

INSPIRE case study

NHS BLOOD AND TRANSPLANT: Blood Donning Chair

Roles involved:

- The Executive of the NHS Blood & Transplant Service, in particular Jane Pearson, Director of Nursing & Operations
- NHS National Innovation Centre, in particular Brian Winn, Head of NIC

Status: complete

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Key information

• Object: R&D services	y
• Object: commercial volumes of end-product	y
• Demand side driven approach (need /challenge definition)	y
• Separation with the procurement of commercial volumes of end-product and no preferential treatment in the supply of the final product (re-opened competition)	y
• Absence of exclusive condition: the public purchaser does not reserve the R&D results exclusively for its own use	N
• Open and competitive procurement (no invitation-based or restricted procedure)	y
• Development in phases	y
• Multiple-sourcing contract	N
• Retaining at least two participating companies until the last phase to ensure a (future) competitive market	y
• Open, transparent, non-discriminatory selection procedure based on objective selection and award criteria specified in advance of the bidding procedure	y
• Contractual arrangements (including IPRs), rights and obligations allocation decided upfront and made available to all interested bidders in advance	y
• All potential bidders (including SMEs) have equal chances to bid against the same contractual condition	y
• Awarded criterion: MEAT (competition also on price)	y

1. Identification and assessment of unmet needs within (and starts from) the public bodies

NHS Blood & Transplant (BT) had identified a process problem which disrupted the workflow of taking blood from members of the public. For over seven (7) years they had been aware that donors who either felt faint, or who actually fainted, during the blood donation process decreased donor throughput as the donor turned into a patient and had to be attended to & given recovery support. This occurred some 300 times per day in total across all of the donating centres in England. Not only did these donors-to-patients events decrease

throughput and disrupt blood collection, but it was disturbing for the donors awaiting their turn and often triggered them to leave, causing further loss of blood collection.

NHS BT attempted to solve the problem by seeking a different type of chair or bed which the donor would use. The current design was a simple flat bed which was suitable for collecting blood but did not support the lowering of the patients head when they began to faint, and they were unable to identify anything suitable that was already on the market to acquire via conventional procurement processes.

With the advice and support of the NHS National Innovation Centre they published a Call for new designs which would enable the donor position to be adjusted according to whether they reported feeling faint or not.

Four companies responded to the Call by providing paper descriptions and drawings of outline designs for a new Donor Chair.

Two of those designs were taken forward to provide detail designs presented as 3D-CAD drawings.

NHS BT were unable to choose between these two designs and so both companies were commissioned to create fully-working prototypes, which were tested in a mock-up doning centre to simulate real-world storage, transport, set-up and use, including ease of cleaning.

As a result of the simulated in-use trials, one design was selected to be taken forward and 1000 of the units were ordered and are now in use.

2. Involvement of users in specification of requirements and/or piloting

The Users were the staff NHS BT, and in preparing the design brief which described the unmet need they were seeking to fulfill it became clear that there were many more attributes the design needed to meet beyond simply being adjustable in position (the recovery position for fainting is with the head lower than the heart – the opposite position to that used when giving blood). Whilst that was the key requirement from the staff in the operational areas, other functional aspects such as somewhere to secure the receiving blood bag, avoidance of trapping the tube when adjusting the chair and a tray to assist with cannula insertion had to be included. The requirements of the logistics support teams also had to be accommodated. These included such aspects as lightweight, stackable for ease of transportation between doning centres, and an absence of dust and dirt traps to support easy cleaning and disinfection.

The fact that NHS BT established a testing centre specifically for these new chairs shows the extent they went to involve all relevant Users in the piloting process.

3. SoA analysis via open technical dialogue and early market engagement

State-of-the-Art survey and market dialogue had in effect been in operation during NHS BT's continuous 7-year search for a suitable product. There was not a specific phase for market dialogue undertaken for this project because the NHS BT procurement department were confident that nothing was available on the market which met all of their needs.

4. Specification of functional / performance-based requirements

This was addressed by describing the operational problem NHS BT were experiencing and requesting outline designs which would solve the problem without adversely affecting the key functional parameters of the existing unit currently in use. These functional parameters were described in terms of:

- * max size/weight of donor to be accommodated
- * a list of the cleaning agents and chemicals which are used to clean and disinfect the current unit
- * current space envelope

- * current unit weight
- * transport and storage requirements
- * set-up time
- * operational design life in terms of number of donors

5. Evaluation and Verification of innovative solutions (either within the tendering process or in pre-commercial phase)

The first round of submissions from bidders were technical descriptions of the solutions bidders proposed ie paper designs and drawings. These were evaluated by technical and operational staff from both NHS BT & the NHS NIC and two designs were short-listed.

The two designs were commissioned to submit more detailed information, including 3D-CAD drawings for better visualisation, and cost data. The NHS NIC, who were funding and managing the process, had originally anticipated that the successful design would be selected at this stage BUT NHS BT were unable to choose between the two and so it was decided that NHS BT needed to see the designs 'in the flesh'. Although this was an un-anticipated additional expense, both organisations were commissioned by the NIC to produce a fully-functional prototype to assist NHS BT in their decision process.

For their part, NHS BT established a test centre which accurately reflected how blood donation centre would be set up and run during a donation session, so as to trial each chair in a realistic environment. This testing led to the selection of the winning design.

6. Shared allocation of risks and benefit (including IPR management)

Until the establishment of the test centre, NHSBT carried no risk other than the time-cost of their own personnel. This is because NHS NIC funded and managed the Call process and the commissioning of the two prototypes.

It was made clear to bidders from the outset that IPR and design rights rested entirely with the NHS (NHS NIC, who subsequently transferred them to NHS BT so that NHS BT could commission the production items).

There was talk of NHS BT & the Supplier entering a joint agreement to supply (sell) these chairs to other blood collection agencies globally, but that has not occurred yet since NHS BT wish to collect in-operation reports and cost-effectiveness analysis before entering into such an agreement.

7. Enable the participation of SMEs

No special measures were taken to specifically attract, target or imply preference to SMEs, since that would have been in violation of EU procurement legislation. However, the Call was announced on the NHS NIC's website and it is known that innovative SMEs in particular frequently monitored that site for opportunities.

8. Enhance the competition during execution and facilitate innovation over the contract period (for PCP multiple sourcing and approach in phases, for PPI performance condition, lots....)

The structure of the project was designed to be able to minimise expense and terminate activity at any time. In particular:

- * The Call for outline designs was made without any commitment to progress any design further, and the

submissions being at the Suppliers expense

* The two commissions to convert the selected outline designs into detailed CAD designs was made without any commitment to progress further.

* The two commissions to create fully-functional prototypes was made without any commitment to progress further BUT with a clear sense of competition throughout.

It is believed that NHS BT drew down the Production Items in lots and after a protracted period of price and payment milestone negotiation, but details are not known to this author other than the payment milestone issue almost terminated the project.

9. (Identified) Knowledge, skills and resources needed to conduct PCP/PPI

NHS BT did NOT have the knowledge about how to conduct this r&D process and drew upon the NHS NIC.

10. Business / service case development- was this present and relevant

The Business Case was well established but only considered conventional procurement as a solution.

11. What as the main aim with the procurement? Procure only new technology/solution or technology+ service (service procurement) leading also possibly to change in care model/delivery ?

The aim was to improve donor comfort and safety and thereby improve the efficiency of the overall service.

12. Procurement results - was it worth the investment in the pre-procurement phase?

NHS BT say yes – but bear in mind they did not carry the whole cost since NHS NIC provided early-stage funding. HOWEVER, the professional Journal HSJ awarded the project a prize for being “the Innovative Procurement of the Year”

13. Main lessons learnt in general

* Having the eventual Procurer onboard from the outset increases the probability of market entry and speed of uptake (16 weeks from original Call to prototype).

* Procurers do not see r&D as a technique relevant to them

* Non-technical people do not easily read paper or on-screen designs – they want to touch and feel the end product (the need to make prototypes is important)

* Not having (SME) ownership of IP is not the barrier to supplier engagement that some people believe it to be.

14. Financial aspects

* It is unlikely that NHS BT would have proceeded if they had to fund the early stage work or the prototypes – they are not geared to do this sort of thing and the perceived risk would probably have prevented them embarking on the project.

* There is very likely more recent data available but NHS BT are delighted with the operational and financial benefits made possible by the new chair.

* There is commercial export potential that resides untapped in this product – again, it is not in the remit of the NHS to conduct this sort of activity.

PROCUREMENT INITIATIVE OF THE YEAR

HIGHLY COMMENDED The Strategic Projects Team at NHS Midlands and East

FINALIST Great Ormond Street Hospital

FINALIST Healthcare Commissioning Services

FINALIST NHS CPC

FINALIST Royal Orthopaedic Hospital

FINALIST Tameside Hospital Foundation Trust



Winners: Jane Pearson and Scott Cooper

JUDGES

- Beth Loudon, national QIPP procurement workstream programme manager, Department of Health
- Mark Patterson, vice president, NHS Supply Chain
- Melanie Hall, managing director patient care, NHS Supply Chain
- Philippa Slinger, national QIPP procurement lead, and chief executive Berkshire Healthcare Foundation Trust
- Simon England, director, Accenture UK Health

WINNER NHS BLOOD AND TRANSPLANT DESIGN AND PRODUCE A NOVEL DONATION CHAIR AND TRANSPORT SYSTEM

People who donate blood currently do so in beds bought 10 years ago that are at the end of their working lives. After several attempts to secure an off-the-shelf replacement failed, NHS Blood and Transplant launched a project to create a chair for donors.

It used the NHS National Innovation Centre five-step model to: develop a clinical statement of need; commission a designer to produce a prototype; bring that model through testing and validation; use a blueprint for low volume; and then engage in full scale manufacture and distribution.

Staff at all levels were involved and a test centre was built to test the prototype before validation was carried out using 180 donors.

NHSBT has now ordered 935 chairs and 135 sets of transport trolleys that will be rolled out across sites in England and North Wales.

Donor safety is the biggest winner, with reduced risk of faints in the chairs both during and after donation as well as increased speed of recovery from minor faints. Donors also found the chair more comfortable and dignified than the beds, while staff safety is also improved.

The internal project has led to a contract award of £2.25m on essential equipment. There is no financial payback but the project team worked to maximise interest in the tender. Most importantly, the introduction of the chair will have a profound impact on the work of the blood teams.

Judges branded the scheme "a superb example of highly innovative, collaborative procurement".

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