

1	Date / title of meeting	NHSBT Board Meeting – May 28 2015
2	Title of paper	Progress Report: implementation of the NHSBT Planning and Control System and Hospital Stock Management Programmes.
3	Status	Official and disclosable.
4	Tweet (max 140 characters)	NHSBT is making progress with the first two modules of its new Planning and Control System which will be used to forecast blood demand and replenish hospital blood stocks automatically.
5	Executive Summary	<p>For the last 12 months, multi-specialty teams from across NHSBT have been working closely with hospital colleagues and system suppliers to develop and implement a new Planning and Control System (PCS) in line with the business case submitted to the NHSBT Board in May 2014. http://www.nhsbt.nhs.uk/download/board_papers/mar14/Planning_and_Control_System_March_2014.pdf</p> <p>Our strategic aspiration is the delivery of a single, integrated solution which uses real time data to direct every stage of the supply chain planning cycle from the patient to the donor. This includes the optimised, automated management of blood stocks in the hospital transfusion laboratory and the optimised call up of donors to match demand with supply as well as the replenishment processes via our manufacturing, testing and stock holding units.</p> <p>This paper describes progress to date with the first two modules, which cover blood component demand planning and hospital stock management. The objectives for this module once all of our hospitals are being replenished automatically include improved customer satisfaction with our stock management processes and a reduction in costs associated with over-ordering and logistics. Activities completed to date on both modules include the delivery of detailed planning specifications, software development and interconnectivity and user acceptance testing. Live data is now being exchanged between NHSBT and eight hospital pilot sites, seven in parallel with our existing tool. One hospital will be running independently on the new tool from June. Output from the new forecasting module is also currently live and is now being validated against our existing planning tool. We are now starting the rollout of the new PCS package to twenty hospitals which cover 12% of red cell and 17% of platelet demand. This work will be completed by the end of June 2016.</p> <p>There has been a one month slippage against a phase 1 milestone to deliver the PCS tool used to support hospital stock replenishment and a budget increase of £133,600 on the original base of £672,000. This has arisen from two change requests of £56,000 and £77,600, and additional recurring costs of £12,000. These reduce the PCS project benefits described in the business case from £411,000 to £304,000.</p> <p>These two projects are however still expected to be completed on time and active efforts are being made to manage costs.</p>

6	Action requested	That the Board notes the progress made with the PCS and hospital stock replenishment projects, and approves additional funding as defined above.	
7	Background and customer promise	<p>Benefits for NHSBT are:</p> <ul style="list-style-type: none"> ▪ Visibility of hospital blood stocks resulting in better system-wide availability ▪ Access to additional data to help improve use of blood ▪ Reduction in inter-centre transport activity and costs ▪ Reduction in NHSBT inventory levels ▪ Reduction in age of stock at issue 	<p>Benefits for hospitals are:</p> <ul style="list-style-type: none"> ▪ Waste reduction ▪ Reduction in transport costs: <ul style="list-style-type: none"> - Fewer routine deliveries - Reduction in ad hoc deliveries ▪ Optimise hospital inventory levels - this is expected to result in lower overall inventory levels ▪ Improved customer satisfaction
<p>The development of integrated, automated solutions across the blood supply chain will support both NHSBT and hospitals to minimise component and logistics waste by optimising supply with demand for both simple and complex blood components for the benefit of patients. At this stage many of the anticipated benefits are still to be realised as we are only working with a small number of hospitals, however we have made significant progress towards our system development and implementation goals.</p> <p>Key achievements to date:</p> <ul style="list-style-type: none"> • Continued positive feedback from the pilot hospitals while the new tools have been developed. • Completed a competitive tender exercise which secured an experienced, well established supplier and a contract with Tools Group for a modular supply chain solution. This company have worked well with us to interpret our very specific and complex requirements. • Worked with a number of commercial hospital Laboratory Information System (LIMS) suppliers to deliver upgrades to their systems. This will facilitate data exchange with NHSBT systems for the hospital stock management tool (also known as our “Vendor Managed Inventory“ or VMI tool) offering options to link to multiple systems. • Successfully maintained an automatic stock replenishment service to eight hospital pilot sites on our existing in-house software while the new PCS software has been under development • Phase 1 of the hospital stock management work plan is complete and we have successfully defined, developed and tested a solution which can be used at scale to support rollout to an increased number of hospitals. This work will support a full scale extension to all hospitals in England and even individual remote fridges in hospitals in future. 			

- Included functionality to allow NHSBT to manage and replenish hospital blood stocks 24 hours a day, 7 days a week which includes automated message alert functionality for both NHSBT and hospitals.
 - Links have been established and tested which allow data to flow across a number of Information systems, including the Online Blood Ordering System (OBOS) and PULSE (our core operating system in blood supply)/
 - One month's parallel testing using live data has been completed and compared with our existing tool.
 - One of our pilot VMI hospitals will be "live" using the newly developed PCS tool from June, with the other 7 pilots scheduled to follow in subsequent weeks.
- A data mapping exercise has been completed which facilitates the use of the International Standard for Blood Transfusion (known as ISBT 128) component barcode characteristic data alongside the bar code data currently used across our infrastructure. This offers NHSBT a number of benefits:
 - The level of granularity offered by the adoption of ISBT 128 codes means that the Demand Planning Module of PCS will be able to generate forecasts for every single component within our portfolio instead of the very limited range of forecasts available currently.
 - This decision also offers some "future proofing" for NHSBT should we take a decision to adopt the ISBT 128 coding system across our supply chain in the future.
 - It will speed up the development of the future manufacturing modules as the architecture is already in place to support this development.
 - This decision allows us to optimise the distribution of every single component and is a key enabler for the NHSBT platelet strategy ensuring that HLA and HPA matched components can be distributed to our stock holding units and patients more effectively.
- The short term (i.e. up to one year) demand forecasting module which includes the detailed management information reporting functionality has been developed using information captured from our online ordering tool. This allows us for the first time to develop forecasts based on true demand instead of using issue data which forms the basis of our current forecast.
- This module has successfully passed the first round of acceptance testing and has been loaded with two years' historical data for our core components (adult red cells, platelets and frozen products)
- The reporting functionality for this module is automated and the ISBT coding facilitates the delivery of forecasts by hospital/by component at a characteristic level at the press of a button in real time, which is new for NHSBT.

		<p>Challenges:</p> <ul style="list-style-type: none"> • The decision to use international codes to exchange component characteristic data has been more complicated than anticipated in terms of data mapping and has highlighted some data quality issues with some of the data currently entered manually in to NHSBT systems, requiring the development of data cleansing functionality. • Instability of the NHSBT IT infrastructure during testing has caused lost days with user acceptance testing and dual running and necessitated the development of a protected testing platform to avoid further problems. • Additional memory was required to ensure stable operation of the tools to deliver a good user experience. • The amount of user acceptance testing required to accommodate the ISBT and infrastructure changes was higher than planned, impacting on phase 1 delivery timescales and budget. This resulted in two change requests to extend timelines to accommodate extra testing by a month and an accumulative increase to the programme budget of £127,000. • Our contract with Tools Group is based on an hourly rate, not a payment on delivery. This has been a key factor with respect to the additional costs (it should be noted that the supplier has however absorbed additional costs with a value of approximately £30,000). • A key person at one of the major hospital LIMS suppliers left the company and there were difficulties getting good information from this supplier for a period of several weeks. <p>While there has been a one month delay in the delivery of live data to the VMI part of PCS, we have used the time to pull forward development of training packs and user information for the next cohort of hospitals and the hospital stakeholders are still actively engaged and supportive of the project.</p> <p>The Demand Planning modules of PCS fulfil and in some cases exceed all our user specification requirements and we will for the first time be able to forecast demand at an individual component and individual hospital level at the press of a button.</p>
8	<p>Why is this important?</p>	<ul style="list-style-type: none"> • The development of these new systems will transform the planning processes within the NHSBT supply chain, replacing numerous manual planning process with the inherent risk of human error which can lead to delays in the provision of blood components to patients • These tools will allow us to more closely match demand and supply and reduce cost associated with over or under collection, stocking or manufacture of blood components • Rollout of the VMI tool offers hospitals and NHSBT opportunities to further reduce logistics costs, reduce component waste and increase customer satisfaction. • The hospital stock management tool is important because it gives NHSBT live insights into changing transfusion practice at hospitals.

		<p>In future this will allow us to respond more quickly to short term demand fluctuations.</p> <ul style="list-style-type: none"> • Our current planning tools have not been developed to supply chain industry or best practice standards and have limited modelling functionality. This leaves us reliant on third party suppliers when we want to plan major service changes. • The new tools will support automated downloads of data into the NHSBT Blood Stocks Management Scheme replacing manual data entry, saving time in hospitals and improving data quality. 												
9	<p>Who else has been involved so far?</p>	<p>Internal</p> <ul style="list-style-type: none"> ○ Justin Baker – Accountable Executive PCS Project ○ Teresa Allen – Accountable Executive VMI Project ○ Chris Brown – Business Transformation ○ Lucy Frith and Sue Cotton VMI Leads ○ Vaughan Sydenham, Mick Burton, Tony Baxter –NHSBT Finance ○ Chris Philips, John Parslow, Customer Services ○ Sue Holdsworth, Central Planning ○ James Fishwick, Ian Millar, John Hirst, NHSBT IT ○ Janet Birchall, NHSBT Medical ○ Stuart Penny, Graham Walters and Chris Jones, Angela Brazier NHSBT Operations ○ Steve Moore, Quality Team ○ Sam Fletcher, Communications <p>External</p> <ul style="list-style-type: none"> ○ Tools Group ○ CliniSys, Winpath, Lab Systems, CSC, Telepath and APEX, Haemonetics, BARRS ○ Hospital customer and IT representatives from the following hospitals: Oxford University Hospital Trust, Royal Liverpool Hospitals NHS Trust. Royal Bournemouth NHS Trust, Freeman Hospital Newcastle. 												
10	<p>Costs and benefits</p>	<p><u>Planning and Control System Implementation</u></p> <table border="1" data-bbox="416 1570 1345 1738"> <thead> <tr> <th>PCS</th> <th>Baseline</th> <th>Forecast</th> <th>Recurring Benefits</th> </tr> </thead> <tbody> <tr> <td>Costs £000</td> <td>672</td> <td>*806</td> <td></td> </tr> <tr> <td>Benefits/(costs) £000</td> <td>352</td> <td>266</td> <td>64</td> </tr> </tbody> </table> <p>*This figure includes a recent change request for £77,000, a Capital Expenditure purchase requirement for user licences of £337,000 (capital), capitalisable mplementation costs of £275,000 (capital), implementation costs of £156,000 (revenue); year 1 maintenance costs £38,000 (revenue).</p>	PCS	Baseline	Forecast	Recurring Benefits	Costs £000	672	*806		Benefits/(costs) £000	352	266	64
PCS	Baseline	Forecast	Recurring Benefits											
Costs £000	672	*806												
Benefits/(costs) £000	352	266	64											

Summary of Change Request (CR) impacts from baseline

Date	Position/Change	Changed by £000	Balance £000	% change
May 2014	Approved implementation budget - DBC	0	672	0
Jan 2015	CR1* – Reference data import and the implementation of the ISBT128 product code language	56	728	8.3
Feb 2015	CR2 – Re-designation of revenue spend as capital	0	728	0
April 2015	CR3 – Additional implementation costs.	77.6	806	19.9

The additional non-recurring costs for this change request are attributed to:

1. Additional (calculated) Implementation expenditure **£62.400**
2. Additional contingency reserve* requested **£36.600**
3. Offset by a Year1 Software maintenance saving (**£21.500**)

VMI / Stock Management Module - Rollout Costs and Benefits

VMI	DBC	Forecast	Recurring cost
Costs £000	331	190	
Benefits/(costs) £000	0	(360)	(90)

11 Significant next actions

- 6 months parallel running of the new Demand Planning Tool (starting Q2 2015) against the existing SPSS tool currently used to produce demand forecasts for adult red cells, platelets and all frozen components
- Sequential transfer of all eight hospital pilot sites onto live PCS VMI solution between June and September 2015.
- Training of hospital colleagues and implementation of VMI in 12 additional hospitals by the end of June 2016. Many of these participated in a desktop stock management exercise. i.e. NHSBT optimised their stock holding using their stock data, but did not connect up systems or replenish their stock.
- Detailed benefits analysis of existing and new VMI hospital sites April - Sept 2015 to inform business case for ultimate rollout to 110 hospitals as outlined in the NHSBT 2020 strategy.
- Development of NHSBT Stock Management Algorithm modules of PCS to facilitate NHSBT stock holding efficiencies to be realised by end of July 2015
- Development of business cases for the procurement and development of the Manufacturing and Long Term Demand Planning Modules.

12	How does this impact on Equality and Diversity?	The PCS tool will improve the supply chain planning of some of our more specialised “matched” components. This includes the availability of components for patients suffering from sickle cell anaemia and thalassaemia / haemoglobinopathy patients in general. Many of these patients are from Black and Ethnic Minority groups.
13	What is the impact on sustainability?	Optimised deliveries to hospitals should lead to reduced vehicle movements.
14	Employee impact?	The PCS and VMI projects each have a bespoke communication plan aligned to key milestones. Orientation and bespoke training against new procedures is an essential part of our quality management system and is included in the implementation plan for both of these new tools as they are implemented. They impact on colleagues across the supply chain in Hospital Services, the Central Planning team, Hospitals and Stock Holding Units. NHSBT VMI leads are delivering all necessary training to hospital colleagues and ensuring that their change processes are also compliant. Three whole time equivalent posts at AfC band 8 will be disestablished across the supply chain as described within the benefits case by 2020.
15	Donor/Patient impact?	This project supports the following objectives in the 2013 -18 and Blood 2020 Strategic Plans: <ul style="list-style-type: none"> • Working with NHS hospitals so our services are as accessible and effective as they can be to meet patient needs. • Improving our “On Time in Full” delivery of specialist blood components for our most vulnerable patients • Better integration and planning for the end to end blood supply chain from donor through to patient • Increased satisfaction among transfusion laboratories with the ordering process, and reduced workload in hospital transfusion laboratories.
16	Taxpayer impact?	Contribute to more efficient services releasing NHS funds associated with wastage and overstocking/ordering.
17	Author	Teresa Allen, AD Customer Service (07711 447599)
18	Responsible Director	Clive Ronaldson (PCS) Huw Williams (VMI)
19	NED input	
20	Appendices	<ul style="list-style-type: none"> ○ PCS and VMI Project Gantt charts to show future work phases  PCSImplementationPlan.ppt ○ Screenshots to demonstrate the output that we have developed within the demand forecasting module of PCS.  Sample Screenshots.pdf