

20:20 Vision

The future of Transfusion

Setting the scene

NE and Yorkshire RTC 13th Oct 2021

Dr Shubha Allard, Consultant Haematologist

On behalf of NHS Blood and Transplant
(NHSBT) and the National Blood Transfusion
Committee (NBTC)

TRANSFUSION 2024

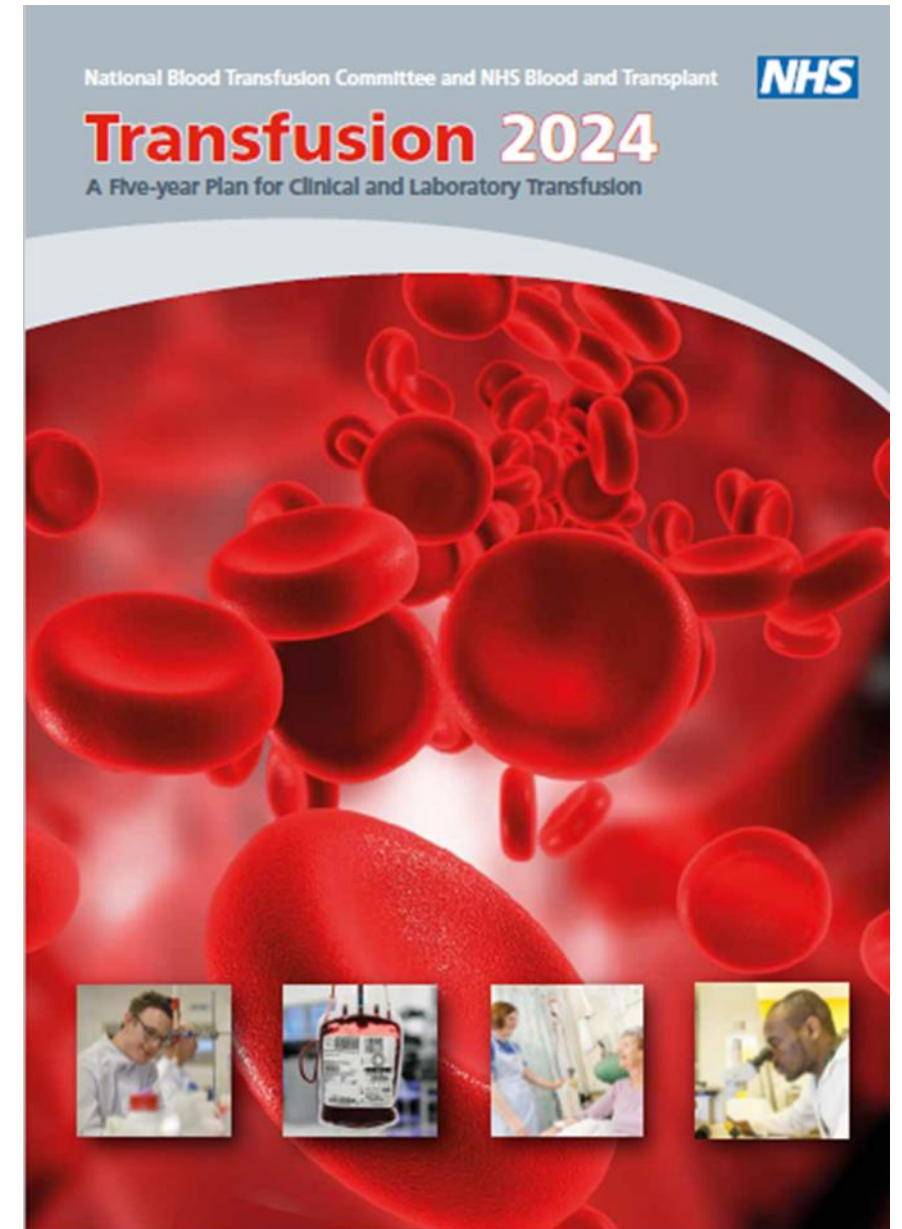
a 5 year plan supporting patient care across the NHS

Slides based on podcast

Recorded 24th Nov 20 for the Royal College of
Physicians

https://player.rcplondon.ac.uk/video/1_ncide770

Dr Shubha Allard, Consultant Haematologist
Dr Jon Cort, Consultant Anaesthetist



National Blood Transfusion Committee



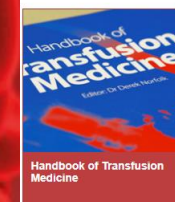
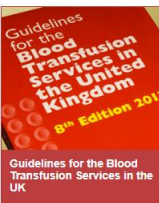
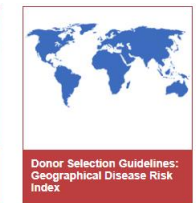
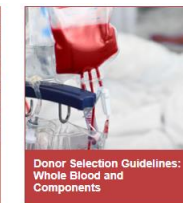
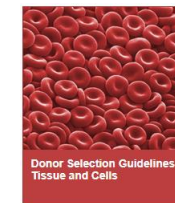
- Established 2001
- promotes safe and appropriate transfusion practice across all hospitals in England
- highly effective Regional Transfusion Committees (RTCs)
 - implementing actions of the national committee
 - oversight of activities local Hospital Transfusion Committees (**HTCs**)
- Two-way communication channel from hospitals to national committee

Membership includes

- Several NBTC working groups
 - Education, Patient Involvement, Emergency Planning, Lab Managers, Transfusion Practitioners
- NHS Blood and Transplant
- Royal Colleges and other professional bodies
- Regulatory authorities
- Patients
- UK devolved nations representatives



www.transfusionguidelines.org



National Blood Transfusion Committee and NHS Blood and Transplant
A Five-year Plan for Clinical and Laboratory Transfusion

Strong Partnership with NHS Blood and Transplant (NHSBT)

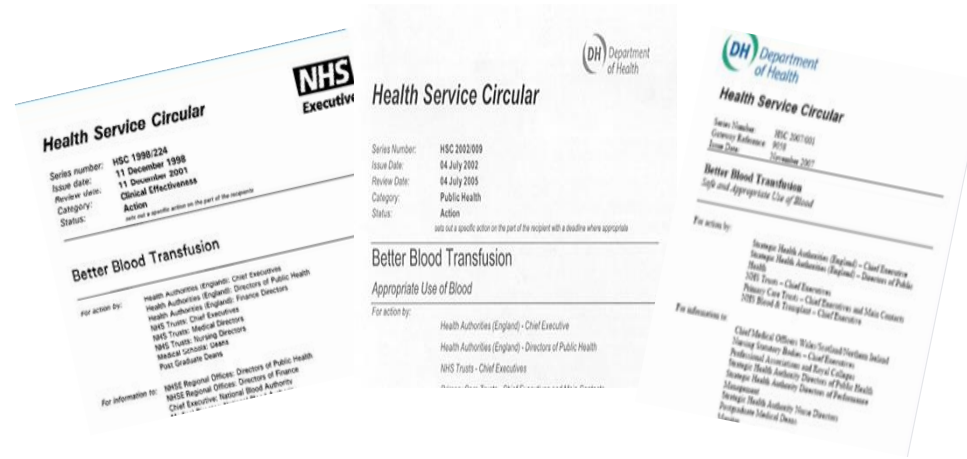
- NHSBT is a provider of ~2million units red cells and components to all hospitals in England
- Provides specialist Laboratory services and expertise eg Red Cell Immunology
- Supports the NBTC aims of promoting safe and appropriate blood use via
 - Funding joint Patient Blood Management Consultant posts in key hospitals
 - PBM practitioners supporting regions and hospitals
 - Funding initiatives such as National Comparative Audit program, Blood Stocks Management scheme, Systematic Reviews Initiative, Haemovigilance etc

Better Blood Transfusion 1 HSC1998/224

Key Recommendation: All Trusts should have Hospital Transfusion Committees (HTCs)

Reporting to Serious Hazards of Transfusion (SHOT) Haemovigilance scheme

Agreed guidelines for clinical transfusion practice



Better Blood Transfusion 2 HSC 2002/009

- Development of the Hospital Transfusion Team
 - Lead consultant for transfusion
 - Transfusion practitioner
 - Transfusion laboratory manager
- Increase patient and public involvement in blood transfusion

Better Blood Transfusion 3 HSC 2007/001

- Monitoring Use and Traceability
- Audit
- Make transfusion safer
 - Haemovigilance, Laboratory staffing Education & competency
 - Information technology
- Avoidance of unnecessary use; promoting alternatives

From Better Blood Transfusion to Patient Blood Management (PBM) – key achievements

The transfusion community has effected

safer and more evidence-based blood transfusion

better outcomes for patients & significant cost savings for NHS (tens of millions of pounds per annum)

How has this been achieved?

By good clinical research, education to facilitate change guidelines and audit / peer review to benchmark.

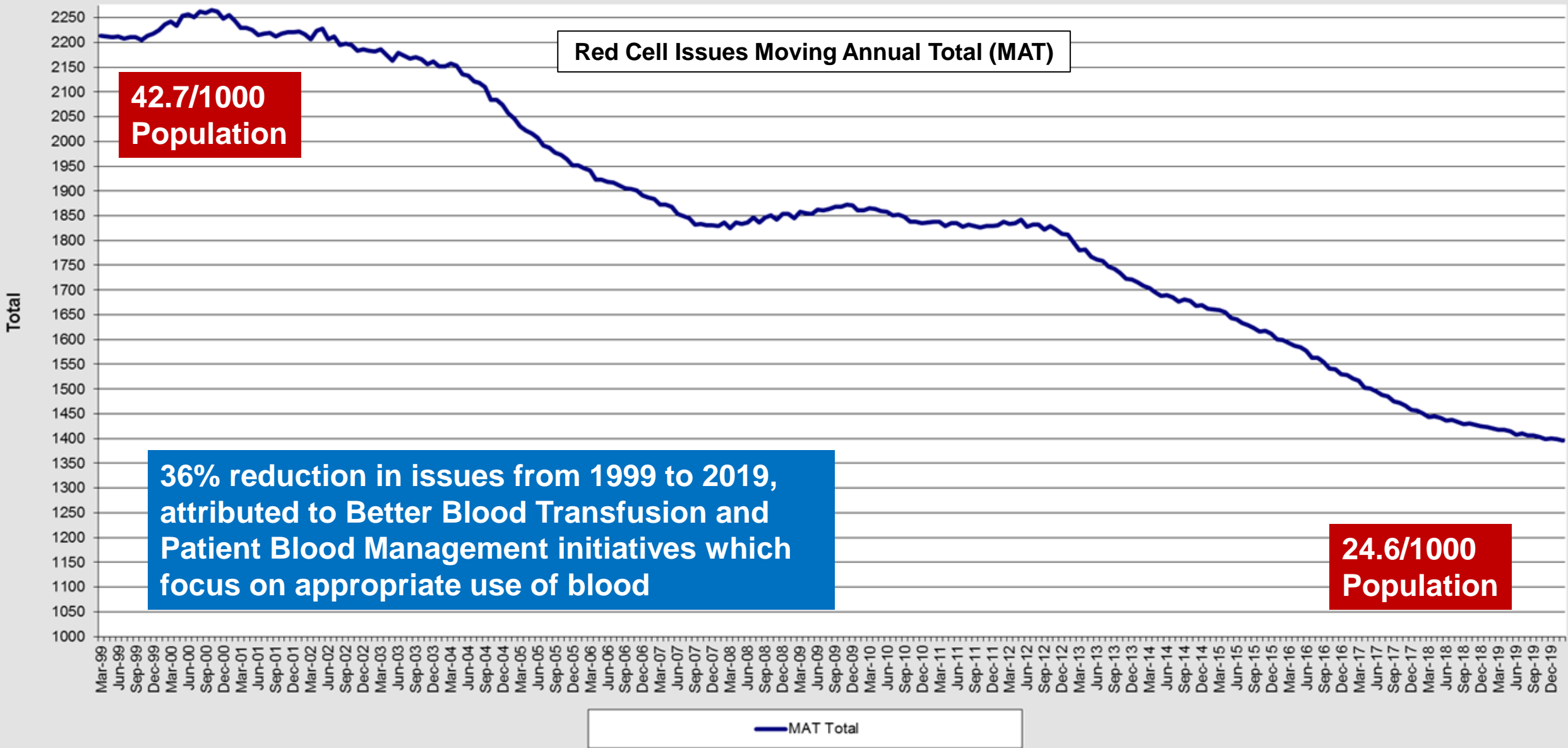
Many healthcare professionals involved

Transfusion laboratory staff,
Transfusion practitioners (TPs) , nurses
Physicians, anaesthetists, surgeons,
haematologists,
NHSBT support for Patient Blood Management

How can we continue to improve?

ongoing support & funding for clinical research, technological innovation
education through Regional Transfusion Committees and others
through maintained TP workforce

Red cell issues over the last 20 years (before the pandemic!)



Transfusion 2024 Symposium March 2019 - Key aims



- Build on successes of previous Better Blood Transfusion Initiatives
 - BBT1 1998 (Health Service Circular 1998/224)
 - BBT2 2002 (Health Service Circular 2002/009)
 - BBT3 2007 (Health Service Circular 2007/001)
 - PBM 2012 conference with recommendations published 2014

Prof Keith Willett gave opening address on behalf of NHS England

Transfusion 2024: whole system evolution



Patient Blood Management

Promoting appropriate use and reducing variability; benchmarking. Two thirds of all blood transfused to medical patients, time to re-focus.

Hospital Transfusion Laboratory Safety

Staff development & retention. Expanded capabilities with enhanced NHSBT support.

Information Technology

Enabler for enhanced safety, accountability and reduction in variability, oversight of Quality Standards.

Research & Development

With commitment to translation to improved patient care - new components, genotyping.

Patient Blood Management (PBM) – from guidelines to practice

Review after each unit

How Many Units?

Use restrictive thresholds for patients needing red cell transfusion and give only one unit at a time except when the patient has active bleeding.

Follow the links below to see further information:

[NICE 2016 Blood transfusion Quality Standard \[QS138\]](#)

[NICE 2015 Blood transfusion guidelines \[NG24\]](#)

[Cochrane Review: Transfusion thresholds and other strategies for guiding allogeneic red blood cell transfusion](#)

Give iron to iron deficient patients

Iron Deficiency

Don't transfuse red cells for iron deficiency anaemia without haemodynamic instability.

Follow the links below to see further information:

[NICE 2016 Blood transfusion Quality Standard \[QS138\]](#)

[NICE 2015 Blood transfusion guidelines \[NG24\]](#)

Patient information:

NHSBT leaflets – [Anaemia](#), [Iron in your diet](#)


Thresholds and targets

- 1.2.1 Use restrictive red blood cell transfusion thresholds for patients who need red blood cell transfusions and who do not:
 - have major haemorrhage or
 - have acute coronary syndrome or
 - need regular blood transfusions for chronic anaemia.
- 1.2.2 When using a restrictive red blood cell transfusion threshold, consider a threshold of 70 g/litre and a haemoglobin concentration target of 70–90 g/litre after transfusion.
- 1.2.3 Consider a red blood cell transfusion threshold of 80 g/litre and a haemoglobin concentration target of 80–100 g/litre after transfusion for patients with acute coronary syndrome.

NHSBT – Patient Blood Management team – PBM toolkit

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NHS
Blood and Transplant



Information for clinicians

Patient Blood Management checklist


Improve patient outcomes with early identification and treatment of anaemia, pre-optimisation, intraoperative blood loss management and employment of transfusion triggers and thresholds.

Effective 01/09/2020
2021 0150

Patient Blood Management

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NHS
Blood and Transplant



Information for clinicians

Iron deficiency and iron deficiency anaemia


Iron is essential for red blood cell production and iron deficiency is the most common nutritional deficiency worldwide both in developed and developing countries. Iron deficiency (ID) is a progressive process of decreasing iron stores from normal, through stages of depletion, to absent with the eventual consequence being iron deficiency anaemia (IDA). The prevalence of IDA in the UK National Diet and Nutrition Survey (NDNS) 2016 was 5% or above in all age groups (<https://www.gov.uk/government/collections/national-diet-and-nutrition-survey>).

Effective 01/09/2020
2021 0150

Patient Blood Management

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NHS
Blood and Transplant



Information for clinicians

Patient consent and information

There is a legal and ethical duty to obtain informed consent from patients prior to treatment. Involving the patient in the consent process respects the rights of the patient to be included in decisions about their treatment. From a clinical perspective, the process of obtaining informed consent is a key constituent in the formation of an effective, therapeutic relationship with the patient.

Informed (or valid) consent can be defined as:
"an ongoing agreement by a person to receive treatment, undergo procedures or participate in research, after the risks, benefits and alternatives have been adequately explained to them." (RCN 2006)

Effective 01/09/2020
2021 0150

Patient Blood Management

Transfusion 2024 – PBM recommendations & actions

PBM Self-Assessment for Hospitals

Develop a transfusion practice self-assessment tool for hospitals to allow benchmarking

Resources to support clinical transfusion practice

Strengthen support for clinical transfusion practice

including PBM teams, National Comparative Audit program, Blood Stocks Management Scheme

Transfusion Practitioner professional development

Develop and implement a national competency framework for Transfusion Practitioners

- National Comparative Audit planned/scoped – NBTC PBM group
- Model Hospital – ongoing discussion

www.england.nhs.uk/applications/model-hospital/

- TP competency framework ongoing development – NBTC TP group

Hospital Transfusion Laboratory Safety

– session chaired by Dame Sue Hill



Scientific technical education & training

Review scientist training pathways/programmes including access and funding

Laboratory Staffing & Integration

Ensure adequate staffing/skill mix at all times. Pilots of integrated services between NHSBT and hospital transfusion laboratories. Promote development of the Consultant Clinical Scientist role

Pathology Networks & regulatory alignment

Promote defined transfusion standards, support collaborative working and reduce compliance burden

Training for Biomedical Scientists



NHSBT courses - funded by HEE <https://hospital.blood.co.uk/training/>

Practical Introduction to Transfusion Science (PITS)

blended program rolled out Sept 2020
self-study blocks - on-line learning & live virtual
classrooms over 3 days & 2 days practical training

Specialist Transfusion Science Practice (STSP)

Adapted four days; online live virtual classrooms;
one day of practicals.

Advanced Transfusion Masterclass

remote-delivered half-day program from May 2021
including interactive questions and complex case studies

MSc in Applied Transfusion and Transplantation Science

Blended learning MSc with University of the West of England (UWE)
F2F attendance minimal and in 3-day blocks;
all taught modules also as free-standing CPD modules; endorsed by ISBT;

Many thanks to Lise Estcourt and
Ruth Evans for slide

Training Healthcare Scientists

The Higher Specialist Scientific Training (HSST) program in the UK prepares healthcare scientists for the challenging role of Consultant Clinical Scientist within the NHS

This 5-year work based program, underpinned by a part time doctorate managed and delivered by the National School of Healthcare Science (NSHCS) and funded by HEE


Pathology and life sciences programmes with the Royal College of Pathologists include: Transfusion, Haematology, clinical immunology, histocompatibility & immunogenetics, microbiology, virology, bio-informatics.

<https://nshcs.hee.nhs.uk/>

www.rcpath.org



Transfusion Science HSST



The screenshot shows the website for the National School of Healthcare Science. The navigation menu includes 'Programmes', 'Services', 'Knowledgebase', and 'Menu'. The breadcrumb trail reads 'Home > Programmes > Higher Specialist Scientist Training Programme'. The main heading is 'Higher Specialist Scientist Training Programme'. Below the heading, a short description states: 'The Higher Specialist Scientist Training (HSST) programme is a bespoke five-year workplace-based training programme supported by a Doctoral level academic award.'

Pathology Modernisation

- Transfusion Standards for Pathology networks
 - NHSEI, NBTC National Lab managers group, IBMS, SHOT, NHSBT, UKTLC
- Representative on NHSEI National Pathology Digital and LIMS sub-committee
 - Investment in digital capability of pathology services with key focus on restoration and recovery of services post the COVID-19 pandemic.
- Provide support to regions and networks to maximise compatibility, integration, and interoperability between systems

RCI Integration pilots- Algorithm referral

Objectives

To establish a process map of the Hospital Transfusion Lab (HTL) process for serological investigation

To define decision points and handover points – setting out the work done by HTL and that done by RCI

Share the algorithm electronically, allowing HTL workers to follow a specific path, and offering additional information (below right) to support decision making

Establish handover points to RCI dependent on HTL capability

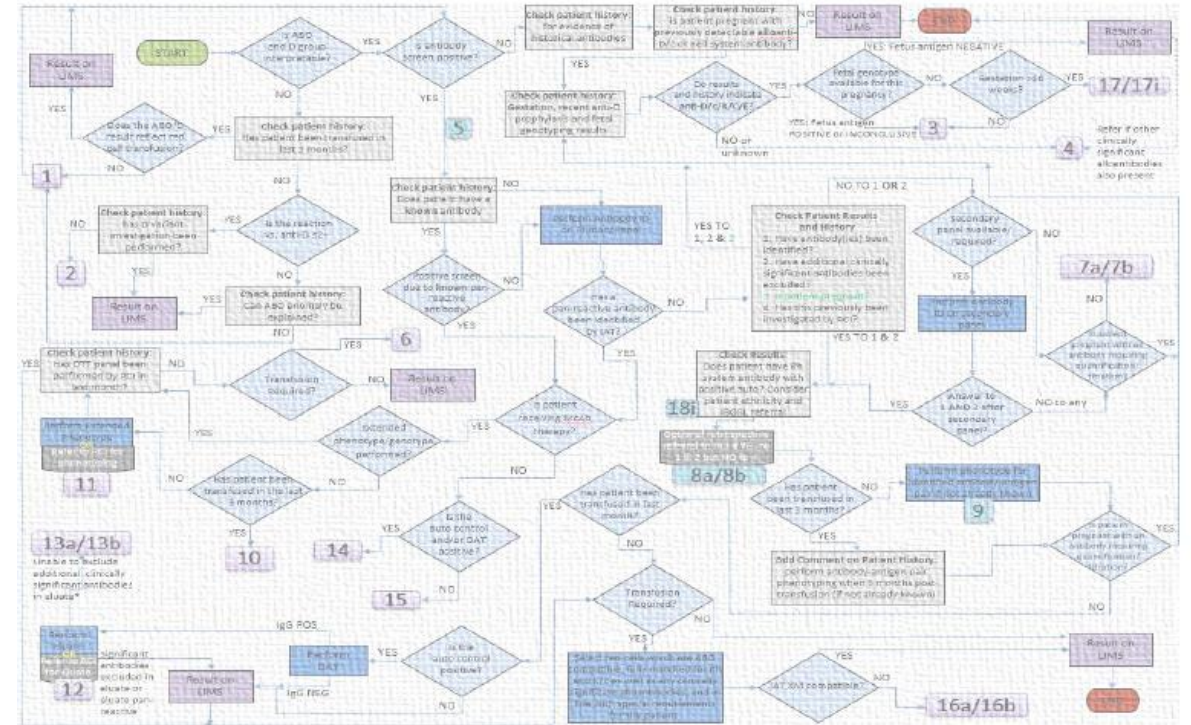
Status

We have established a single algorithm (right)

Live in Barnsley and Rotherham since 1st May 2019

Live in Newcastle Teaching Hospital since 1st July 2019

- pilots to date have been exploratory
- developing electronic version of algorithm
- creating and delivering training to HTL
- implementing change in partnership, seeking new partners



Many thanks to Mark Williams NHSBT RCI for slide

NHSBT RCI - Electronic Requesting and Reporting

Objectives

To establish electronic requesting and reporting of RCI results direct into HTL LIMS

Status

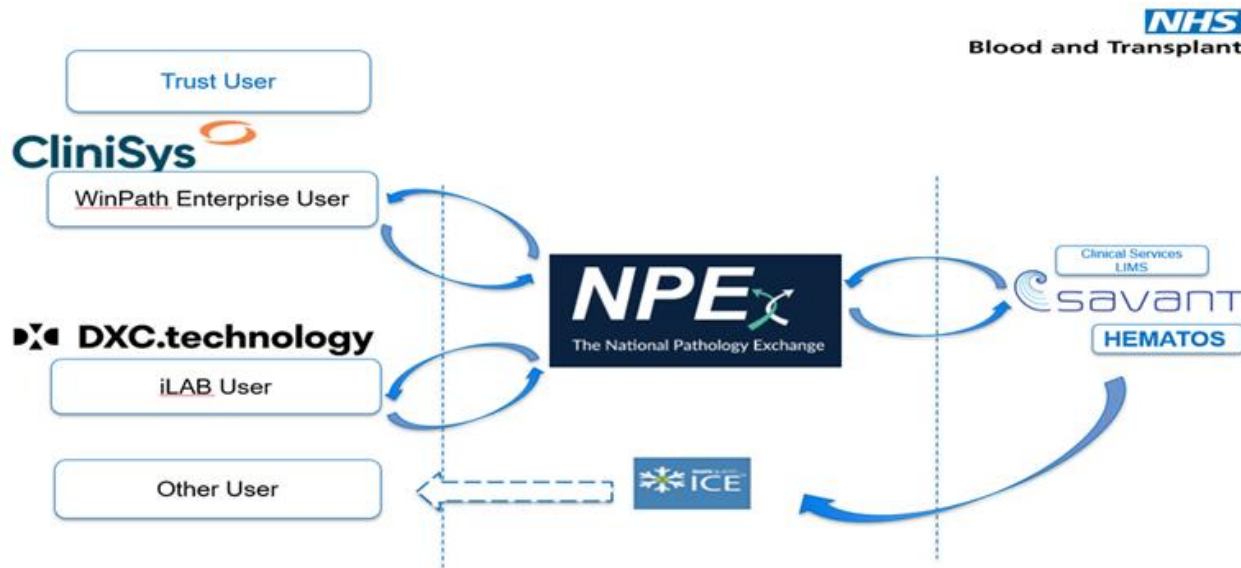
Data transfer standard agreed with NHSdigital, LIMS & middleware suppliers and users published

Standard in development to expand scope, engaged with NHSdigital

Savant have modified Hematos export files to be more accessible for middleware to support reporting

X-labs (NPEX) developed management of EDD (critical for ffdNA EDI) supported by transformation funding

Partnering with University Hospital Bristol to deliver live pilot on ffdNA requesting and reporting



Many thanks to Mark Williams NHSBT RCI for slide

Information Technology

IT enabled Efficiency

Hospitals and IT suppliers to improve interoperability
Enhance IT connectivity between hospitals and NHSBT
and promote integration

IT enabled Safety

Implementation of vein to vein electronic systems from
taking the blood sample, blood collection, administration
of blood and monitoring of transfused patients

IT enabled Accountability

Benchmarking & performance outcomes at Trust level.
Partnership working with NHSI Model Hospital to build
comparator data sets

Research and Innovation

Use of 'Big Data'/ Machine Learning

Determine benefits of real time data on the whole transfusion process from donor to patient

Component development

Component development aligned to patient needs e.g. whole blood and universal plasma

Donor and patient typing

Model optimal donor and patient typing, develop sustainable systems for genotyping for patients difficult to provide with compatible blood

Transfusion Research

Relevant bodies to continue funding and providing advocacy for clinical transfusion research

🔍 Search...

Blood and Transplant Research Units 2021

📅 Opens: 04 March 2021 👤 Closes: 13:00 on 27 May 2021

BTRU Data Driven Transfusion Practice
~4 million funding over 5yrs

HAEM-MATCH - red cell genotyping to better support multi-transfused patients
Use of Artificial intelligence algorithms

Transfusion 2024: moving forward

- Published on NBTC website; circulated to key stakeholders
- Accepted for publication in Transfusion Medicine Oct 2021
- Hospital checklist
- NHSBT MD for Transfusion – project manager support

www.transfusionguidelines.org/uk-transfusion-committees/national-blood-transfusion-committee/transfusion-2024