

Improving the Understanding and Practice of Transfusion in Sickle Cell Disease

Presented by

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Programme

- Concerns
- Solutions

Concerns

- Infection Risk
- Alloimmunisation
- Sharing of information
- Lack of evidence base

Infection

- Current blood very safe
 - Zero transmission of viral or parasitic infections since 2005 in the UK
- Need stringent donor deferral criteria to get this level of safety

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/BIBD/EpidemiologicalData/bibd015SurveillanceofTTI/>)

Infection risk - Prions

- 4 patients known to have been infected by blood products
- No new blood borne infections since 1999
- NHSBT took risk extremely seriously
 - Prion Working Group
 - Universal leucodepletion
 - Other measures
 - Research into transmission
 - Supporting various government bodies e.g. HPA, ACDP (Advisory Committee on Dangerous Pathogens)
- No haemoglobinopathy patient has developed vCJD to date

Alloimmunisation

- Rates
- Guidelines
- Despite this SHOT data (presented previously)
- Reasons – overseas patients, communication within lab and clinical team and lab, weekend admissions
- Donor pool vs recipient pool
- Previously detected antibodies elsewhere
- Antibody card issue

Evidence regarding alloimmunisation

- >25% of patients have alloantibodies
- Rh and Kell matching decreases alloimmunisation in comparison to historical controls
- Current audit at UCLH – 48/300 patients with alloantibodies, 42 have Rh or Kell, the rest mostly not antibodies that one would expect to match for.

Vichinsky EP, Luban NL, Wright E, Olivieri N, Driscoll C, Pegelow CH, et al. Prospective RBC phenotype matching in a stroke-prevention trial in sickle cell anemia: a multicenter transfusion trial. *Transfusion*. 2001 Sep;41(9):1086-92.

Evidence regarding alloimmunisation

- Studies using extended matching claim that this provides lower rates of alloimmunisation
- However, most alloimmunisation is due to failure to follow guidelines and the rates of alloimmunisation in groups who adhere to the Rh and Kell advice are similar whether they extended match or not.

[Transfusion](#). 2011 Aug;51(8):1732-9. Extended red blood cell antigen matching for transfusions in sickle cell disease: a review of a 14-year experience from a single center (CME).

[Lasalle-Williams M](#), [Nuss R](#), [Le T](#), [Cole L](#), [Hassell K](#), [Murphy JR](#), [Ambruso DR](#).

[Blood](#). 2012 May 4. Red blood cell alloimmunization in sickle cell disease: pathophysiology, risk factors, and transfusion management. [Yazdanbakhsh K](#), [Ware RE](#), [Noizat-Pirenne F](#).

Other evidence

- NHSBT audit: Dr Fiona Regan
- PRISM post marketing surveillance:
baseline alloimmunisation rates

Lack of evidence base

- Cochrane reviews
- TAPS

Cochrane

| Type of review | Year (updated last) | How many studies and what types | How many patients | Outcome measures | Conclusions |
|-------------------------------|---------------------|---|-------------------|----------------------|---|
| For stroke prevention | 2002 (2009) | 2 – STOP I and STOPII | 130 | | Give transfusion but more research needed for secondary stroke |
| Pre op | 2001 (2009) | 2: <30% HbS vs, Hb to 10g/ dl, the other tx vs none | 920 | Periop complications | Conservative =aggressive. Need to examine in different op types |
| Painful crisis in pregnancy | 2007 | none | | | |
| ACS | (2009) | none | | | |
| HSCT | 2010 | none | | | |
| Splenectomy for sequestration | | none | | | |

Solutions

- Guidelines
- Donor Engagement
- Ability to source particular blood
- SHOT and other audits tools
- Donors
- Haemoglobinopathy strategy group
- New products
- Automated Red cell Exchange
- National Comparative Audit

Guidelines

- BCSH: Transfusion in haemoglobinopathies
- BCSH: Compatability Guidelines
- BCSH: IT guidelines

Donor Engagement

- The black community is currently under-represented within NHSBT's active donor base.
- Theo Clarke heads a team that proactively engages communities and sets up education and donor collections in high prevalence areas
- NHSBT has around 13,000 loyal blood donors from black communities who in total equate to roughly 1% of all our donors. This is less than 1% of the entire black and mixed race/dual heritage communities in the UK.
- DH hosted a workshop (February 2012) on BME and mixed parentage donation rates.

National Comparative Audit

- Initial strategy meeting April 2012
- Audit in 2013 after Peer Review for haemoglobinopathies
- Project group
- Clinical outcomes in transfusion in up to 5 clinical scenarios

SHOT

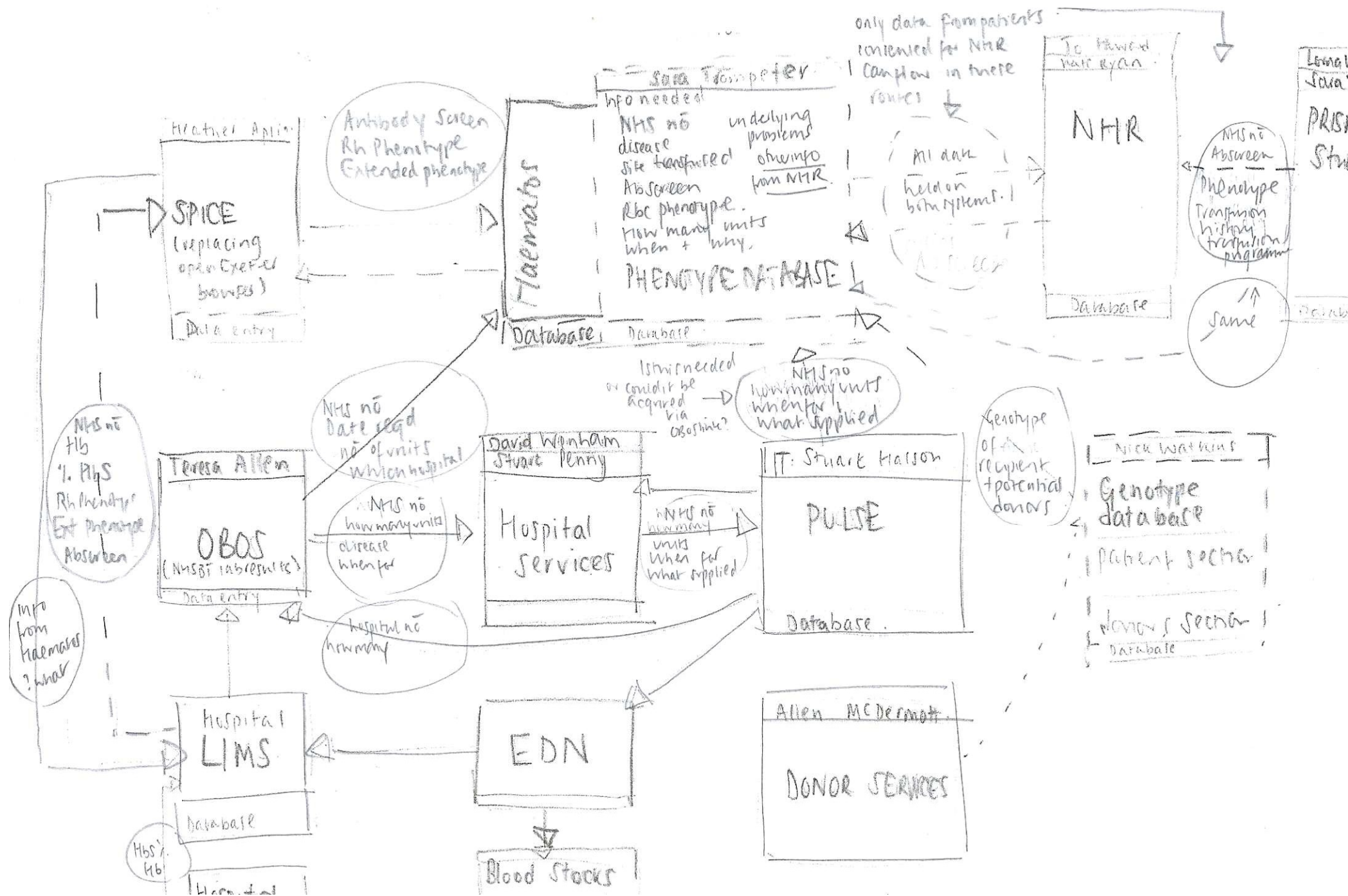
- 2011 report
- Chapter on errors in haemoglobinopathies
- Powerful audit tool

Ability to source particular blood

- Close liaison with donor arm and patient services
- Dedicated Consultant- Dr Rekha Anand
- Known donors
- Frozen blood bank
- SAC-IH (standing advisory committee on immunohaematology) has agreed enabling changes in extended phenotyping / genotyping of donations and HbS – awaiting approval by JPAC in September following a risk assessment.

Haemoglobinopathy Strategy Group

- Terms of reference drafted May 2012
 - To identify the current and future transfusion needs of haemoglobinopathy patients
 - To provide NHSBT with the best information available on current gaps in provision and future demand and requirements
 - To develop audit and clinical studies relating to appropriate blood transfusion for the benefit of patient



New (and recently studied) products

- Washed cells
 - Pilot study for cells with increased longevity
 - Roll out later next month
- Double donor
 - Not supported by recent SaBTO recommendations
- Engineered red blood cells
 - Several groups inc. Dr David Anstee

Automated Red Cell Exchange

- Postcode disparity
- Rationales
- NHSBT provides service e.g. in Liverpool
- Initiated Specialised Commissioning Group to take this further – 1st Meeting May 2012

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- Dr Gail Miflin
- Mr Theo Clarke



Blood and Transplant

Thank you