

# **Modernising Hospital Transfusion Services in England**

**Mike Murphy**



# Pathology Modernisation: what about blood transfusion?

- The thinking in the Carter report (2008) was that there were opportunities for transfusion laboratories to review service delivery
- Costing/activity of blood transfusion was assessed at pilot sites, but not presented
- Considered that there was potential to rationalise repertoire/complexity of testing based on hospital size /clinical services provided



## **That was the theory.....**

- ...but very little has happened in relation to modernisation and blood transfusion services, although in some parts of the country private providers have been taking over the provision of hospital pathology services including blood transfusion



# **Recent drivers for modernisation of transfusion**

- UK Blood Safety and Quality Regulations (2005)
- NPSA SPN 14 (2006)
- Better Blood Transfusion HSC (2007)
- NBTC survey of laboratory IT systems (2008)
- UK laboratory transfusion collaborative (2009)



# Number of NHS hospital transfusion laboratories by blood usage

Red cell usage category	Number of hospitals
Very High (> 10,000 units/year)	54
High (6,501 -10,000 units/year)	65
Moderate (4,001 - 6,500 units/year)	70
Low (801 - 4,000 units/year)	30
Very Low (0 – 800 units/year)	0
<b>Total</b>	<b>219</b>

# Number of transfusion laboratories provided with blood by usage and SHA

SHA	Very High	High	Moderate	Low	Total
East Midlands	4	5	1	1	11
East of England	6	8	4	1	19
London	10	11	16	3	40
North East	3	1	6	5	15
North West	8	13	10	9	40
South Central	4	2	5	1	12
South East Coast	1	9	6	1	17
South West	6	8	5	0	19
West Midlands	6	5	9	3	23
Yorkshire & Humber	6	3	8	6	23
<b>Total</b>	<b>54</b>	<b>65</b>	<b>70</b>	<b>30</b>	<b>219</b>



## So what is needed?

- The quality of hospital transfusion services *may* be improving **but much more is required**
- Key enablers are better IT connectivity and well resourced and managed services

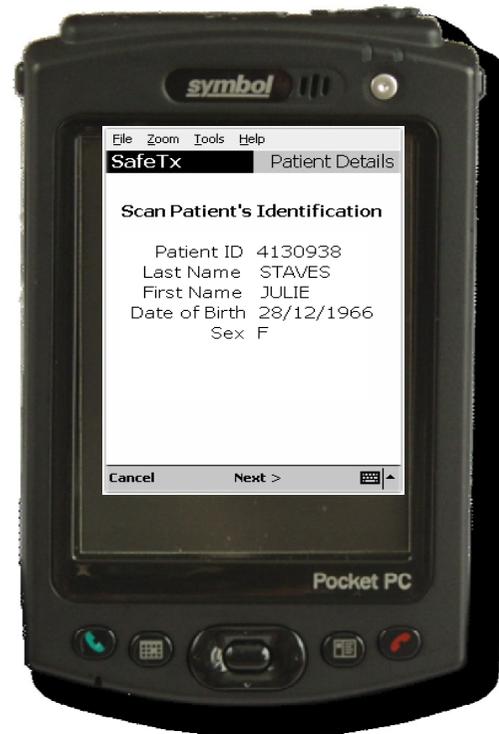
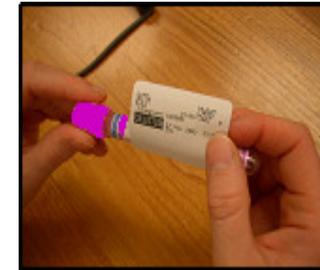


# How can it be achieved?

- The drivers for modernisation of transfusion are the same as for other pathology services
- However, a common attitude is that each acute hospital needs to maintain comprehensive blood transfusion
- This is unrealistic and may be inhibiting consideration of alternative models
- Robust arrangements for providing blood when patients need it urgently are essential
- End-to-end electronic control of transfusion and remote blood issue are significant enablers

# Electronic end-to-end control of transfusion

Murphy et al. *Transfusion* 2009; 49: 829-837



5 national awards since 2007



Marketed worldwide by Haemonetics

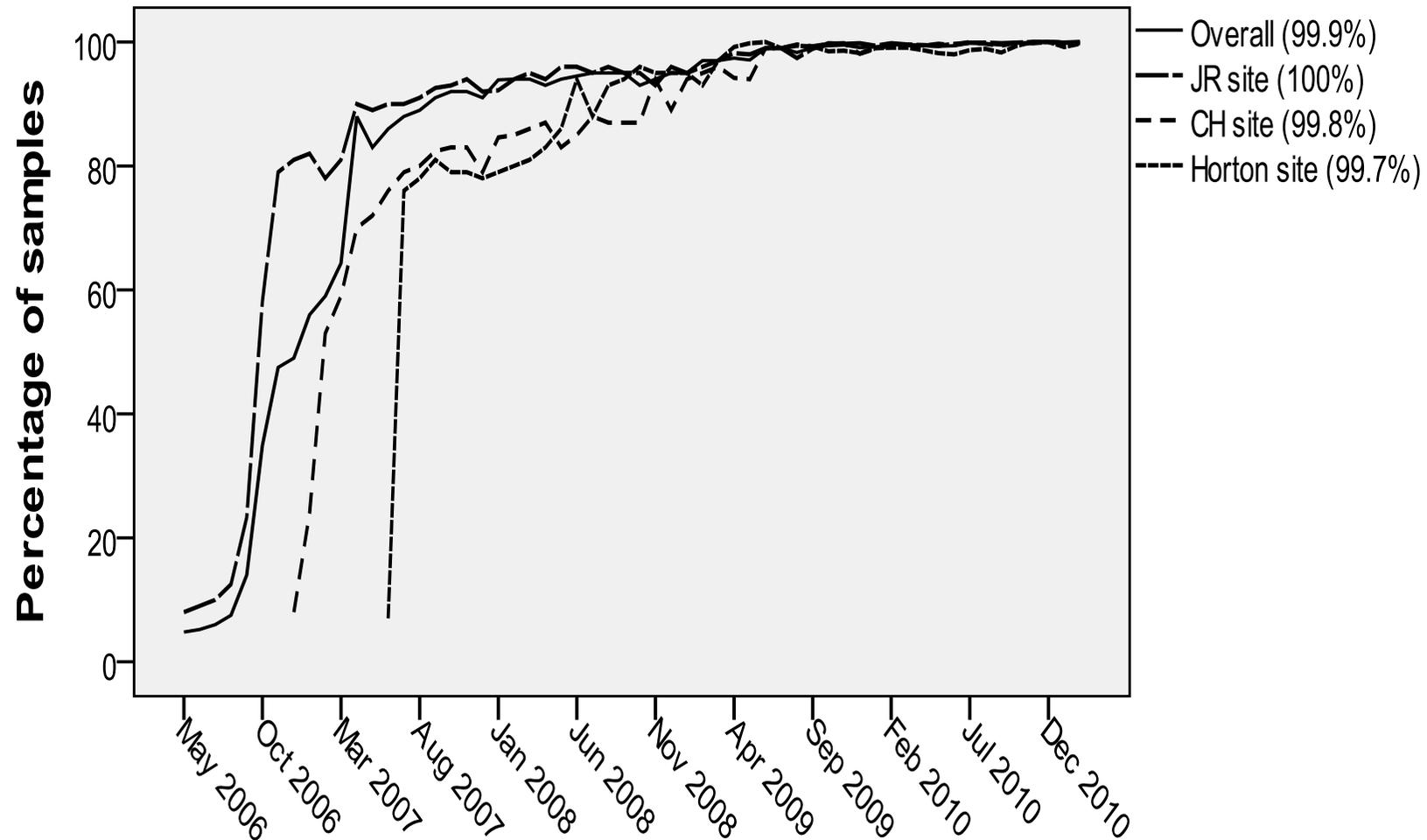
The Chief Medical Officer  
National Blood Transfusion Committee  
**SHOT**  
National Patient Safety Agency

Electronic Clinical  
Transfusion Management System  
Supporting the automated tracking of blood products

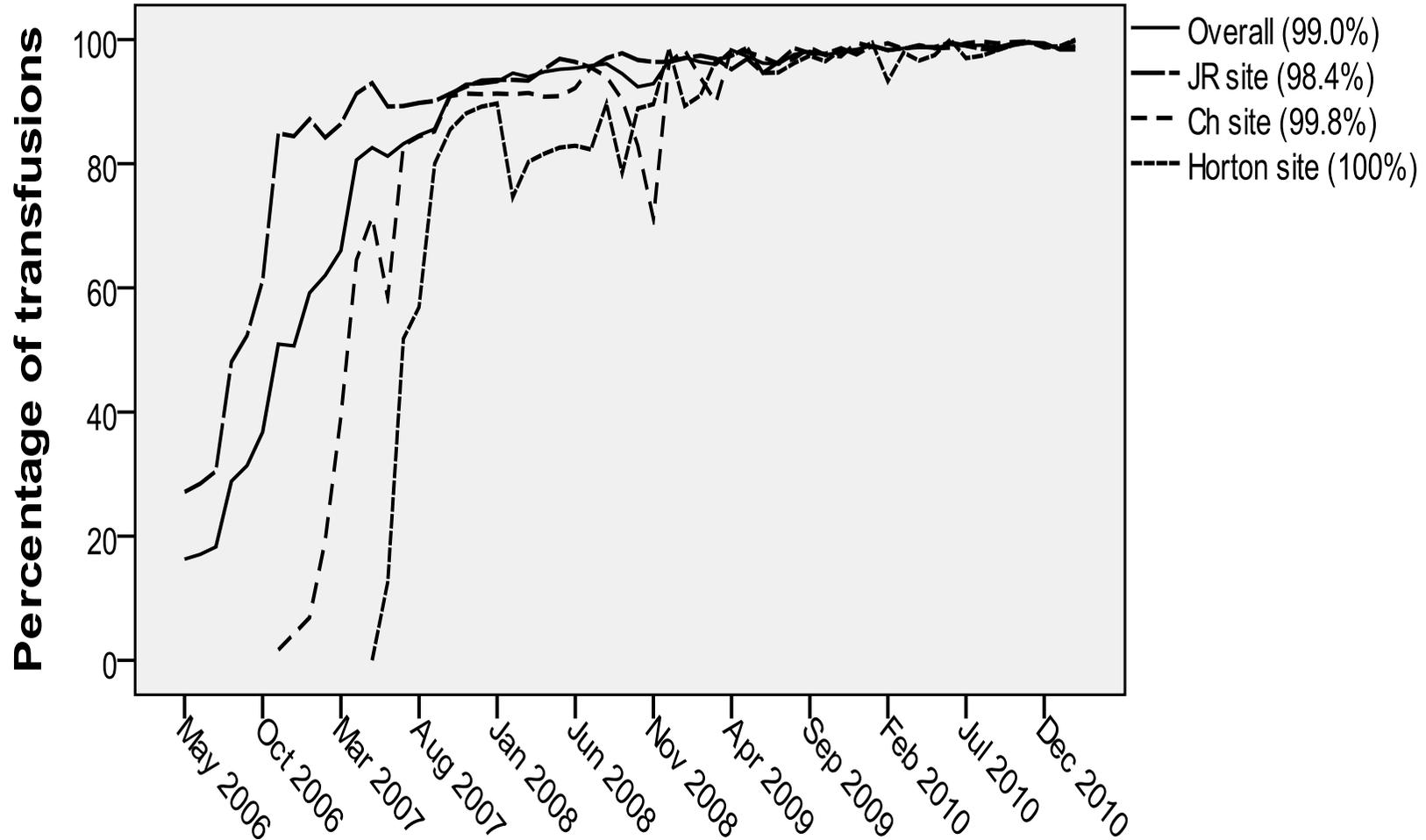


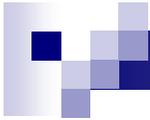
right patient  
right blood

# Use of the electronic process for blood sample labelling

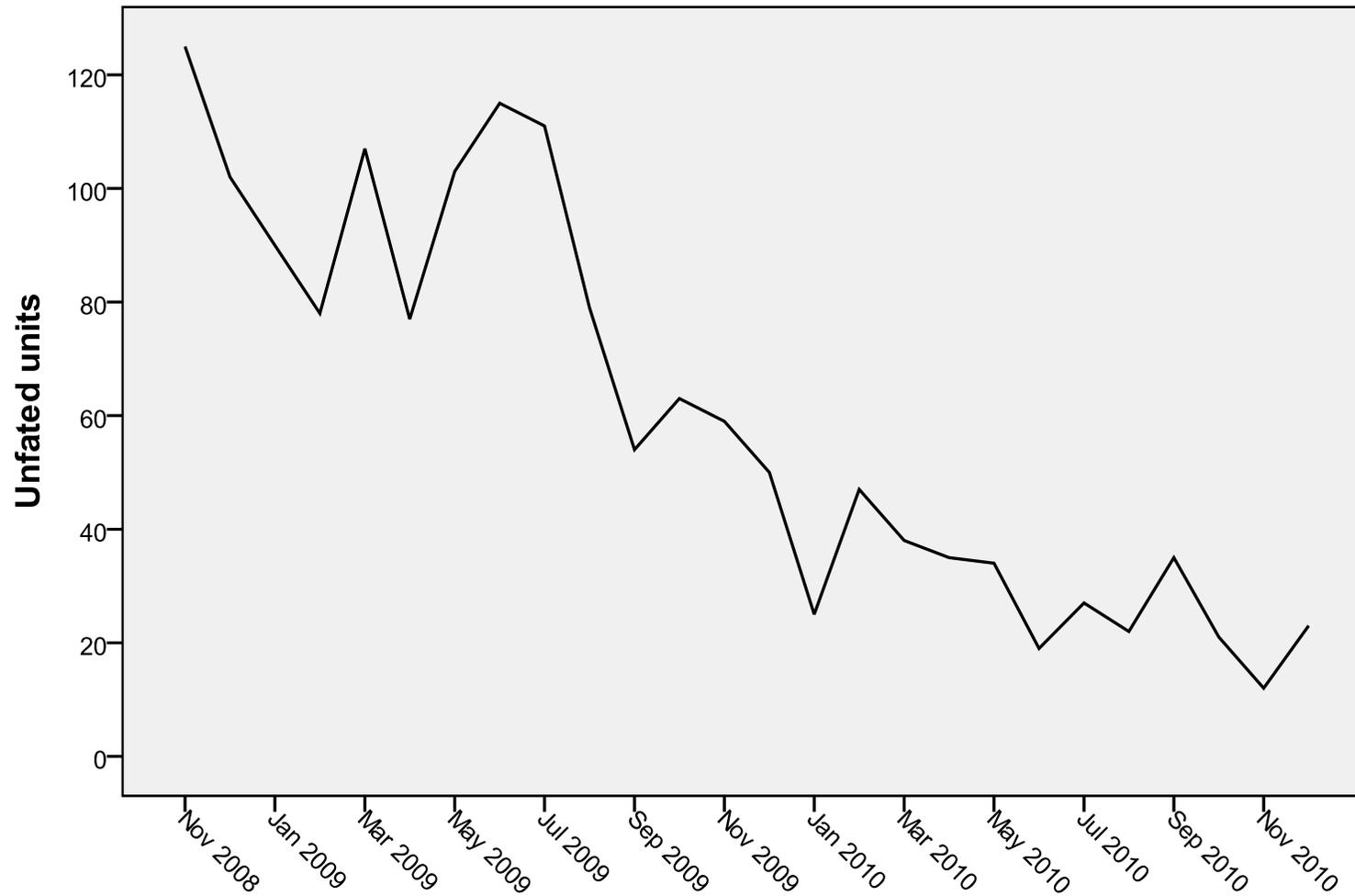


# Use of the electronic process for the pre-transfusion bedside check





## Number of transfusions with no record of the use of the electronic system ('unfated units')



# Blood Transfusion Assessment of Competency

## Ward Report

Number of staff assessed for safe administration of blood components: 34

Number of staff assessed for safe pre transfusion blood sampling: 8

	Standard	Activity Recorded	Further Details
1	SafeTx 'Begin Transfusion' function successfully completed in the assessment period	(311)	
2	Observation of the patient recorded on SafeTx within 30 minutes (best practice = 15 minutes)	(198)	64%
3	SafeTx 'End Transfusion' function successfully completed	(290)	93%
4	Module 1 'Safe Transfusion Practice' (E learning course) passed within the last three years	(34)	100% of staff who administer transfusions and/or take blood samples
5	Module 2 'Blood Components and Indications for Use' (E learning course) passed within the last three years	(29)	85% of staff who administer transfusions

### Additional Data

Unfated units in the last 6 months of the assessment period (blood components transfused or disposed of in your area with no SafeTx record): (3)

# Blood Track Manager

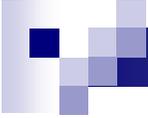
## 'Live view' of transfusions

**BloodTrack Manager**

Patient	Blood Unit	Product	Status	Details	Date	Location
	G052 509 121 069 3	FFP LD	Transfusion Started	15 minute vitals overdue (38 minutes)	04-Mar-2009 12:21:07	JR2 Theatre 9
	G052 509 113 410 9	FFP LD	Transfusion Started	15 minute vitals overdue (38 minutes)	04-Mar-2009 12:21:07	JR2 Theatre 9
	G052 509 130 424 I	RED CELLS IN ADD SOLN LD	Transfusion Started	15 minute vitals required (18 minutes)	04-Mar-2009 12:41:29	Ward 7A
	G052 509 110 553 R	RED CELLS IN ADD SOLN LD	Transfusion Started	Waiting for 15 minute vitals	04-Mar-2009 12:53:21	Surgical Emergency unit
	G052 509 111 025 M	RED CELLS IN ADD SOLN LD	Transfused	Completed (61 minutes ago)	04-Mar-2009 11:58:20	ITU
	G054 709 118 933 M	PLTS, APH LD IRRAD	Transfused	Completed (60 minutes ago)	04-Mar-2009 11:59:19	Kamran's Ward
	G052 509 130 358 6	RED CELLS IN ADD SOLN LD	Transfused	Completed (56 minutes ago)	04-Mar-2009 12:03:56	Haematology Day Clinic
	G072 409 100 925 3	RED CELLS IN ADD SOLN LD	Transfused	Completed (49 minutes ago)	04-Mar-2009 12:10:34	Haematology Day Clinic
	G054 709 115 058 D	RED CELLS IN ADD SOLN LD, IRRAD	Transfused	Completed (44 minutes ago)	04-Mar-2009 12:15:04	Haematology Day Clinic
	G052 509 113 498 Z	RED CELLS IN ADD SOLN LD	Transfused	Completed (27 minutes ago)	04-Mar-2009 12:32:02	Adams Ward

Navigation menu:

- Alerts
- Blood Available
- Transactions
- Reports
- Kiosks
- Remote
- ASK Manager
- Configuration



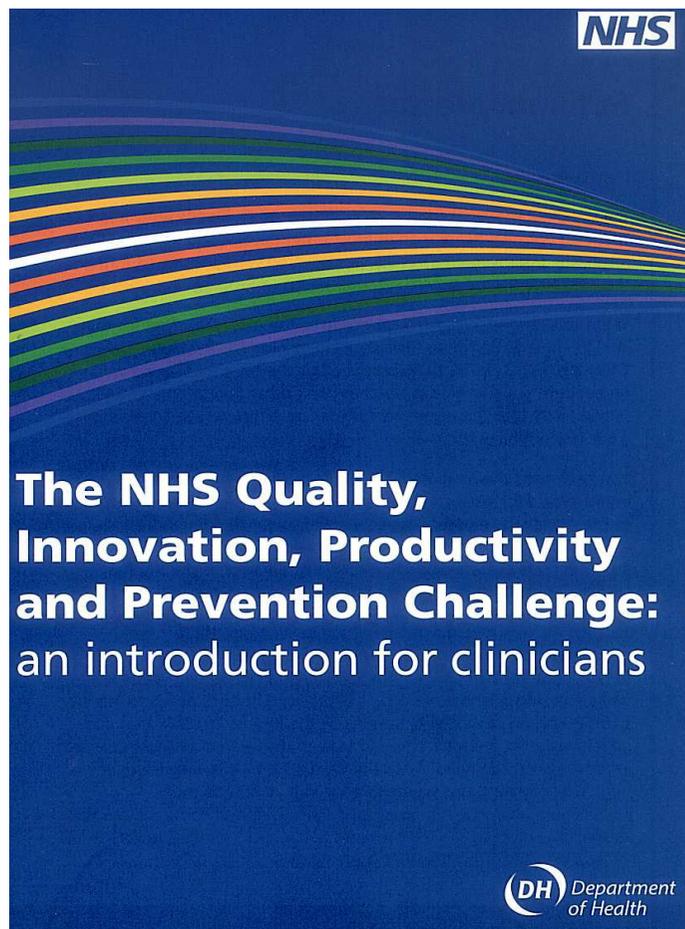
# Electronic remote blood issue

Staves et al. *Transfusion* 2008; 48: 415-424

- Electronic issue of blood allows the safe release of blood without a test of patient's serum/plasma v. donor red cells by using the blood bank computer to ensure that certain criteria are met
- 'Electronic remote blood issue' allows the issue of ***unallocated*** blood from blood fridges remote from the blood bank by an electronic query of blood bank records and the printing of a compatibility label
- Potential major benefit for blood banks serving multiple sites (as in Oxford) or a region

# NHS QIPP 2010

## Electronic blood transfusion systems (Oxford Radcliffe Hospitals): one of only 6 recommended interventions



### CASE STUDY

#### Engineering simpler, safer and more efficient blood transfusion systems

Oxford Radcliffe Hospitals

Mike Murphy is Professor of Blood Transfusion Medicine at Oxford University and consultant haematologist, NHS Blood and Transplant at Oxford Radcliffe Hospitals. He pioneered the 're-engineering' of hospital blood transfusion using an electronic system. It has made transfusion at the Oxford Radcliffe Hospitals safer for patients, simpler for staff and is reducing costs for the trust.

"Blood transfusion is a complex and time-consuming process involving numerous steps that culminate in a series of bedside checks. Thankfully, errors resulting in the wrong blood being transfused are rare but, when they do occur, most are due to patient misidentification and they can be fatal.

The pre-transfusion safety checks have become so complex that they may be self-defeating. It has been observed in some clinical studies that only 30% of pre-transfusion bedside checks are carried out correctly. We needed to do something to make the process simpler and safer.

Together with my team, we aimed to re-engineer the entire process, and to replace the old manual process with end-to-end electronic control. We introduced hand-held electronic devices that guide staff at every stage of the transfusion process.



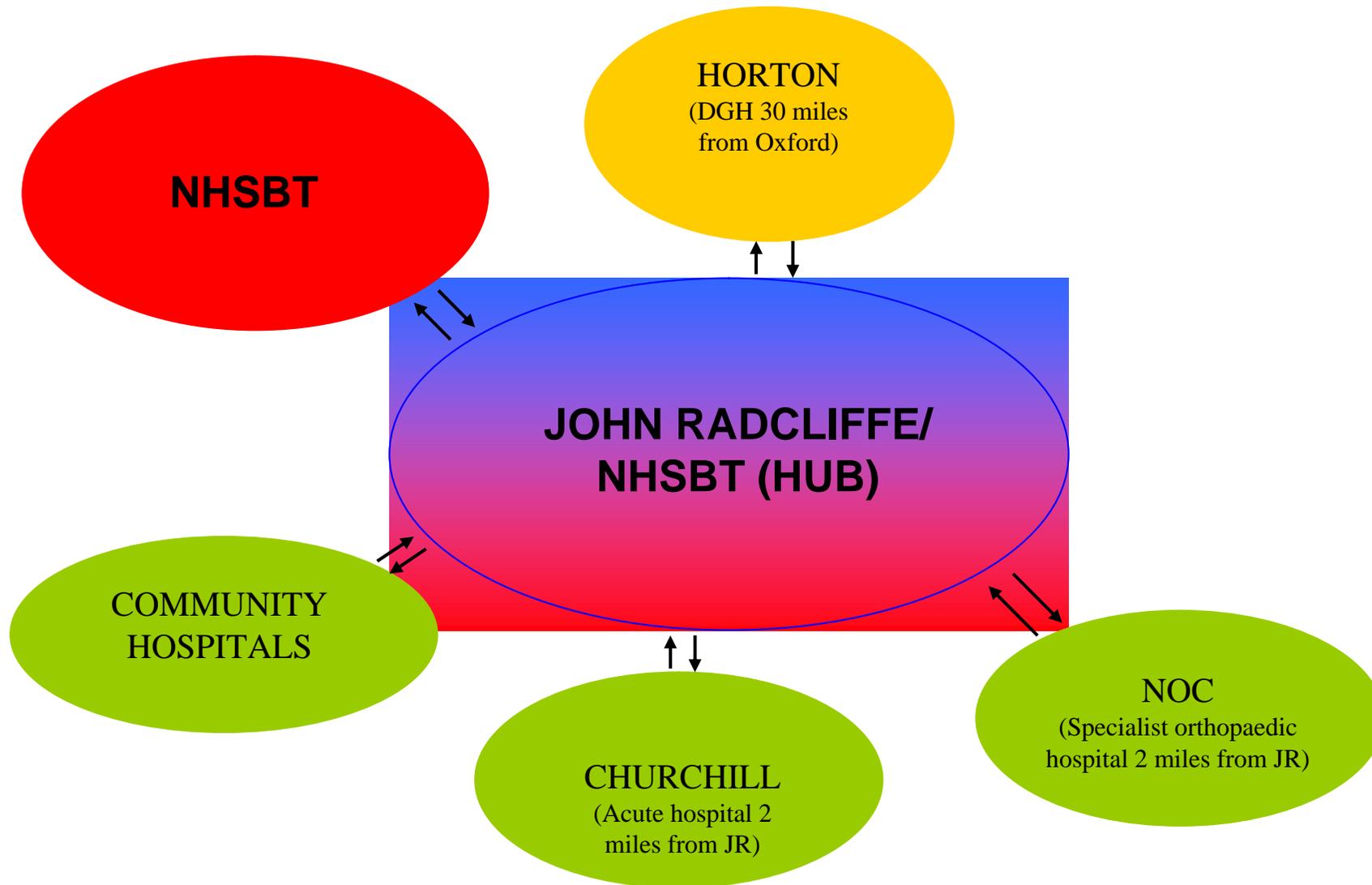
# Costs of electronic transfusion system

About £10/unit to cover equipment and training

Savings:-

- staff for meeting regulatory requirements and for training
- nursing time
- blood transfusion laboratory staff time
- blood usage
- blood wastage

# Oxford Centralised Transfusion Service



NHSBT: Reference RCI, H & I, SCI etc; blood product provision; electronic requesting of blood and diagnostic tests and issuing of reports; clinical and scientific advice.

JR lab: Hub: routine and urgent sample testing 24/7; product provision; antibody identification (all but very complex).

Spoke with lab: urgent requests; product provision.

Spoke without lab: product provision.



# Could centralised transfusion services be the answer?

Concept is not new:

- Increasingly used in the United States
- Excellent examples in Seattle, Pittsburgh and Florida
- CTS responsible for providing hospital transfusion services for a network of hospitals, driving:-
  - Improved quality of services
  - Patient safety
  - Cost reduction through economies of scale and better use of blood