

# AUTOMATED DISPENSING

— *procuring automated picking and storage systems*

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*Contracting for technology to automate aspects of the dispensing process can be complex and time consuming. This third article in the automated dispensing series sets out practical information on the procurement process, including designing a specification and evaluating tenders*

*Variations taken by suppliers in their pricing structures can make calculating and comparing the costs of automated dispensing systems difficult*

Automated technology has already been installed into the dispensaries of several NHS trusts. Provided the necessary finance can be obtained, many other trust managers are actively considering whether they, too, should install such systems. This focus is reinforced by the recommendation for using automation in The Audit Commission's report, "A Spoonful of Sugar".<sup>1</sup> However, because of the capital investment involved and the impact on the dispensing process, it is imperative that the procurement process results in trusts obtaining the system that most suits their needs at the best possible price.

Procuring automated technology for dispensaries can be a complex and time-consuming exercise. Such systems are "one-off" purchases of advanced technological equipment, and therefore present some different procurement issues than when, for example, purchasing drugs. In particular, the contract needs to cover the supply of services as well as goods. As with other pharmacy-related procurement in the NHS, European Union (EU) procurement regulations should be followed. These dictate the

timing of certain advertising and contract stages during the procedure.

This article describes some of the key stages of the procurement process that trusts will need to consider in order to procure an automated picking and storage systems. It is based on the procedure used to obtain such equipment for dispensaries within Camden and Islington pharmacy services (The Royal Free Hospital, Whittington Hospital, and Middlesex Hospital site). The likely stages are:

- Writing a business case
- Putting together a project team
- Designing a specification
- Placing an advertisement in the Official Journal of the European Union (OJEC)
- Sending out the tender documentation
- Evaluating the offers
- Awarding the business

## PROJECT TEAM

There are a number of important stakeholders who should be included in the project team for the procurement process. The team could include, for example:

- Trust senior managers
- Chief pharmacist and dispensary manager
- Estates manager
- Financial managers

- Supplier of the existing pharmacy computer system
- Trust's and pharmacy's information technology manager
- Supplies department manager and pharmacy procurement manager

It is important to include the stakeholders in the project at the earliest opportunity. The appointment of a lead, such as a project manager, will also enable someone to take overall responsibility as well as drive the process forward.

## SPECIFICATION

Drafting the specification is a key stage in the procurement process. Examples of issues that should be referred to in the specification and other contractual documentation sent out to suppliers, together with information as to why they might be important, are set out in Panel 1 (see p153). The specification needs to give as much technical information as possible to the potential suppliers. The more detailed the specification, the more likely it is that the bids received will closely match the trusts' requirements.

It is important to note that the specification should set out what functions are to be performed and to what standard. It should not dictate how a particular function is to be achieved. This should be left to the potential

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## *Panel 1: Examples of factors to include in a specification or other contract documentation*

- **Total footprint** This is a measure of the total space in square metres available for the machine to occupy. It is important to note that any additional devices (eg, refrigeration units) take up part of this space. It is also important to allow plenty of room to walk around one side of the equipment, in case maintenance needs to be carried out. There will also need to be enough space at the “in-put” end of the system to site the trolleys of medicines that are to be loaded. Space to site computers and printers at the dispensing workstations at the end of the chutes is also required. The height of the ceiling also needs to be included in the specification — if the ceiling is low this could affect the efficiency of any conveyor system offered.
- **Space available for storage** The most usual approach to determining the amount of stock to be stored is to determine the number of packs currently stored in the dispensary and storage areas (of the type and shape that are to be stored in the system — see below), and use this as a ball-park figure. It is important to measure and then define the standard pack size, so that suppliers can accurately assess how much shelving space it will take to store the items you want to be stored. If other initiatives that aid implementation, such as patient-pack dispensing, are to be put into place around the same time the device is to be installed, then more stock may well need to be stored, at least in the short term.
- **Type of stock to be stored** It is useful to indicate what type of products are to be placed in the device (eg, slow moving products, fast moving products or all lines). Some trusts may want to keep fast moving lines out because the time taken to load them into the machine is wasted as they are almost immediately picked.
- **Handling of awkward shaped or over-sized packs** If it is important that awkward shaped and/or large products be stored in the system, then this will need to be indicated in the specification. Some devices find handling awkward shaped products more difficult than others.
- **Controlled Drug storage** The ability to store Controlled Drugs in line with Home Office requirements can be a useful additional function.
- **Refrigeration unit** The ability to store and automatically dispense products that need to be refrigerated can be useful, especially if the dispensary uses a high proportion of these products.
- **After-sales service and support** If problems occur with the system, having good after-sales service is essential. Response times during peak dispensary hours and at weekends are particularly critical. It is also important to ask for details of the size and technical ability of any support service the company has and its philosophy — that is, does it put customers first?
- **Output capacity** This is a measure of the number of items that are to be picked per unit of time. Automated picking will generally be faster than manual picking in most cases, except for a limited number of fast moving lines. If a particularly fast speed of dispensing is required, this should be indicated on the specification — additional time is taken if a conveyor system is needed to transfer items from the storage area to the chutes at workstations from where items can then be dispensed.
- **Input capacity** This is a measure of the number of items that are to be put into the machine per unit of time. It is important to note that the process of putting stock into the robot, by definition, may take as much time as picking the stock. Trusts should, therefore, establish how and when the system will be stocked. An ability to input multiple and identical items with one swipe or scan is a useful function, and should be included in the specification if required.
- **Flexibility** Some trusts can find that their dispensing workload alters in the future — if, for example, they merge with other trusts. If such change is considered likely, an ability to increase or decrease the capacity or size of the robot should be mentioned in the specification. Some systems (eg, modular systems) tend to be more flexible than others. Alternatively, if major changes are expected, it might be advisable to consider leasing (rather than buying) the device.
- **Upgrade availability** It is useful to have a clear idea as to any developments to systems a supplier is likely to offer in the future (eg, automatic labelling) together with an indication of any associated costs.
- **Emergency and contingency arrangements for system failure** Despite effective planning, automated picking and storage technology, or the IT links with the host pharmacy computer system, might malfunction. It is therefore important to establish what contingency arrangements (ie, easy access to the stock stored in the machine) and recovery arrangements (ie, data back-up facilities) will be in place.
- **Training** Staff at different trusts may use the same robotic system differently, according to their trusts’ work practices and stock management systems. It is therefore a good idea to ask suppliers to give bespoke training, rather than just standard packages. It is important that training allows staff members to make full use of the machine, for example, to make maximum use of the space and stock management processes available.
- **Stock control** Live stock control is a useful feature. It gives pharmacy staff the ability to order products in a timely manner. It also aids good stock management practices by rotating stock, automatically validating stock levels and using up items with the shortest expiry dates first.

### ***Purchasing and Distribution Interest Group (PDIG)***

Pharmacists wanting to know more about the procurement process might be interested in joining PDIG, a sub-group of the Guild of Healthcare Pharmacists. Information about the group’s purpose, constitution and forthcoming events is available from [www.pdig.org](http://www.pdig.org)

### ***Articles on automated dispensing***

The next article in the automated dispensing series looks at the practical issues surrounding the installation and implementation of pharmacy-based automated dispensing systems. A further article is to examine staff perceptions before and after automation is introduced.

suppliers to propose. For example, the specification should indicate the number of items the system is expected to be able to pick per unit of time, and not the mechanism by which that picking should be carried out. Dictating how functions should be carried out can artificially restrict the tenders received.

## — ADVERTISING PROCEDURE

EU procurement rules require NHS trusts (and other state-related organisations) to put their contracts that are worth over approximately £100,000 out to tender by advertising them in the Official Journal of the European Union (OJEC). The advertising procedure adopted depends on whether the project team want to use the “open” or the “restricted” procedure. In the current market for automated picking and storage systems, where there is a limited number of suppliers, using the open procedure is generally quicker. If the number of suppliers in the market increases, the restricted procedure (which allows staff to short list the suppliers they wish to invite to tender on economic and technical grounds) can be useful.

The advertisement can be placed electronically. Details about its format (which depend on the procedure used) can be obtained from various organisations, including those set out in Panel 2.

A copy of the proposed contract (including, for example, general terms and conditions, pricing schedules, training and maintenance requirements), together with the technical specification, should be sent to suppliers who reply to the advertisement (open procedure) or who are invited to tender (restricted procedure).

## — EVALUATING THE OFFERS

The adjudication process should involve a full analysis of the tenders offered. It is generally considered best practice to evaluate the non-financial criteria independently of the financial criteria. The non-financial attributes of each system should be scored against the relevant criteria set out in the specification.

When assessing the non-financial criteria, the opportunity to see the devices in action can be useful. Suppliers who already have systems installed will generally have reference sites that they will encourage potential customers to visit. It is worth noting that supplier reference sites are usually chosen because they are examples of where systems have worked well. It may therefore also be prudent to visit sites that are known to have some operational difficulties in order to establish a complete picture.

Establishing the price of an automated picking and storage system requires detailed evaluation of each bid. The overall price will inevitably include both capital costs (costs of

the machine) and revenue or recurring costs (service costs). Also, comparing costs between suppliers can be difficult because of the variations taken by suppliers in their pricing structures. Important costs that should be determined and compared (further information about some of which is set out in reference 2) include:

- Capital costs of the machine, and any additional components, such as refrigeration modules (including VAT)
- Payment terms (eg, what is paid at different stages of the implementation process)
- Maintenance or service costs, either per call out or per annum
- Additional training costs, if any
- Costs of upgrades, if any
- Costs of integrating the pharmacy computer system
- Estates cost of altering the dispensary (eg, ensuring a suitable power supply, moving power points, and moving workstations). This may also include major works, such as increasing the ceiling height (for example, if a conveyor system is decided on for other reasons, but low ceilings would limit its efficiency) and/or installing air conditioning (if the device requires a constant temperature in which to operate)

In practice, many suppliers will submit their own standard terms and conditions as part of their bid, rather than agreeing to sign up to the documents sent out. If this happens, the project team will need to satisfy themselves that the terms they are offered broadly reflect those set out in the original contract, and seek clarification of any ambiguities. They will also need to make sure they know what document(s) constitute the final contract and include all the relevant terms. For example, the suppliers' answers to some of the project team's queries, which might need to be included in the contract, might be contained in letters or e-mails. These will either need to be referenced in the final contract, or included in it.

It is advisable to include all members of the project team in the adjudication

process to ensure that every aspect of the contract is covered when assessing the bids. A record of the reasons for awarding the contract should be made. Unsuccessful applicants should be offered information about why their bid failed. The successful applicant may also be interested to know why their bid was chosen.

## — TIMESCALES

It is difficult to provide an accurate indication of how long procuring automated picking and storage technology takes. As mentioned above, EU procurement rules dictate the minimum times that certain stages can take. (For example, suppliers should be given at least 52 days from the date the advertisement is sent to submit a bid when using the open procedure). In practice, however, a considerable amount of work will often have been done before the advert is placed, particularly if a business case needs to be made out. In addition, the implementation process will take additional time after the contract is awarded.

At the Whittington, Middlesex and Royal Free hospitals, the process took approximately four to five months from when funding was obtained to awarding the contract.

## — CONCLUSIONS

Procuring automated picking and storage technology can be a time-consuming process. Unlike, for example, buying drugs, it involves contracting for services, as well as goods. Care should be taken with the contract, because of the capital investment involved and the potential impact on the dispensing process. It is important that the system that most suits the trust's requirements is obtained at the best price.

## REFERENCES

1. Audit Commission. A spoonful of sugar: medicines management in NHS hospitals. London: The Commission; 2001.
2. Fitzpatrick R. Automated dispensing — developing a business case to support investment. *Hospital Pharmacist* 2004;11:109–11.

### *Panel 2: Further information about relevant organisations and websites*

- Information about procurement in the NHS is available from the NHS Purchasing and Supply Agency at [www.pasa.nhs.uk](http://www.pasa.nhs.uk) and [nwww.pasa.nhs.uk/purchasing](http://nwww.pasa.nhs.uk/purchasing)
- The European Commission has a website giving details about the public procurement rules and procedures. Visit [www.sinap.eu.int](http://www.sinap.eu.int)
- Information about completing the Official Journal of the European Community advertisement on-line is available from [www.bipcontracts.com](http://www.bipcontracts.com)