By Noel C. Hodges, RPh, MBA

To Package or Not to Package: **Establishing Sound Practices for Purchasing Bar Coded, Unit Dose Medications**

Photo courtesy of American Health Packaging

BAR CODED MEDICATION ADMINISTRATION'S ABILITY TO IMPROVE PATIENT safety has become widely accepted. While a relatively small percentage of hospitals already use this technology, many are preparing to go-live or are taking the initial steps to understanding the process changes bar coded medication administration (BCMA) implementation requires of them. With that said, even bar coding-savvy hospitals should pay close attention to their practices surrounding BCMA.

Among the first steps to achieving bar coded medication administration is ensuring the availability of bar coded, unit dose medications. Pharmacies have several options available to them:

- purchase medications in bar coded, unit dose packaging
- outsource their packaging activities to a qualified service provider
- package the medications in house, using the manual or automated unit dose packaging systems available through a variety of vendors

Pharmacies that are new to bar coding certainly need to determine the best mix of the above options for their facilities, but so do veteran bar coders.

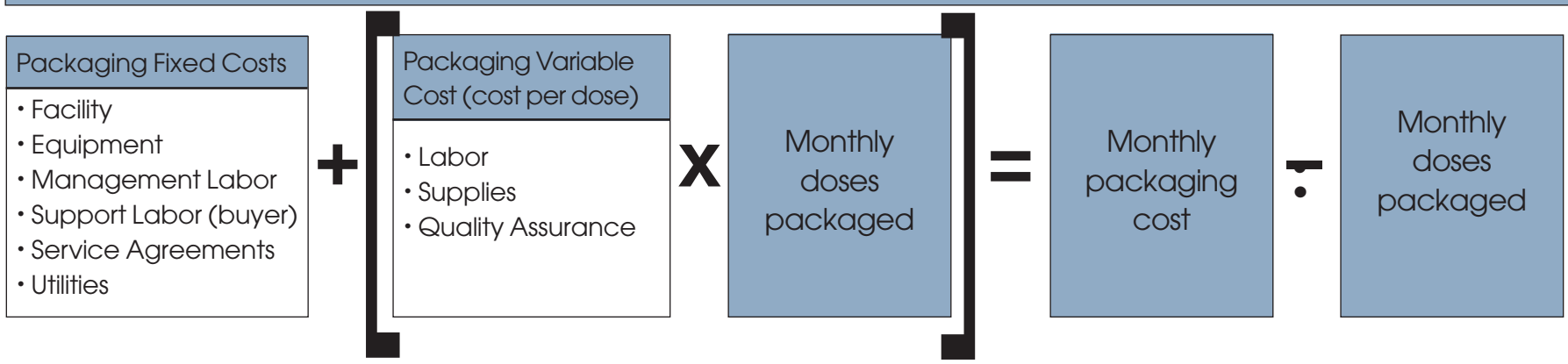
About four years ago, the HCA (Hospital Corporation of America) Richmond Division began evaluating our purchasing costs as they related to bar coded, unit dose oral solid medications. Our initial philosophy was: If the product is available in bar coded unit dose, and the purchase is compliant with our GPO contract, buy it. However, as our facilities have become more sophisticated in their BCMA-related activities, we have likewise refined our decision-making process for unit dose pharmaceutical purchasing. The following article will detail a financially sound method that you can use to cut costs associated with the purchasing and/or packaging of your oral solid medication inventory.

Determining Your Packaging Cost Threshold

Manufacturers and repackaging service providers often place a premium on bar coded, unit dose products. So before you begin evaluating your purchasing practices, first determine your packaging cost threshold – the per-dose cost at which it becomes financially viable to buy products in bar coded, unit dose or to contract with an outsourced repackaging service provider.

To do this, you must determine the cost of labor, supplies, and quality assurance activities for repackaging. To calculate the labor cost involved in packaging, simply determine the amount of hours needed by a technician for a certain number of

Figure 1: Formula to Determine Your Packaging Cost Threshold

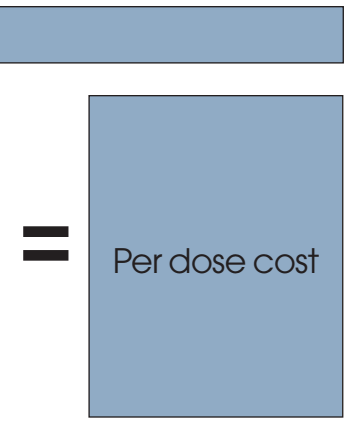


doses. This figure will vary depending on how automated your process is and how many doses are done at a time (size of the lot). It is also important to track this data over several weeks to get an accurate average cost. Be sure to also factor in the time a pharmacist will spend checking the technician's work. The technician's time may be a dedicated resource, but the pharmacist's time is intermittent, so careful tracking is needed. The cost of supplies is fairly fixed, based on the number of doses, and should include packaging materials, labels, printer toner, gloves, and other related items. The costs associated with quality are probably the hardest to calculate and most variable. They will fluctuate depending on the level of automation used, the size of the lots packaged, and the policies and procedures associated with the line item being packaged. After determining your labor, supply, and quality costs, divide their sum by your total doses of a particular medication to arrive at your in-house packaging per-dose cost. (*See Figure 1.*)

It is important to perform these calculations before making a purchasing decision, as pharmacists typically underestimate their true costs of packaging. Performing due diligence at the front end will save you from incurring unexpected costs at the back end.

Product Availability

Now that you have established your packaging cost threshold, determine if the product in question is available in bar coded, unit dose packaging, and if the bar coded, unit dose product is available through your GPO purchasing contract. If so, you should then compare the cost per bar coded, unit dose to your pharmacy's packaging cost per dose. A



number of manufacturers place a relatively high premium on bar coded, unit dose products. If your in-house packaging cost is significantly lower than the manufacturer's cost per dose, you should consider buying the product in bulk and packaging it yourself. It is also prudent to analyze the cost per dose associated with outsourcing your packaging activities to a reputable third-party service provider. Repackaging service providers should be able to provide you with their cost per dose relatively quickly, and in some cases, the difference, or lack thereof, between their costs and your in-house costs may warrant outsourcing.

Inventory Management Concerns

It often makes more sense to buy fast-moving line items in bulk and package them in house, based on simple economies of scale. Furthermore, faster-moving items are less likely to expire while in inventory, reducing costs associated with wastage. As an analogy, consumers can save quite a bit of money by buying an item in bulk at a Sam's Club or Costco, so long as they will use the product before it "goes bad." The same rules apply in packaging bulk pharmaceuticals in bar coded, unit dose: if you can do so at a lower per-dose cost than that associated with a manufacturer-packaged dose, you will save money and, in some cases, offset the cost of your packaging operation, in general.

However, before deciding to perform in-house packaging, you must also consider inventory turnover, as it relates to a drug's expiration date. Most bar coded, unit dose pharmaceuticals – when purchased directly from the manufacturer – will have a 24- to 36-month expiration date. If you decide to package bulk medications in your pharmacy, you reduce the expiration date to 12 months. In some states, there are six-month limits to expiration dating. With this in mind, you have to consider whether or not you will administer enough doses of those drugs within a six- or 12-month timeframe to warrant in-house repackaging.

For example, bar coded, unit dose potassium tablets may be available for 20 cents per dose through your wholesaler. However, you have calculated that, to buy the tablets in bulk and package them in-house, your cost per dose will be 16 cents per dose; ultimately, you will end up saving your facility four cents per

dose on a high-volume line item, resulting in a significant cost reduction.

On the other hand, slower-moving items may be best purchased in unit dose from your wholesaler or repackaged by a certified vendor, as their longer expiration dating may offset wastage costs. For example, one of our facilities uses about 100 doses of propranolol 40 mg per year. For them, buying a bulk bottle and packaging it, even in small lots, is not as cost-effective as buying it in bar coded, unit dose form. Hence, if you know you will use a line item within the 12-month expiration date, it becomes a no-brainer; you should buy it in bulk and package it yourself. To aid you in these decisions, your wholesaler should be able to provide you with an 80/20 report that will identify your fastest-moving line items.

Exceptions to the Rule

Certain medications do not lend themselves to in-house packaging. Because of their drug allergy potential or other hazardous properties, medications such as penicillin, cephalosporin, and other antibiotics; certain antineoplastic agents; and certain immune therapy agents could contaminate your packaging equipment and lead to allergic reactions and other adverse events. So it makes sense to either purchase such line items in bar coded, unit dose, or contract with a third-party repackaging service provider.

Likewise, it may be worthwhile to use a repackaging service provider for items like suppositories, for which you may not have the in-house technology/equipment necessary for bar coded, unit dose packaging. In that vein, third-party repackagers can also handle specialty doses and packaging for your pediatric or neonatal patients.

Purchasing Outside Your GPO Contract

Pharmacists certainly need to support their GPO contracts, and should try to do so for all purchases. However, there are times when off-contract purchasing is necessary. For example, we have purchased off contract or purchased a higher-cost contracted item based on the following factors: bar coded packaging, price, package size, and product availability. In some cases, the off-contract item is bar coded and the contracted item is not, or the price of the non-contracted item is

Performing due diligence on the front end will save you from incurring **unexpected costs** on the back end.

significantly lower than the contracted item. Package size has also determined purchasing: In one case, the contracted item was sold in boxes of 750 doses, and for our smaller hospitals, the majority of those doses would expire before they were administered. In all of these cases, we have found that GPOs are quite willing to renegotiate with vendors to meet their members' needs.

Decision Tree

The diagram featured on this page (Figure 2) can help you navigate the unit dose pharmaceutical purchasing process. The key point in this process is the calculation of your packaging threshold. All of your decisions should be based on that cost. It is best to review your decision process periodically, especially when your contracts change or new vendors enter the market, in order to take changes in price and product availability into consideration.

The Bottom Line

Clearly, there are financial benefits to closely examining your costs associated with bar coded, unit dose pharmaceuticals and making sound purchasing decisions. The key component to making well-informed decisions is a thorough understanding of your true end-to-end packaging costs, including labor, supplies, and quality assurance. Secondly, if you decide to package a product in-house or if you outsource your packaging activities to a third-party service provider, you must also be confident that all quality control and quality assurance measures are being addressed. Once you have ensured the quality of the packaging, it is possible to make many of your purchasing decisions on cost alone. ■

Figure 2. HCA's Decision Tree for Bar Coded, Unit Dose Pharmaceutical Purchasing

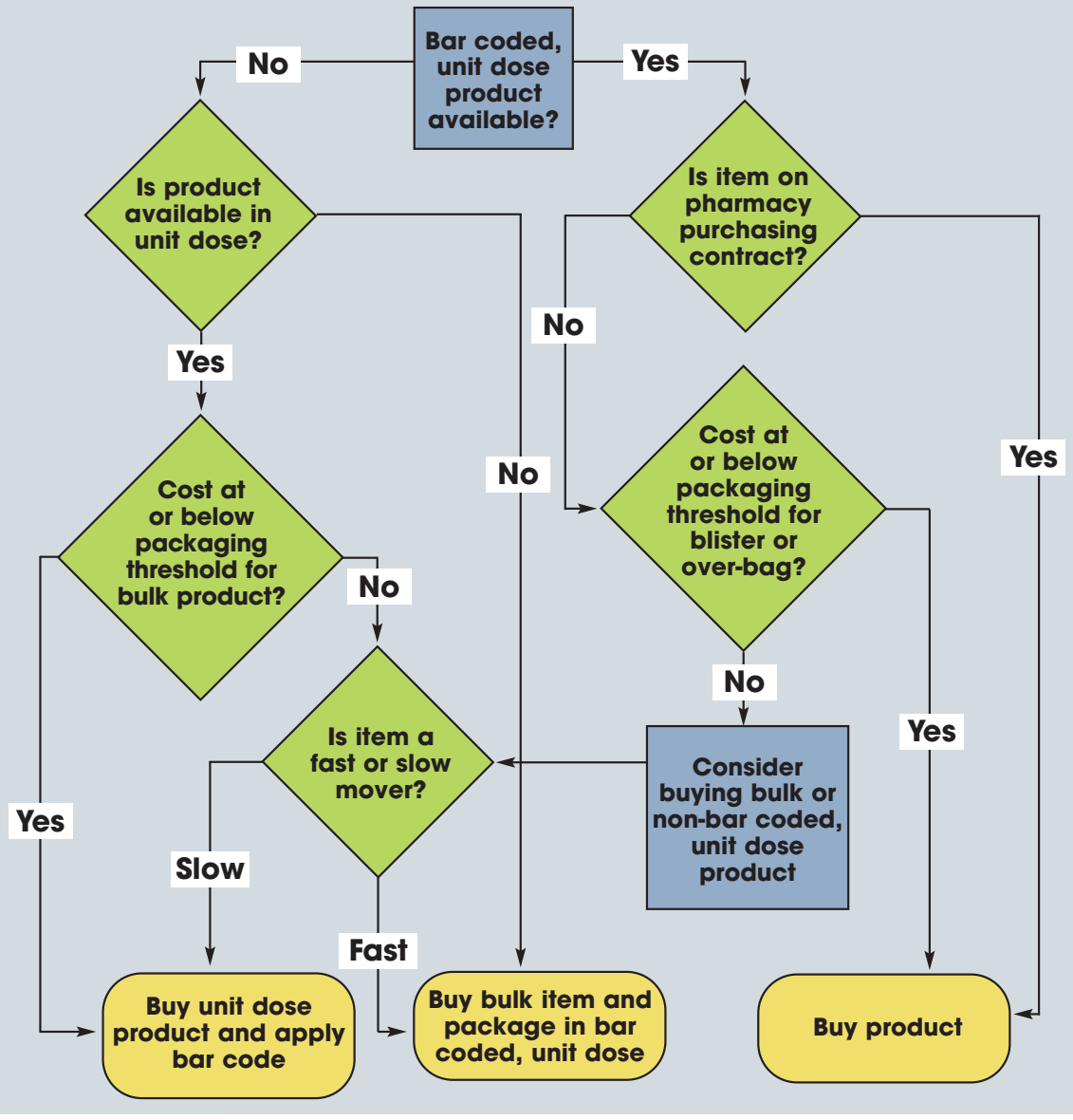


Photo courtesy of UDL Laboratories

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