20:20 Vision
The future of Transfusion
Setting the scene

NE and Yorkshire RTC 13\textsuperscript{th} 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 24\textsuperscript{th} 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
Strong Partnership with NHS Blood and Transplant (NHSBT)

- NHSBT is a provider of ~2 million units red cells and components to all hospitals in England.
- Provides specialist Laboratory services and expertise e.g. 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.
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 1
HSC1998/224

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!)

36% reduction in issues from 1999 to 2019, attributed to Better Blood Transfusion and Patient Blood Management initiatives which focus on appropriate use of blood.

Red Cell Issues Moving Annual Total (MAT)

42.7/1000 Population

24.6/1000 Population
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

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<th>Section</th>
<th>Description</th>
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<td><strong>Patient Blood Management</strong></td>
<td>Promoting appropriate use and reducing variability; benchmarking. Two thirds of all blood transfused to medical patients, time to re-focus.</td>
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<td><strong>Hospital Transfusion Laboratory Safety</strong></td>
<td>Staff development &amp; retention. Expanded capabilities with enhanced NHSBT support.</td>
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<td><strong>Information Technology</strong></td>
<td>Enabler for enhanced safety, accountability and reduction in variability, oversight of Quality Standards.</td>
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<tr>
<td><strong>Research &amp; Development</strong></td>
<td>With commitment to translation to improved patient care - new components, genotyping.</td>
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Patient Blood Management (PBM) – from guidelines to practice

### 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

### 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.
Patient Blood Management checklist

Iron deficiency and iron deficiency anaemia

Patient consent and information
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
- TP competency framework ongoing development – NBTC TP group
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
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
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
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

Objectives

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

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**NIHR National Institute for Health Research**

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

**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