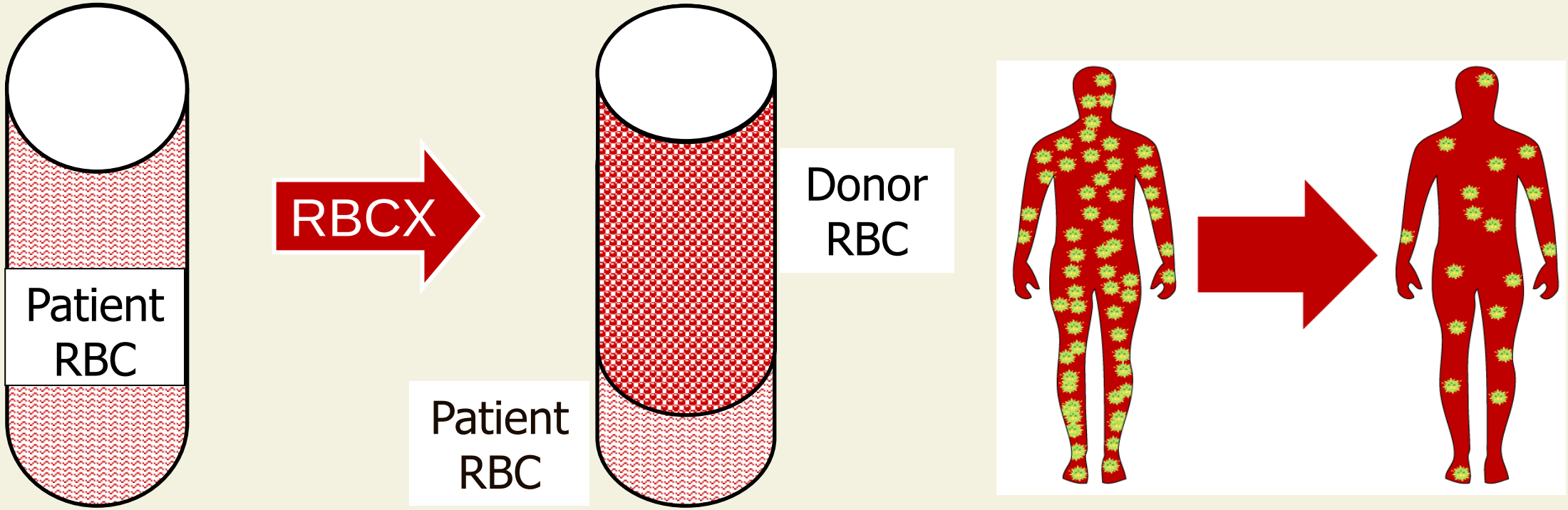

PSYCHOSOCIAL IMPACT

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RELATIONSHIPS

CHILDREN

RACISM

WORK
SCHOOL

ADDICTS

Compliance

Support for Red Cell Exchange

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NHS England

The NHS Long Term Plan: Med Tech Funding Mandate launched 2021

Therapeutic Apheresis Services

- Development of standardised procedural guidelines
- Data collection and analysis
- Introduction of Ultrasound guided cannulation

– 25% of staff are now trained

- In 2023/24 – over 100 lines prevented

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Caring Expert Quality

Patient Experience

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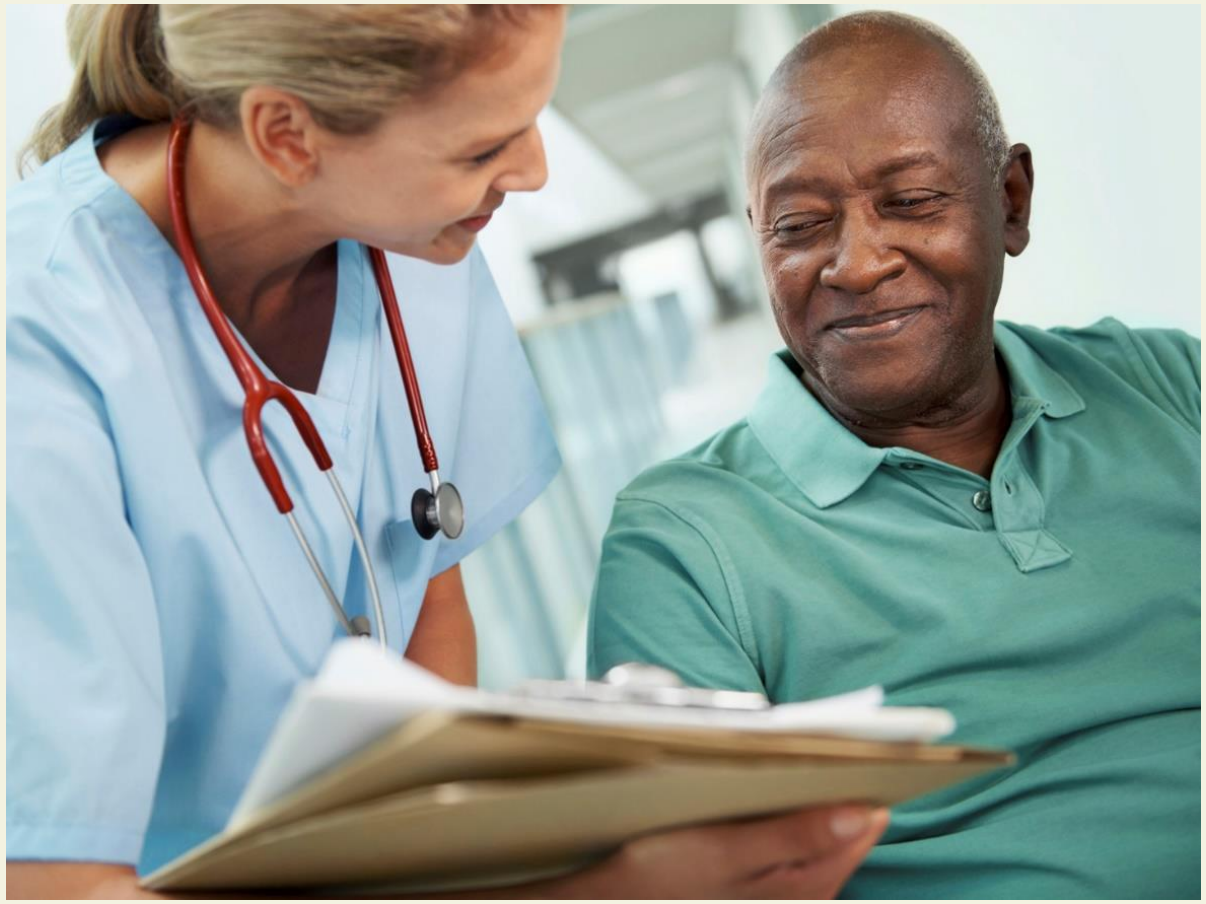
Leeds patient meeting donor



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NHS Blood and Transplant

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