

IS THERE A PLACE FOR THIRD PARTY LOGISTICS PROVIDERS IN THE HOSPITAL PHARMACY SUPPLY CHAIN?

By LIZ BREEN, PHD

- **OBJECTIVE** - To establish if there is a role for third party logistics (3PL) providers in the hospital pharmacy supply chain. Third party logistics providers could collect orders from suppliers, and deliver to customers (wards or pharmacy departments) in one consolidated delivery every day.
- **DESIGN** - Questionnaires were sent to suppliers and pharmacy stores staff to elicit responses on a possible introduction of a 3PL provider. Suppliers were also contacted by telephone with regard to finding their choice of supplier. Discussions were held with a 3PL provider to gain more information about their role.
- **SETTING** - The Manchester Royal Infirmary, part of the Central Manchester and Manchester Children's University Hospitals NHS Trust.
- **RESULTS** - It is shown that the extension of 3PL services into pharmacy from a supplier point of view is feasible operationally as it would "fit-in" with existing service provision without too much customisation on their part.
- **CONCLUSION** - There is a role for 3PLs in the hospital pharmacy supply chain. They would be responsible for picking up all pharmacy orders and delivering them in a consolidated delivery at a designated time (supply collection).

Suggested further reading

Information on suggested further reading on this topic is given at the website at www.pjonline.com

Dr Liz Breen is the supply chain development manager based in the pharmacy at Manchester Royal Infirmary, part of Central Manchester and Manchester Children's University Hospitals NHS Trust. She is also a part-time lecturer in operations management at the Manchester School of Management

One of the greatest changes in global management today is the trend towards outsourcing services that have traditionally been provided in-house.¹ This movement has been particularly evident in logistics where the provision of transport, warehousing and inventory control is increasingly subcontracted to specialists or logistics partners.¹ Outsourcing has become an integral part of every business and most users are satisfied with the performance of the third-party logistics providers (3PLs).²

The functions performed by 3PL providers can encompass the entire logistics process or selected activities within that process.^{3,4} Other terms used to describe these service providers are: contract logistics, logistical utilities and integrated logistics service providers.^{5,6}

The use of 3PLs for distribution activities is one of its more common services. This has been extended to develop what is known as "supply collection" or "milk round". The implications of this are that organisations can acquire the services of 3PLs to ensure efficient collection and delivery of products, orders etc. One example is provided by Nissan motors which aimed to expand its "milk round" collection of components from suppliers for its new Almera model.⁷ In this instance collection included 92 suppliers but was set to rise to 105 by January 2000. The addition of suppliers to the collection scheme is based on the subsequent reduction in component price. However, the main saving for Nissan is better ability to control its just-in-time production by having components there when needed. Around 60 per cent of Nissan's suppliers are on its two "milk rounds", developed since 1991.

In the pharmacy supply chain the current role of third party logistics providers (3PLs) is multi-faceted, from acting as a transportation and warehousing agent, to order processor and distributor.

The aim of this study was to assess the role of 3PLs in the hospital pharmacy supply chain and determine to what extent such services should be used and for which supply chain activities. This paper proposes that there is a place for the use of a 3PL carrier within the pharmaceutical supply chain in

hospital pharmacy as an innovative distribution model for the future. The results of this change will directly benefit the procurement function in hospital pharmacy, providing a structured distribution model which will support or supplement ongoing supplier performance.

It involved the collection of multiple sources of data through various qualitative research techniques. During the research, gaps were evident in the existing literature based on 3PLs in the pharmaceutical supply chain in hospital pharmacy. This analysis is therefore an example of research which has not previously been conducted within hospital pharmacy. The results then pave the way for further analysis and development in this area.

Central Middlesex Hospital (CMH) signed a seven-year contract in 1998 with a logistics company to manage its supply chain.⁸ Although not involved in pharmaceuticals in this instance, the logistics company's support team carried out ward-level demand capture for all stock and non-stock products, linen, fluids and sterile procedure packs. Orders were then passed to suppliers who delivered to the off-site support centre, where multi-product consignments were assembled for dispatch to each ward. In the first year, stocks of commonly used items were reduced by 35 per cent. Reported benefits to CMH were cost savings, increased control and co-ordination of purchasing, improved service levels, full audit trails and space release. The time spent by trust staff on supply chain activities was reduced and the daily deliveries, which added to the congestion on site, were reduced to three consolidated deliveries.

Companies that do not use 3PLs most frequently cited loss of control as their reason for not using them.⁴ The second most common factor cited was the concern that using third parties would lead to increased costs.²

The assessment of the potential use of a 3PL to act as a preferred carrier was initiated after an analysis of ongoing deliveries to Manchester Royal Infirmary (MRI) pharmacy over a two-week period to identify the volume of traffic, and type and volume of delivery packaging (eg, pallets, boxes). This assessment was in response to plans for a new build for pharmacy in 2009. The new build

involves moving pharmacy from a ground floor residence to the fourth floor. Pharmacy deliveries would therefore be received in a central receipt and distribution area, managed by an external company (which would be inexperienced in the handling of pharmaceuticals). The receipt and distribution facilities would be used by all incoming trust deliveries (stationery, furniture etc) and there could be potential bottlenecks in stock being received, held and then transported to pharmacy (depending on the volume of stock being received).

METHOD

Research question In order to explore this area the research question being addressed is: "Is there a place for third party logistics providers in the NHS hospital pharmacy supply chain? And if so, to what extent?" The focus of this question will determine whether 3PLs will have a strategic role in the PSC in hospital pharmacy, and to what extent the 3PL services should be acquired and used. In answering this question, the following research objectives will be addressed:

- Determine feasibility of initiating delivery consolidation
- Ascertain supplier response to this venture
- Assess the operational implications of this in-house in pharmacy
- Examine the current use of 3PLs in the pharmaceutical supply chain

Research methodology The methodology adopted was qualitative, aiming to explore the area and interpret the results accordingly so as to produce a representative portrayal of the subject matter.

Analysis of existing documentation (September 2002) Hard paper records of all deliveries made to the pharmacy over a two-week period were collected. From this, all the carriers who delivered to the pharmacy were noted and a list compiled with the assistance of the stores staff.

Questionnaires to suppliers and customers (April 2003) Suppliers (pharmaceutical manufacturers and wholesalers) were approached initially regarding general views on the use of 3PLs in the supply chain. This questionnaire was also distributed to customers (hospital pharmacies).

Collaboration with an established 3PL (April and August 2003) The intention behind the collaboration was to gain access into and gain more information about the role of 3PLs in both the health care arena and industry in general. It also provided the opportunity for more exploratory talks about what potentially could be arranged for the pharmacy in the future regarding its deliveries and inbound logistics.

Suppliers contacted by telephone concerning carriers currently used (July 2003) A list of 50 randomly selected suppliers/manufacturers was drawn up and they were contacted by telephone (MRI pharmacy currently procures from approximately 150 suppliers). The nature of the research was explained to the individual taking the call (generally customer services) and the information regarding their choice of carrier elicited.

Suppliers contacted by telephone with pre-determined questions (August-September 2003) The suppliers (sample of 50) were approached for a second time and asked a series of questions regarding the feasibility of the pharmacy using a nominated carrier to consolidate their deliveries. The questions asked were as follows:

- If the pharmacy chose to co-ordinate supplies via a preferred carrier would suppliers charge for this?
- Would you be willing to allow a preferred carrier to pick up orders and deliver orders to the carrier's warehouse
- Do you have any carriers that you would prefer to deal with? And if so, for what reasons?
- Do you have any carriers that you would prefer not to deal with? And if so, for what reasons?

Questionnaire distributed to stores staff (August 2003) The three stores staff within MRI pharmacy were approached and requested to complete a questionnaire which aimed to gain their views as to the operational implications of introducing a consolidated delivery regime into the trust's supply chain. A list of the questions is presented in Panel 1.

RESULTS

The overall profile concerning the potential use of 3PLs in the supply chain was robust due to the amount and spread of data collected during the course of the research.

Analysis of existing documentation The information collected was used to conduct an initial analysis into the ongoing volume of deliveries into MRI pharmacy. Through using this information a table of carriers servicing the trust was identified, and a profile of suppliers assembled for future reference (50 suppliers to be contacted at a later date).

Questionnaire to suppliers and customers This questionnaire was distributed to 23 individuals (customers and suppliers). The responses received were informative from the supplier side (eight out of 12, including two 3PL companies), but were surprisingly disappointing from the customer side with only two customers responding (11

Panel 1: Questionnaire to stores staff

The questions asked were as follows:

Receiving orders

- Would it be easier to receive one large delivery of stock plus wholesaler orders than the numerous deliveries currently received?
- What practical implications would arise from doing this?

Manpower

- Do we need more staff to be available to receive a consolidated order?
- What impact would this have on the other duties of staff?

Paperwork

- Will there be more or less paperwork involved?
- What format does the paperwork that we currently receive come in when dealing with one carrier but multiple suppliers?
- Will this hinder/help the processing/receiving of orders?
- Will this have an impact on the invoicing of orders delivered by carriers?

Packaging

- Will receiving a consolidated order incur more or less packaging?
- Do carriers return packaging currently?
- Will receiving largely packed orders create problems when moving stock in stores, off carrier trucks, when storing stock items?

Timing of deliveries

- If a consolidated delivery was arranged for pharmacy, what would be the ideal time to receive that delivery?
- What would it impact on in the pharmacy office and stores?

approached), and one replying more from a supplier perspective than customer (being a manufacturing unit).

The views expressed regarding the use of 3PLs were mixed. How the arrangement would work was flexible, most suppliers stating that they were open to discussions and wishes of the customer. When asked why 3PLs were used, the views ranged from 3PLs seeing distribution as their core business while manufacturers see it as non-core business, to the customer not being aware of alternative supply chain solutions.

There was evidence in the responses received that the services potentially offered by 3PLs could be matched by the logistics services already offered by pharmaceutical wholesalers. Certain wholesalers were keen

that their potential involvement in such a service be recognised. There were both positive and negative views raised about whether or not 3PLs were cost effective when used in the pharmacy supply chain.

Collaboration with an established 3PL

Interaction with the 3PL contacted was limited due to issues of confidentiality. The 3PL could not release details of its customers for the researcher to approach. The 3PL however did suggest that a consolidated approach by multiple trusts or hospitals in the North-West region would be more cost-effective than one trust attempting to pursue this initiative. An amalgamated effort would also lend weight to the venture and support its sustainability.

The 3PL also explained that the current prices of a product to a customer already contained delivery charges. There may be complications for suppliers if the delivery was then collected by a preferred carrier as prices would have to be renegotiated based on what the preferred carrier was aiming to charge the supplier for the "pick-up" of orders.

Suppliers contacted by telephone concerning carriers currently used

The data recorded were on the basis of each supplier using more than one carrier (some using up to three or four).

The reasons given for using the most popular carrier were its capacity for handling bulk orders and its efficiency in relation to its cold chain storage. A different company was considered to be most competent at handling cold chain products, and on a number of occasions the fact that it was assessed by external regulators for this purpose was mentioned.

Some carriers were considered more efficient at handling smaller parcels, while others were used in case of emergencies regardless of price.

Suppliers contacted by telephone with pre-determined questions

Thirty-six out of 50 suppliers completed the telephone questionnaire. Only one of the 50 suppliers approached stated that the use of a nominated 3PL as a preferred carrier would not work while only one stated that it had been done before and that it probably would not be a problem. Most of the suppliers approached stated that there would be a charge attached to this alteration in service, especially if it required extra handling and co-ordination or further charges from a new carrier. Two suppliers stated that a delivery charge was currently not in place.

A small number of suppliers (three out of 50) stated that there would be operational implications in using a preferred carrier nominated by the trust, and not those used by themselves. This being the case, they felt that having to "pull-out" MRI pharmacy

orders from the stream of orders being processed would incur some manual intervention and therefore was open to human error and general inconvenience.

In relation to charges, most suppliers believed that if the charge levied by the new preferred carrier per parcel was more expensive than the existing charge incurred then customers would have to absorb the difference into their product price. Others stated that if the customer paid for the parcels to be collected then it would be business as usual (14 per cent).

Most of the suppliers contacted stated that they would prefer the nominated 3PL to call and collect MRI pharmacy orders rather than co-ordinate deliveries to them (the collection of orders at allocated time slots was the norm so this was in keeping with current practice).

All of the suppliers were reluctant to state which carriers they would or would not use in business practice. Most, if not all, stated that the ones they preferred to use were the current carriers. The reasons being that they had negotiated a good working rate with them and that the service received was of an acceptable standard. The general consensus was that the carriers used were chosen for obvious reasons, eg, quick deliveries, ability to deal with bulky or cold chain items. Unless something determined otherwise (eg, poor service) they would not deviate from their chosen supplier.

Due to the nature of the business that they were involved in, most suppliers would not say if there were any problematic carriers in the market place (only 16 per cent stating which carriers they would not use and why). Some suppliers did state that they had tried the services of certain carriers and found them to be inefficient, too expensive, or unable to ensure a dependable delivery. Through trial and error they chose not to use certain companies for their distribution. Other more specific reasons included:

- Not being able to use carriers who did not have tracing or tracking systems in place
- Carriers had to specialise in handling pharmaceuticals, glass bottles etc, and would be monitored monthly to determine their performance levels
- Supplier currently "piggy-backing" on an existing national delivery network and therefore would not change unless there was a reason

Questionnaire distributed to stores staff

The three questionnaires distributed to the staff were completed by the two storekeepers and procurement and stores manager. The general consensus was that it would be useful to have a planned delivery slot. A large delivery would be more labour intensive at this time and may require more staff for this task, or reorganisation of current staff time and duties.

There would be no changes in paperwork or invoicing, although invoicing was controlled centrally within the trust and not in pharmacy. The actual processing of the delivery would take longer due to the volume of stock and the number of individual orders per supplier (would involve individual signatures pre-order as is currently the case). The ideal time for a consolidated delivery would be in the morning, as early as possible.

DISCUSSION

As demonstrated in the literature, the outsourcing of logistics activities is becoming more common in industry,¹ and is expanding to incorporate national and international companies and services. The question must be asked then whether what appears to be so successful in industry can be transferred and adopted into the hospital pharmacy supply chain in the NHS. It is not unusual for the NHS to adopt best practice from other successful industries, but the extent to which it can be replicated is debatable.

While 3PLs have generally been used in industry to replace non-core activities currently carried out within the organisation,^{3,4} what is being required from them by hospital pharmacy is slightly less traditional. The collection of products or orders from pharmaceutical suppliers has never been conducted by hospital pharmacy other than in an emergency (and even then a courier is booked by the supplier and pharmacy charged accordingly). So what is expected of the 3PL acting as a preferred carrier is innovative within the hospital pharmacy supply chain, but is similar to the milk round philosophy adopted by the car manufacturer Nissan, in its collection of automotive parts.⁷

Support for this venture from the suppliers, as demonstrated by the results detailed, is positive as many use 3PLs as part of their business already. From a pharmacy perspective, concerns surrounding this venture would be raised, eg, operating costs, loss of control, inefficient service performance, and accountability and tracking of orders.^{4,9} Another potential issue lies in the interaction between the 3PL and suppliers as the 3PL rather than the pharmacy will be responsible for co-ordinating all communication regarding the order pick-up and paperwork with the suppliers. One of the recommendations made by the third party logistics study 2002, was that 3PLs should institute effective management and relationship processes.⁹ In doing so they would probably allay customers' concerns regarding these issues.

The results indicate that some suppliers do have concerns as to their efficiency having involved another 3PL pick-up in their supply chain. This reinforces the concerns raised above as to operating performance issues and how this would affect service delivery. The solution could potentially be to use 3PLs

already in use in the market or use pharmaceutical wholesalers for this purpose. But would performance be improved if using wholesalers for this purpose or would their service resources be stretched too thin and performance suffer?

Like the benefits recognised at Nissan⁷ and Central Middlesex Hospital,⁸ MRI pharmacy would benefit from having consolidated deliveries, at a recognised time, to support their internal supply chain operations. The main points for consideration for the future will be the selection of the 3PL and cost considerations and service delivery. The capability of 3PLs already used within the PSC is really not in question as they already transport and deliver pharmaceuticals to hospital pharmacies. However, there are concerns over their ability to meet the expectations of the hospital pharmacy with regard to efficient service delivery. In research outside the pharmaceutical field there exists a gap between what customers currently receive and what they expect to receive from 3PL services.⁹

While MRI pharmacy does not work on a just-in-time basis, the approach adopted by Nissan⁷ in setting-up and managing its "milk-round" system, appears to be the way forward, in theory, for hospital pharmacy. Whether the pharmacy is able to get suppliers on board and gain a reduction in price per product is another matter. Suppliers do not have anything to gain by pharmacy intervention at this stage in the supply chain, other than maintaining business with them. Even then this may not be the case as some products can only be sourced from key suppliers; in this instance any leverage held by pharmacy will be minimised.

Pharmacy therefore needs to persuade suppliers to support such a venture which will in turn make pharmacy operations more efficient. This research has been conducted and suppliers contacted to gauge their reaction to these proposals and its feasibility.

CONCLUSIONS

The results have shown that the extension of 3PL services into pharmacy from a supplier point of view is feasible operationally in that it would fit-in with existing service provision without too much customisation. 3PLs are currently being used within the supply chain to deliver products to hospital pharmacy. Their services would be used at the customer end of the supply chain, being responsible for picking up all pharmacy orders and delivering them in a consolidated delivery at a designated time. This is something that has not been done by 3PLs before although they are well versed in picking up stock from suppliers for onward distribution. The needs of MRI pharmacy should be met by 'piggy-backing' onto their existing service, without much customisation.

Considering that operationally there should not be many problems with this request, the main concerns will be cost and the level of service. How much will it cost for pharmacy to request this service and have a 3PL technically manage their inbound logistics? And will the quality of service received by the pharmacy diminish? These are the areas that need to be considered and discussed before entering into any contractual agreements with potential 3PLs.

From a pharmacy perspective, on paper and based on the literature evident in this field, there are benefits to be realised from using 3PLs in this way, eg, the development of a structured distribution arrangement, which is externally managed, reliable, familiar to the pharmaceuticals and convenient for the pharmacy to fit-in around ongoing workload schedules. None of the above can be realised until a pilot is conducted which assures pharmacy that a standardised "milk-round" for pharmaceuticals can be established with the majority of its suppliers. As with some other hospital pharmacy initiative, such as ward order assembly, the success of this venture will rely on successful initial implementation and the co-operation of pharmaceutical suppliers.

Recommendations Future developments within this area will be to approach 3PLs currently used by pharmaceutical suppliers to discuss service profiles and costings. On the basis of a successful selection of a 3PL, the next step will be to initiate a pilot with the preferred carrier to assess performance and service delivery over a given period before agreeing to contractually consider this service provision. The pilot will ideally be conducted with a core number of suppliers initially and then rolled out further to ascertain if there are any capacity issues which may arise with the 3PL in handling the different types and bulk of pharmaceutical products.

At a later stage, and depending upon the success of this venture, it may be opportune to discuss widening the remit of the 3PL service to other hospital pharmacies in the Central/Greater Manchester area, to gain value for money in service delivery and bulk discount.

The use of regional and centralised stores for procurement and distribution of pharmaceuticals has not been investigated in this paper. The potential development of such stores to support the existing supply chain and centralise procurement efforts has been topical in the pharmaceutical supply chain for many years but has not been examined as thoroughly as it could. It does merit further analysis though and should be addressed in order to give a clearer picture of the potential use of 3PLs in this area.

REFERENCES

1. Christopher M. Logistics and supply chain management; strategies for reducing cost and improving service. 2nd ed. London:Prentice Hall ;1998.
2. Langley CJ. Outsourcing continues to make gains. *Logistics Management* 1997;36:22.
3. Lieb RC, Millen RZ, Wassenhove LNV. Third party logistics services: a comparison of experienced American and European manufacturers. *International Journal of Physical Distribution and Logistics Management* 1993;23:35-44.
4. Dapiran P, Lieb R, Millen R, Sohal A. Third party logistics service usage by large Australian firms. *International Journal of Physical Distribution and Logistics Management* 1996;26:36-45.
5. Bowersox DJ, Closs DJ. *Logistical management, the integrated supply chain process*. Singapore:McGraw Hill International;1996.
6. Skjoett-Larsen T. Third party logistics – from an interorganisational point of view. *International Journal of Physical Distribution and Logistics Management* 2000;30:112-27.
7. Arminas D. New model expands 'milk round'. *Supply Management* 1999;4:13.
8. Exel Opens West London Support Centre for NHS Trusts (accessed April 2003) Available from: URL: www.exel.com
9. Langley Jr. CJ, Allen GR, Tyndall GR. Third-party logistics study, results and findings of the seventh annual study. Georgia:Georgia Institute of Technology;2002.