

Procuring medicines

— principles and practice of e-commerce

By Danny Palmer

E-commerce is changing the way drugs are procured in the NHS. This article, the third in a special feature, describes some recent developments in electronic ordering and invoicing and explains how these have been implemented at the Luton and Dunstable Hospital NHS Foundation Trust



Carbon copies, facsimiles and paper invoices have traditionally been the tools used in the procurement process in NHS hospitals. The introduction of electronic commerce (e-commerce) is changing this and is enabling NHS trusts to order the stock they need more efficiently.

This article describes the installation and implementation of e-commerce systems at the Luton and Dunstable Hospital NHS Foundation Trust (L&D). It also describes some recent developments in ordering and invoicing technology and some e-commerce practices that might be used in the future. Principles are explained throughout, with the aim of making this article accessible to all pharmacists and technicians, not just those specialising in procurement.

— The past

As part of the traditional procedure for drug procurement at the L&D, staff were typically expected to review an average of 500 suggested order lines each day, manually. The orders, generated by the pharmacy computer system, each required cross-referencing with usage data to produce just a handful of daily orders. An average of 7,500 orders

would be generated each year, each of which would be faxed to the supplier, with a paper copy posted as confirmation. Paper invoices were received either with the goods (from wholesalers) or at a later date. They were processed manually, by staff keying in the price of each product before the invoice was passed to the finance department to be paid.

Realising that this was unlikely to be the most efficient way of working, staff at the L&D carried out a review in early 2003. This highlighted a number of problems with our procurement processes, all of which have associated workload, financial and patient care implications. The problems included:

- The provisional orders often contained many items that were not needed, and missed out others that were required
- Faxed orders were not always received by the suppliers
- Heavy carriage charges were being incurred for delivering urgent orders
- Suppliers were querying orders because poor fax printing quality made them illegible
- Incorrect goods resulting from poor quality orders led to us receiving credits that needed to be processed and goods that needed to be returned
- Drug descriptions generated by our pharmacy computer system were not consistent with the supplier's naming format

- There was no mechanism for confirming that the full quantities of medicines ordered would be supplied
- Multiple invoices from wholesalers for a single daily order were creating extra work

Following this review, two key stages were identified where pharmacy staff could potentially improve the process — generating more accurate provisional orders from the pharmacy computer system and placing orders with suppliers electronically.

— First e-commerce steps

Generating provisional orders Before e-commerce could be initiated, we needed to generate more accurate provisional orders. At the time of the review, the pharmacy computer system had been in place for over 10 years and was not set up to achieve its full potential for order generation, and needed to be reconfigured. Order profiles, based on historical usage data for each drug, were created. These were used, together with data on supplier lead times, to generate an algorithm which was incorporated into the ordering system. This made the process more efficient and saved money, while maintaining a consistent supply of drugs to patients.

Placing orders with suppliers Options for trading electronically (rather than by facsimile and post) between the trust and the

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supplier were investigated. The L&D decided to invest in an e-commerce system to supplement the purchasing functions of the existing pharmacy computer system. The Windows-based PowerGate system was chosen, which was compatible with our existing pharmacy computer system. PowerGate's key function is that it creates an electronic match between product lines on the pharmacy computer system and the supplier's catalogue held on PowerGate, providing common coding between the trust and the supplier. Commonly, this is done using a product's European Article Number (EAN), a 13-digit barcode unique to a specific drug and pack size from a specific manufacturer.

The electronic order, consisting of product codes and order quantities, is sent from the trust to the supplier's computer system. Electronic invoices returned by the supplier use the same common coding that maps back to the trust's pharmacy computer system, removing the need for invoice prices to be keyed in.

Using an e-commerce system The PowerGate system was quick to install and was user-friendly. It did, however, take some time to load electronic copies of each supplier's product catalogue onto the system and manually enter the EAN codes. Each supplier's unique identification number also had to be incorporated into the system, and new trading relationships had to be formally agreed, set up and tested before they could be used.

Different suppliers accept orders using different messaging formats or protocols. At first, the most timely orders were those sent using the traditional Electronic Data Interchange (EDI) format, in which orders are sent by trusts across the internet to a third party organisation called a Value Added Network (VAN) into an electronic pigeon hole. When the supplier connects to the VAN and extracts the message, the VAN automatically notifies the trust that the order has been received. Some suppliers can also send detailed electronic confirmations and electronic invoices back through the same pathway. Electronic confirmations are particularly valuable because procurement staff are quickly alerted to any supply problems.

It should be noted that there are costs associated with using VANs. Within a year of implementing an e-commerce system, the L&D would typically expect to pay about £1,500 to £2,000 in VAN charges. Trusts that had adopted PowerGate (which is itself associated with installation and maintenance charges) and were unable to pay VAN charges found themselves only able to trade with wholesalers who had their own direct messaging formats and individual suppliers who had the ability to receive orders by e-mail.

Following the initial set-up of an e-commerce system, it is important to maintain

and update the EAN codes and electronic supplier catalogues accurately, particularly at the time of contract changeovers. Contracts for medicines purchased by NHS hospitals can be downloaded from the NHS Purchasing and Supply Agency (NHS PASA) website ready for the start of the new contract period. However, since few pharmacy computer systems are able to upload contract data automatically, this is usually done manually. At the L&D, we have partially automated the process by exporting the contracts onto an Excel spreadsheet which contains the product EAN codes. A Windows barcode font and an Excel macro (ie, an automated set of commands) are used to produce a printed copy of the contract together with EAN codes that can be entered into the pharmacy computer system using a simple barcode reader. This speeds up data entry and reduces the risks associated with manual input.

Benefits Implementing an e-commerce system has helped us solve many of the procurement problems highlighted in our review and enabled us to improve our working relationships with wholesalers and individual suppliers with e-commerce capabilities. It has also released over 10 hours of staff time per week from the purchasing process. This has given us time to manage contracts more actively, improve stock profiling, structure savings strategies for our top-expenditure lines and keep up to date with new developments as they emerge.

— Pharmacy Messaging Service

In 2003, the eGovernment Interoperability Framework (eGIF) imposed a change in electronic messaging protocols within government bodies that directly impacted on the way that PowerGate sent messages to suppliers. In response, NHS PASA and PowerGate's supplier (then called TecSol) worked on a collaborative project, developing the Pharmacy Messaging Service (PMS). Launched in late 2003, PMS allows trusts to send e-GIF-approved orders to one central exchange, which forwards them to suppliers in the required format. This replaced the more complex "one to many" trading relationships (ie, one trust to many suppliers) with a "one-to-one" relationship with the PMS exchange.

When PMS was first launched, it was mainly only wholesalers who could receive electronic orders directly from it. A number of trusts set up their systems to send their orders by automated fax to suppliers who could not receive electronic orders.

Some suppliers had traditional EDI and invoicing capabilities. As the PMS evolved, a number of direct trading relationships were developed using a computer language for sending secure electronic data transactions across the internet, that does not require

trusts to use a VAN. This language is called commerce extensible markup language (cXML).

A large number of suppliers were encouraged to receive e-mail orders rather than faxed orders. This basic form of e-commerce involved setting up their systems so that they receive an e-mail alert when an order is waiting to be downloaded from the PMS exchange. When the order (as a pdf file) is extracted, the PMS updates the relevant pharmacy department to say that the order has been received.

In late 2005, NHS PASA initiated a pilot study to investigate using the PMS as a single NHS messaging service. It provided funding for some of the orders of hospitals using another type of e-commerce system, Medecator (supplied by AAH) as well as PowerGate orders, to pass through the PMS. In 2006, PMS moved from being an NHS PASA initiative into a commercial offering to suppliers from GHX UK (previously TecSol). PMS is now available free of charge to NHS trusts in the UK, following collaboration between GHX UK and pharmaceutical wholesalers (with the support of the members of the British Association of Pharmaceutical Wholesalers). This paves the way for PMS to develop as a single exchange for both Medecator and PowerGate users, which currently accounts for about about 70 per cent of NHS hospital pharmacies. It is hoped that this will encourage more suppliers adopt electronic trading practices (200 have already done so).

— Future issues

National strategies to help trusts and suppliers get the most out of the available technology and to encourage those who are not using e-commerce to do so, are also progressing. For example, a project is planned to develop a national toolkit for using both Medecator and PowerGate.

It should be noted that Medecator and PowerGate originally developed from the recognition that existing pharmacy computer systems are not enabling users to move away from paper-based purchasing systems. However, most e-commerce systems operate as external add-on modules with no mechanisms for the main pharmacy computer system to take advantage of the electronic confirmations and data sent by suppliers.

Expected short-term developments in e-commerce systems include tools to address some of the issues related to managing the supply chain. Contract management tools, internet-based supplier catalogues, high-level supply chain analysis and a "green lane" for orders with electronic goods receipt notes (enabling trusts to receive whole deliveries onto their system without having to count each line manually) have all been suggested, with a view to e-commerce systems leading the future in hospital pharmacy procurement.