

Contract price integrity for pharmaceuticals

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Tracking pharmaceutical costs within an organization—simply making sure that the right price has been charged and paid—has never been more important. Purchasing has become more complex, with a wealth of interrelated variables: more products, more specialty products, more refined formularies, new sources of and channels for products, and contracts that establish increasingly detailed terms. New purchasing strategies and tools that help keep pharmaceutical costs in check are constantly emerging.

The current purchasing process involves four main parties: (1) health systems and pharmaceutical purchasers in other classes of trade, (2) drug wholesalers, (3) group purchasing organizations (GPOs), and (4) pharmaceutical manufacturers. Each party is involved in product procurement and contractual agreements for the purchase of pharmaceuticals, and each has a disciplined approach to pricing. The ability of these parties to connect their disciplines is where price accuracy and agreement are determined. For the purposes of this article, pharmaceutical purchasers of all types are referred to as purchasers.

Pricing errors can often be traced to the philosophical differences that exist between distributors and manufacturers, which affect the integrity of contract prices received by purchasers. Drug wholesalers obtain

their price data from multiple sources and must synchronize the data among the various systems. Meanwhile, GPOs negotiate contracts on behalf of their many health care provider customers. Pricing problems arise when the manufacturers, GPOs, purchasers, and wholesalers have different ideas about the correct contract price. Another point of contention is timing (i.e., when the contractual agreement and specific price take effect). Compounding the pricing model is the eligibility of certain facilities to receive a specific price, determined by the type of practice, types of patients served, and various legal aspects relating to class of trade. For example, all parties must agree on how a facility will be categorized (e.g., as an ambulatory care clinic), because some manufacturers offer different prices to different classes of trade.

This article explains the often complex relationships among drug

manufacturers, wholesalers, GPOs, and purchasers and explains how contracts are implemented and managed. Sources of pricing errors, as well as considerations and options for resolving disagreements about contract price integrity, are also examined. Finally, changes to current procedures that could avert many of these pricing issues are discussed. A literature search revealed no articles on contract price issues; hence, the information presented in this article reflects the experience of the authors, who represent the perspectives of the wholesaler, group purchasing industry, purchaser, and a pharmaceutical cost-of-goods consulting group.

Magnitude of the problem. Currently, there is no single source from which to determine the magnitude of pricing errors, but each participant in the supply chain incurs significant expense associated with resolving issues related to incorrect pricing. Erroneous charges affect cash flow and drug costs, as well as the expense associated with the labor involved in discovering the errors. Drug wholesalers can quantify discrepancies through documentation of credits and rebills. For example, when a purchaser notes a discrepancy on an invoice, the wholesaler is notified. The discrepancy is then reviewed by the

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wholesaler, GPO, and manufacturer, as well as the purchaser who initially identified the discrepancy. If a billing error is verified, the customer receives a credit for the overcharge and is rebilled using the correct price. However, pricing issues do not always involve credit. For example, the wholesaler may determine that the price on the invoice was too low, in which case the customer will receive an additional invoice for the amount of the underpayment.

According to S/T Health Group Consulting, Inc., a company that contracts with purchasers to retrospectively analyze invoice-level purchase data and contract information to identify price discrepancies, the overall error rate in contract prices is relatively low. Of more than \$2 billion in health-system purchases reviewed, the average error rate is only about 0.75%.¹ In other words, for every \$100 billed, \$0.75 can potentially be recovered. This seemingly small amount is important to purchasers because of the volume of pharmaceutical purchases. For a purchaser with a \$20 million drug budget, a 0.75% error rate would translate to a potential \$150,000 in erroneous charges. The error rate also varies among wholesalers, ranging from 0.26% to well over the 0.75% average, and can either contribute to or reduce the financial impact on purchasers by threefold or more.¹

Another important factor is the number of transactions billed in error. This is important because the cost of correcting the error is essentially the same, regardless of the cost of the product or the size of the discrepancy, with the exception of any consideration for the potential lost value associated with the amount of overpayment until the error is corrected.

Overview of the contracting process. The contracting process usually begins when the GPO sends a solicitation request to manufacturers as part of a bid process. The GPO

offers a product line to its membership and must decide which product selections best fit its membership. In some cases, solicitation occurs directly between a manufacturer and a health system or individual health care provider. Once the two parties (manufacturer and GPO or health care provider) agree to the prices and terms of the agreement, that information is communicated to the wholesaler, who loads it into its database and links the specific purchaser to eligibility for purchase of the product at the contract price.

The contract between the GPO and manufacturer usually identifies the term of price protection and any limit on price increases afforded by the agreement. In some cases, this price protection could extend for the entire life of the contract. In other cases, the contract may offer no price protection. There may be firm price limits, often expressed as an annual price increase cap, or no price limits at all. Usually, these factors vary by contract. A manufacturer will seek to increase product prices for many reasons, including increased production costs, a desire for increased operating margins, and changes in the competitive marketplace. Manufacturers also decrease prices in response to changes in the marketplace or negotiations with the contracted party.

When a manufacturer decides to change a price, the change must be communicated to wholesalers, purchasers, and GPOs.

The synchronization of price-change notification is important to ensure that the price the customer pays is the price negotiated by the parties and is reflected in the wholesaler and GPO databases. One of the primary factors contributing to the difficulty in synchronizing notification is insufficient lead time regarding the notification of price changes, which leads to confusion about when new prices will take effect. For example, the manufacturer might expect the change to take effect immediately

after it notifies the wholesaler, but this does not allow sufficient time for the changes to be made and communicated between the GPOs and purchasers. There is no standardized method and accepted timeline for this process, although GPOs typically request 30–45 days for new price-data loading and 5–10 days for addenda. The processes and policies regarding whether the GPO or the manufacturer is viewed as the authoritative voice on pricing vary by wholesaler, as does the time allowed for loading price changes. Manufacturers of brand-name pharmaceuticals generally allow as few days as possible from the time of notification of a price change until the price change becomes effective for the customer.

The methods of communicating price changes also vary among manufacturers. Some send notices via electronic data interchange, e-mail, or facsimile, methods that immediately convey this information, while others use traditional mail service. To further complicate matters, manufacturers may seek to implement price increases that do not comply with the contract terms, usually by exceeding the price increase cap or by changing prices earlier than allowed by the price protection period. Because some wholesalers assume that manufacturers, rather than the contracting entity, have the authoritative voice on pricing, wholesalers may charge an incorrect price. The price must then be reconciled between the contracting entity and the manufacturer, resulting in credits and rebills for every purchaser who bought the product at the incorrect price.

GPOs also communicate pricing information, including price changes, to wholesalers, but the process, format, and the frequency of these communications vary by GPO.

Manufacturer contract pricing models. Manufacturer pricing structures are usually based on one of two pricing models: fixed and discounted. The fixed-price model is usually

easier to manage and often provides for some period of advance notice to allow sufficient time for the communication of price changes among the manufacturer, GPO, purchaser, and wholesaler. If an error in pricing occurs with this type of pricing model and the contract requires prior notification, price discrepancies are more likely to be resolved before any products are purchased at the incorrect price, eliminating the cumbersome process of generating credits and rebills, which is costly for both purchasers and wholesalers. A minimum of 30 days advance notice is preferred to facilitate this validation process; however, not all contracted products with fixed prices include advance-notification requirements for price changes.

The discounted-pricing model uses a fixed-percentage discount from some reference price. The two most common reference prices are average wholesale price and wholesale acquisition cost (WAC). This type of pricing model may or may not provide a period of price protection. If a price-protection period is not offered, the net contract price changes as the reference price changes. This model is most commonly used for brand-name, sole-source products. Many manufacturers, primarily those of brand-name products, will not provide any advance communication of a price change to prevent wholesalers and customers from stocking up on the product at the lower price before the price change becomes effective.

Communication issues are inherent when there is no advanced-notice requirement. It is not uncommon for a GPO and wholesaler to receive notification of the price change in this scenario by fax after business hours on the day before the effective date of the change or on the morning of the effective date. Any change in the list price results in a change in the contract price and sets the stage for pricing errors.

Rebates are another form of manufacturer discounts. This type of discount will not be discussed in detail in this article, because rebates are not reflected on invoices and therefore do not contribute directly to invoice errors.

Types of contracts. *Wholesaler supply agreements.* In addition to a product contract, a contract for distribution services is often involved. The wholesaler's contract for distribution services typically addresses four key criteria: (1) volume, (2) product mix (i.e., the types of products a wholesaler must carry for a specific customer), (3) number of deliveries (i.e., the more deliveries, the higher the distribution fee), and (4) payment terms. Many wholesalers charge their customers with large accounts less than the contract price or less than the WAC for noncontracted products. This wholesaler pricing model, referred to as cost minus pricing, usually results from contracts between the customer's GPO and the wholesaler. For example, if product A costs \$4.00, the customer will pay \$4.00 less the negotiated cost minus discount, usually 2–3%. If the product costs \$4.00 and the discount is 2%, the net delivered price would be \$3.92. For customers with smaller accounts, the net delivered price for the product may be greater than the contract price (or WAC for noncontracted products), usually referred to as cost plus percentage, ranging from 0% to 5%. For a small-volume customer, the aforementioned product A would cost \$4.16 if the percentage added to the cost is 4%. Most wholesaler distribution agreements include clauses that provide for periodic increases or decreases in this fee if the factors that drive the distribution fee change (e.g., number of deliveries, volume). There is an increased potential for pricing errors during each of these readjustment periods. Further, wholesalers may not apply the specific cost plus or minus percentage to all products. Some wholesalers

take exception to the application of the cost minus pricing on specific types of items that cause a wholesaler to incur additional handling or carrying costs, such as slow-moving or bulky products. Often these exceptions do not affect contracted products. However, the application of these exceptions may not be well understood by the purchaser, and the communication of these exceptions varies by wholesaler. Thus, the customer may perceive that the invoice price is incorrect. Some GPOs have been attempting to minimize the ability of the wholesaler to enforce exceptions and have begun to require that the wholesaler proactively inform the customer of each specific item for which exceptions will be applied.

The WAC is set by the manufacturer of the product and communicated in various ways. Some manufacturers use other terms, such as national wholesaler price (NWP), to refer to this price. Generally, the WAC does not factor in prompt pay terms or special allowances negotiated between wholesalers and manufacturers. These allowances have made it possible for wholesalers to sell at a cost below margin while maintaining an overall profit margin. The elimination of some of these allowances by manufacturers and other market forces has created profitability issues for some wholesalers, causing them to pursue a fee-for-service model for charging manufacturers.

Individual or locally negotiated contracts. Sometimes purchasers will go outside the GPO and negotiate a contract for a product directly with a manufacturer. The purchaser may do this when a product either is not available through the GPO or, in rare instances, can be purchased at a lower price than that stated in the GPO contract. Individual and local contracting are other sources of pricing errors, especially if the contract extends over multiple years.

The purchaser may not realize that its GPO may have a shorter-term contract, allowing for negotiation of prices, while the purchaser remains locked into the multiyear deal.

Wholesalers also contract with manufacturers for products in their own portfolio. These programs are often referred to as source programs and typically involve generic or brand-name products that have direct competition from multiple manufacturers. The prices for products purchased under these sourcing programs often differ from those available in a GPO contract but are usually lower than the WAC. These programs serve as a backup source for products that might not be covered by a GPO contract, thereby protecting customers from paying the WAC for a necessary product (e.g., a back-ordered contracted product). GPOs strive to negotiate failure-to-supply reimbursement with many manufacturers to protect the customer's interest in these situations and minimize or eliminate the need for backup-source contracts. Certain wholesalers implement automatic substitution from a GPO contract to their own private contracts for generic products, which further complicates the situation.

In some cases, purchasers may have several contracts covering multiple products. For example, a product may be covered by (1) the purchaser's GPO contract, (2) a contract negotiated by the purchaser with a manufacturer, and (3) a wholesaler source program in which the purchaser is participating. In these cases, the purchased product could have three different prices, each valid under its respective contract. With multiple-contract coverage, purchasers must know which contract is being accessed when ordering; otherwise, the purchaser may perceive that a pricing error has occurred when, in fact, the ordered product was invoiced at the correct price but under a different contract than that intend-

ed by the purchaser. Further complicating this issue is the variability among wholesalers' ordering systems. Such systems may not indicate under which contract the product is being priced. They may not readily identify less expensive options (under other contracts for the selected product or less expensive equivalent products).

If the customer orders a product under a higher-priced contract and identifies this before the product is used, it may be eligible for return to the wholesaler, thereby creating the need for a credit. Unfortunately, this incorrect product selection may not be identified by the customer in time to return the product for credit. The mistake may not be identified by the customer until a contract compliance report is reviewed, and the error could be repeated many times, particularly if wholesaler-supplied item stickers are used when reordering rather than using the designated product identification tag on the shelf.

Tiered contracts. Tiered contracts provide price discounts as incentives for customers to increase their commitment to a manufacturer's products. The number of tiers, discounts between tiers, and requirements for eligibility vary by manufacturer and contract. These contracts are typically geared toward brand-name products in a competitive drug class. Often the products are therapeutically similar, and manufacturers may offer a price break for increased use of and conversion to their particular product. One problem with tiered contracts is that they are tied to market share or purchases, both of which are constantly changing. As market share changes, a customer may be eligible to move to another tier, which results in a price change specific to that customer. A customer who has increased its market share and is entitled to access a tier that provides additional discounts might not become aware of it for several months because of the time lag in reporting

sales data and calculating eligibility for the new tier. Communication is more complicated with tiered programs because the same GPO-manufacturer contract will have different prices for the same item and customer, and the actual price could change as often as every quarter. This type of pricing model also requires the manufacturer to communicate a specific price to a specific customer. The wholesaler must enter the contract price individually for each customer rather than applying the same price to all of its GPO customers within a certain class of trade. If the manufacturer makes an error in calculating the customer's market share performance, the wholesaler will load the incorrect price that was supplied by the manufacturer.

Participation agreements. Participation agreements, or committed contracts, are another type of contract. These contracts typically require customers to complete a document, usually referred to as a letter of commitment (LOC) or letter of participation (LOP), to record their understanding of the level of commitment, participation requirements, measurement methods, and pricing discounts or rebates. In some cases, these agreements may involve a bilateral requirement that obligates the customer to the terms for a specific time period and assesses financial penalties if the requirements are not met or the agreement is terminated early.

Participation agreements are similar to tiered-pricing contracts and often include all of the aspects of tiered-pricing contracts, with the exception that the customer must sign and return the LOC or LOP *before* receiving the price. The signed letter serves as the communication vehicle among the customer, GPO, and manufacturer regarding each party's level of commitment.

Sources of pricing errors. Given the number of parties involved, the number of products purchased, and the frequency of order placement, it

should be no surprise that errors are often associated with contract pricing. Some of the common sources of errors, in addition to those already described, are explained below.

Membership and class of trade. According to the Robinson-Patman Price Discrimination Act, it is illegal for a vendor to charge similarly situated, competing buyers different prices for like commodities where the price difference may negatively affect competition.² However, the U.S. Supreme Court ruled in *Abbott Laboratories v. Portland Retail Drug-gists Association* that manufacturers could offer special pricing to not-for-profit purchasers for their own use.³ Thus, acute care hospitals can purchase drugs at preferentially discounted prices. The class-of-trade system evolved as a method to categorize customers by type of business and types of patients treated. Determining and communicating the agreed-upon classes of trade is a common source of errors. For GPO members, this is usually accomplished as part of membership enrollment. The GPO may or may not have a methodology for validating the class of trade of a member. In rare cases, the purchaser may actually attempt to misidentify its type of business in a class of trade to obtain lower contract pricing. The definitions of the specific classes of trade and the number of categories or classes of trade, as well as the code or name for the class of trade, usually vary for each GPO and manufacturer.

In fact, some manufacturers allow class-of-trade or market segmentation to occur at the business-unit or product level. For example, a manufacturer may have broad categories for most of its products (e.g., acute care, nonacute care, retail) but allow a specific business unit to add an additional segment, such as long-term care, rather than including that sector in the nonacute class of trade. For example, a manufacturer may offer a product to the nonacute market for

\$3.20 and to a long-term-care pharmacy for \$4.95. Confusion over pricing would result if the GPO did not differentiate between nonacute and long-term care in its class-of-trade categories. The GPO would communicate to its member and the wholesaler that the member was eligible for the \$3.20 price, while the manufacturer would only authorize the \$4.95 price. The GPO may not differentiate between long-term and nonacute care. The wholesaler, in an effort to charge the correct price to that customer, must recognize the specific class of trade to which the customer belongs. Many customers may not realize that the final ruling on the appropriate classes of trade is made by manufacturers, as they control the eligibility for the discount.

Another confounding factor is that many purchasers belong to multiple GPOs, either within a product category (e.g., pharmacy) or for different product categories (e.g., laboratory, medical-surgical). Discrepancies in GPO membership status are usually corrected after the customer completes a group-designation form. Some manufacturers have a single-group philosophy within a product category, as do some GPOs, while others allow the purchaser to access contracts that result in the lowest price.

A related complication is that GPOs are allowed to accept administrative fees for purchases made only by their members. Each GPO must identify a member as such in order to comply with safe-harbor regulations, even if the member accesses only one or two product contracts. When a purchaser changes GPOs, there is often a lag in notifying all involved parties, resulting in the potential for pricing errors during the transition period. To avoid these types of pricing errors, the purchaser must put significant effort into ensuring that the correct contracts have been entered by the wholesaler and are effective on day 1 under the new GPO

contract. This can be very difficult to do in a busy patient care environment and can result in incorrect invoice pricing and product selection.

Timing issues. As described previously, prices are constantly changing, and errors frequently occur because of the price changes and incorrect timing or communication of the changes. Wholesalers have different processes for invoicing products. Some issue the invoice on the day of order placement, while others invoice on the day of delivery, usually the day after order placement. Therefore, price changes that occur during ordering or invoicing may result in a real or perceived pricing error.

Retroactive pricing. Another factor leading to pricing errors is retroactive pricing, which involves honoring the manufacturer's price for a particular product that was agreed upon during contract negotiations. This may occur if an LOC or LOP was entered incorrectly, a price increase or decrease was implemented by the manufacturer, price eligibility was miscommunicated, prolonged negotiations occurred between a manufacturer and a contracting entity, or variabilities among wholesalers' contract-loading processes. Invoices for products purchased from the effective date of the retroactive pricing must be credited and rebilled at the agreed-upon price. Purchasers are usually less concerned about this pricing issue because all parties agree to the change, and it usually benefits the purchaser.

Manual data entry. Another source of errors is the manual entry of contract data. Considering the large numbers of purchasers and items available for purchase whose data may require manual entry into the customer database, it is not surprising that errors occur. As soon as a contract is accepted and acknowledged, the wholesaler loads the prices into its system. Wholesalers often request up to 60 days for entry of the initial bid award and up to 10 days

for entry of addenda to contract pricing, but the business requirements often dictate a much shorter time. The degree to which wholesalers rely on the manual entry of data varies, with some using sophisticated electronic loading processes to reduce response time and eliminate incorrect entry of price data.

Differences in package sizes. Data regarding pharmaceutical products are loaded into the database by their National Drug Code (NDC). Any change made to the packaging of the product may result in a change in the NDC. For example, if a product previously available in packages of 10 is now sold in quantities of 12, the product is issued a new NDC. Unless the change is noted in the various databases to “tag” the new item to the contract, the system will not recognize it and will start selling the product at list price. Entry of these product changes must also occur at the GPO and purchaser level to ensure a synchronized system.

Resolving price discrepancies. Resolving price discrepancies can be tedious and expensive for all parties involved. Currently, unless included in contracts, there is no universal statute of limitations for the reconciliation of a pricing error. When a pricing error is discovered by the purchaser or another supply-chain participant, a series of events is triggered. For example, when a purchaser discovers a pricing error, it is usually reported to the wholesaler. The wholesaler must attempt to determine if and why the price is incorrect. To do this, the wholesaler reviews its purchase records for the purchaser to determine when the pricing error first occurred and then calculates the difference between the intended and invoiced prices multiplied by the number of packages purchased at the incorrect price. If the wholesaler is certain that the manufacturer will agree to the price that the purchaser has requested, it may process a credit to the customer for

the incorrect price and rebill at the correct price.

Sometimes the manufacturer will identify that a price was incorrect as part of the processing of wholesaler “charge backs,” which credits the wholesaler for the difference between the price the wholesaler paid and the price charged to the customer per the terms of the product contract. For this type of error, the wholesaler usually creates an invoice for the additional amount due or the difference between the original price paid and the correct price. A statute of limitations for the reconciliation of pricing errors would force all parties to proactively discover and reconcile these discrepancies.

Rebates. Certain manufacturers offer incentives (i.e., rebates) for purchasers who meet specific requirements for rebate eligibility. The manufacturer, however, may rely on national databases to determine the percentage of sales, and these databases may not reflect accurate or current sales. Although this is not a specific type of pricing error, it exemplifies the pricing issues that create confusion and generate research costs for everyone involved.

Identifying and submitting claims. Most purchasers do not have dedicated staff to perform routine audits of past bills for pharmaceuticals; hence, purchasers may not even realize that they are paying incorrect prices. Review of the appropriateness of drug purchases is a tedious and labor-intensive process that staff members may not have time to perform. Third-party auditors provide such services, usually for a portion of the amount recovered. Third-party auditors review a wholesaler’s purchase history and evaluate the following:

- *Contract pricing errors.* Check contract data loaded and verify membership eligibility and class-of-trade designations.
- *Market share and tiered pricing.* Apply actual purchase data to the manufac-

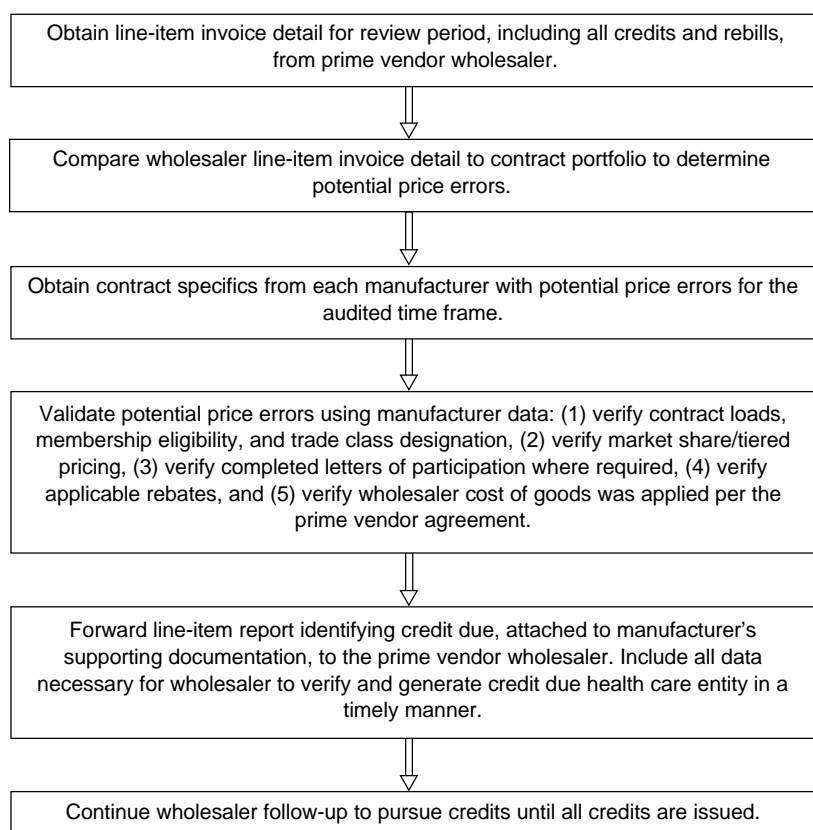
turer’s market share and volume criteria to ensure that the purchaser is receiving the correct tier price.

- *LOPs.* Analyze purchase data to define manufacturers that require an executed LOP.
- *Manufacturer rebates.* Analyze data to verify the accuracy of rebates based on actual purchase data.
- *Wholesaler cost of goods (cost plus or minus).* Review purchase data to verify that the health care entity’s cost of goods was applied as defined in the prime-vendor agreement.

A detailed flow chart of the price-verification process is shown in Figure 1. The process involves identifying potential errors, obtaining all contract and membership data for manufacturer validation purposes, and submitting the claims directly to the wholesaler. When a purchaser hires a third party to review its invoices, the process usually starts with a review of data from the previous year. A review of bills dating back more than one year is difficult because manufacturers and wholesalers archive data after one year, making it costly and difficult to retrieve beyond that point. Some manufacturers and wholesalers set a limit on the time period for submitting a price-error claim.

The costs associated with incorrect pricing to purchasers can be substantial. Although the rate of errors averages only 0.75%, hundreds of thousands of dollars can be involved over a year’s time for a purchaser. Third-party-audit costs deliver a return based on the dollars recouped. Contributing to these hard costs are additional costs associated with the delay between submitting a claim and recovering the amount in question. This delay can be affected by the time it takes for wholesalers to validate and submit claims and the time it takes for the manufacturers to respond.¹ As the delay lengthens between claim submission and cost recovery, the value of the pricing er-

Figure 1. Retrospective audit process of price verification by customer or third party.



ror is unavailable to the purchaser, who may then incur additional short-term financing costs to replace those funds. As greater amounts are claimed, purchasers will incur significantly higher audit costs because recovery fees are a fixed percentage of the amount of the value of the claim. To a lesser extent, purchasers incur incremental costs related to short-term financing to address the lost availability of funds and costs associated with the reduced value of the funds when recovered versus the value of the funds when they were overpaid. This compounding effect underscores the importance of contract price integrity for health systems' financial health.

Fixing the system. Given the expense and time involved in identifying and resolving price discrepancies, there is a strong desire by all parties

to make improvements in the system. One way to decrease the potential for errors is standardization of the current communication procedures and protocols used by pharmaceutical manufacturers, wholesalers, GPOs, and health systems to communicate contract prices and resolve price and contract discrepancies. Errors can be reduced significantly through the increased use of electronic transfer of data among supply-chain participants.

Several possible ways of improving the current pricing system are described below.

1. *Adopt an open standard for identifying purchasers.* Currently, each facility is assigned a separate and unique identification number by the GPO, manufacturer, and wholesaler, making it nearly impossible to clearly identify a

unique purchaser across the entire supply chain. In the pharmacy arena, it has been suggested that the Drug Enforcement Agency (DEA) number could fulfill this purpose; however, there are regulatory issues that complicate the use of DEA numbers. In addition, not all customers are eligible for DEA registration and would therefore not have a DEA number. A standardized identification system would need to be an open system, whereby all supply-chain participants are allowed to use the identification numbers for their customers without the requirement of subscribing to a proprietary service.

2. *Limit the amount of time allowed to initiate a claim and for the credit and rebill process.* Time restrictions must be clearly communicated to all parties so that credits for overcharges or undercharges could be processed within the timeline.
3. *Extend the notice period before implementation of price increases.* This would make it easier to communicate price changes to all parties and help ensure that everyone is aware that a price change is forthcoming. Wholesalers could adopt procedures for preventing excessive ordering by customers if an extended notice period were put in place, which might also help to control artificial product shortages.
4. *Develop an Internet-based contract and class-of-trade validation process to serve as the communications conduit between manufacturers, GPOs, and wholesalers.* Such a system would enable manufacturers and GPOs to validate pricing and sign contracts electronically. The pricing information would then be communicated automatically to wholesalers and could be uploaded into the wholesalers' contract management systems. The challenge to developing such a system would be obtaining collaboration by all parties and adoption of a single identification number for each customer.
5. *Develop a consistent process for loading contract information.* For example, some wholesalers code GPO—

manufacturer tiered pricing as an individual contract, because the actual contract price for which each purchaser is eligible is unique; other wholesalers code these contracts to appropriately reflect the GPO–manufacturer contract. The process becomes more complex when customers negotiate their own contracts for the same products that are covered under GPO contracts.

6. *Require GPOs and manufacturers to agree to use the same contract identification code when communicating contract information.* As with the standardization of customer identification, this would eliminate confusion.
7. *Develop a standardized set of codes and descriptions with which GPOs and manufacturers can better describe classes of trade.* Currently, each GPO uses a different number for classes of trade to describe its members. The same is true for manufacturers. In fact, some manufacturers allow their product managers to define their individual market segments, which further complicates the process because it adds manufacturer-specific numbers and definitions of classes of trade. If the correct prices are not

loaded, the wholesaler or customer may be at financial risk. For example, charge backs may be denied. If standardized codes and classes of trade were developed, purchasers would need to be educated about the importance of having their class of trade coded correctly. A revised class-of-trade or market-segmentation system would need to be constructed to avoid limiting manufacturers' ability to decide which types of markets are eligible for the various levels of contract pricing.

Summary. Contract price errors do occur in the current billing process for health-system pharmaceutical purchases and are typically related to the complexity of communications among manufacturers, GPOs, wholesalers, and purchasers. Although the error rate appears to be small, its financial impact on purchasers can be significant due to the magnitude of purchases it can affect. Variability exists among wholesalers' error rates, contract management systems, and order-entry systems, which can affect pricing. Purchasers can mitigate the effects of pricing er-

rors through a number of steps, beginning with educating themselves on the intricacies inherent in contract pricing and contract management systems. From this awareness, purchasers can actively communicate with manufacturers, GPOs, and wholesalers to better understand each entity's philosophy, approach, and measures taken to ensure contract price integrity. Partnering among these entities will also build greater visibility in item-level contract prices and trust in the systems that both support and reconcile them. Purchasers that check wholesaler invoices carefully for contract pricing accuracy can recover overpaid costs and minimize negative financial effects. Given the significant number of transactions that occur and the amount of data exchanged on a daily basis, the overall error rate for the current system is very low.

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