

CHALLENGE IN THE CHANNEL:

A CRITICAL REVIEW OF THE U.S. PHARMACEUTICAL INDUSTRY

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EXECUTIVE SUMMARY

This white paper examines the impact of new distribution arrangements on the U.S. pharmaceutical industry. Over the past few years, manufacturers and wholesalers have implemented agreements designed to reduce investment buying in the pharmaceutical channel. There have been few attempts to assess the overall supply chain effects of these new arrangements.

In theory, the goal of manufacturer-wholesaler inventory agreements should be to shift costs to the most efficient point in the supply chain without compromising patient access to medicines. Our empirical analyses suggest that inventory management agreements (IMAs) have had the opposite effect. In fact, manufacturers have added assets to their balance sheets and increased operating expenses due to higher inventory carrying costs. Wholesalers have lost a major source of compensation for their services. Furthermore, these agreements may also have increased the risk of drug shortages that could affect patient care, product access, and pharmaceutical prices.

ISSUE BACKGROUND

- Changes in the market structure of the U.S. healthcare system enabled a wholesaler compensation model in which pharmaceutical manufacturers provided cash discounts and permitted investment buying as mechanisms to support the legitimate costs of distributing their products. Both wholesalers and manufacturers had independent financial incentives to encourage investment buying as a significant source of wholesaler profitability.
- While cash discounts and volume rebates remain today, wholesalers' profits from investment buying began to disappear in 2002 with the introduction of inventory management agreements (IMAs) between manufacturers and wholesalers. Up to 70 percent of distribution volume was covered by IMAs by the end of 2004, sharply curtailing investment buying activity by wholesalers.

CONCLUSIONS

- **Investment buying by wholesalers supported artificially high sales levels at manufacturers.** The elimination of investment buying using IMAs has led to short-term sales declines for manufacturers as extra inventories are eliminated from the channel. Without IMAs, investment buying behavior by wholesalers could have allowed a manufacturer to perpetually pull sales forward in time.

- **Wholesalers avoided \$4.6 billion in inventory growth due to IMAs.** Since IMAs were introduced, inventories at the top three pharmaceutical wholesalers have grown only one-fifth as fast as sales. As a result, we estimate that these wholesalers have been able to avoid adding an incremental \$4.6 billion of inventories to their balance sheets.
- **IMAs have had limited net impact on supply chain inventories.** Our analyses reveal that inventory has shifted one step up the channel back to manufacturers rather than vanishing from the supply chain. Manufacturers added nearly \$4 billion of inventories during the period when the largest three wholesalers avoided adding \$4.6 billion in incremental inventory.
- **IMAs have added at least \$785 million to manufacturer operating costs.** Manufacturers have incurred at least \$785 million in additional physical holding costs from 2002 to 2004 as a result of the shift of inventory. Manufacturers are also likely to be bearing substantial and generally unrecognized other costs, such as the cost of capital for money tied up in inventory assets and extra costs associated with emergency orders or expedited shipments.
- **The potential risk of drug shortages has increased.** Our analyses suggest that the introduction of IMAs may have increased the risks of drug product shortages, raising critical questions about the impact of new supply-chain agreements on patient care and the additional costs imposed on hospitals and pharmacies. There is evidence to suggest that drug shortages have become more prevalent during the period when IMAs began to be implemented. Although manufacturers appear to have compensated for the reduced wholesaler inventory by holding additional safety stocks, manufacturers will probably not be able to maintain the same service levels as wholesalers to smaller healthcare customers such as independent pharmacies and nursing homes.

RECOMMENDATIONS

- **Manufacturers and wholesalers should work together to study the impact of inventory agreements on availability and access.** The industry should take a leadership role in studying the potential supply chain impact of manufacturer-wholesaler agreements. If these agreements have contributed to drug shortages, then substantial costs have been added to the entire U.S. healthcare system.
- **Manufacturers should only accept performance-based fee-for-service agreements with wholesalers.** Pharmaceutical manufacturers should recognize that they can use fee structures to leverage their influence and encourage true supply chain partnerships. Successful fee-for-service agreements can reward concrete actions by wholesalers to build manufacturer brands, lower healthcare supply chain costs, or speed the availability to patients of beneficial new products.

- **Manufacturers should no longer bear sole responsibility for the majority of wholesaler compensation.** The dynamics of the healthcare industry have created an unstable situation in which powerful customers have successfully demanded that the cost of a wholesaler's service be deleted from the price. Going forward, wholesalers will have to accept even more responsibility for developing new service innovations for customers and recapturing sell-side profitability.
- **Controlled investment buying should be allowed to gradually return as a source of wholesaler profit.** In light of the changes documented in this paper, the virtual elimination of investment buying was a radical change in supply chain behavior that appears to have had many unintended consequences, including an apparent increase in total supply chain costs and a potentially increased risk of drug shortages. In our view, investment buying should not increase to more than 15 to 20 percent of wholesaler gross margin.

ISSUE BACKGROUND

The origins and importance of investment buying to wholesalers' financial performance can be traced to changes in the market structure of the U.S. healthcare system.

The last 20 years have seen the emergence of hospital buying groups, the growth of chain pharmacies at the expense of independents, and the entry of supermarkets and mass merchants into retail pharmacy. These volume buyers have demanded deep discounts from wholesalers to secure their business, leading to intense competition among the largest wholesalers.

Most distribution intermediaries in other U.S. channels are compensated in the form of gross profit dollars—the sell-side margin added to the cost of the product to cover operating expenses and profit.¹ In contrast, changes in the U.S. healthcare system and the simultaneous consolidation of the pharmaceutical wholesaling industry enabled these large buyers to negotiate away the wholesalers' sell-side margins.² Many large customers regularly negotiate “cost minus” agreements that translate into negative sell-side margins.

A vicious cycle ensued, as customers demanded larger discounts and wholesalers sought compensation from manufacturers to maintain economic viability. A wholesaler compensation model evolved in which pharmaceutical manufacturers provided cash discounts and permitted investment buying as mechanisms to support the legitimate costs of distributing their products.

Wholesaler gross margins changed in two significant ways:

- Average wholesaler gross margins – the difference between the buying and selling price – declined sharply, from 11.2 percent in 1980 to 7.1 percent in 1990 to 4.3 percent 2003.³ In contrast, the average gross margin for all wholesaler-distributors in the U.S. actually increased slightly from 20.1 percent in 1993 to 20.5 percent in 2002.⁴
- The composition of wholesalers' gross margin over this period shifted from primarily sell-side mark-up paid by customers to almost entirely buy-side compensation by manufacturers. By 2002, approximately 40 percent of the wholesaler's total gross margin on pharmaceutical distribution came via investment buying opportunities. Another 40 percent came from cash discounts offered by manufacturers.⁵

Investment buying – the practice of purchasing more inventory than required to satisfy near-term sales demand – was profitable for wholesalers because of the historically high product price inflation rate for pharmaceutical products. Expectations of rising price levels created incentives to buy and hold product volume in advance of actual demand. These products could then be resold later at the new, higher prices. In some situations, manufacturers permitted buy-in of products by wholesalers at pre-price increase prices. Wholesalers'

operational efficiencies and a low cost of money enabled the profitability of this system by minimizing inventory carrying costs.

Manufacturers also had reasons to encourage this system. By compensating wholesalers using indirect tools such as investment buying and cash discounts, pharmaceutical manufacturers were able to avoid reporting the true distribution expenses for their products.

All else being equal, products sold prior to a price increase represent lost profits to the manufacturer, especially during the period when the manufacturer has marketplace exclusivity and patent protection. However, there is no accounting provision for reporting unrealized revenues or profits due to a trade promotion or incentive that pull demand forward in time. In other words, manufacturers used the sales and profit dollars they could have earned to compensate wholesalers for distribution services.

The situation in 2005 is very different. While cash discounts and volume rebates remain today, wholesalers' profits from investment buying began to disappear with the introduction of inventory management agreements (IMAs) between manufacturers and wholesalers. Industry estimates indicate that up to 70 percent of distribution volume was covered by IMAs by the end of 2004.⁶

Three of the five largest pharmaceutical manufacturers have publicly announced their participation in IMAs. (See Exhibit 1.) Many smaller manufacturers have also reported IMAs, including Genzyme, Gilead Sciences, First Horizon, and King Pharmaceuticals.

Exhibit 1: Largest Five Pharmaceutical Manufacturers, by U.S. Sales

Corporation	Total Dollars (billions)	Market Share	Reported IMA Implementation
1. Pfizer	\$30.7	13.1%	N/A
2. GlaxoSmithKline	\$18.8	8.0%	N/A
3. Johnson & Johnson	\$16.2	6.9%	2003
4. Merck & Co	\$15.0	6.4%	2003
5. AstraZeneca	\$11.3	4.8%	2004

Sources: IMS Health, National Health Perspectives, 2/2005; IMA implementation date based on information in company reports. N/A = No public announcement of IMA with wholesaler.

In a basic IMA, a wholesaler agrees to reduce or eliminate investment buying of a manufacturer's products in return for a fee structure or payment from the manufacturer to offset the wholesaler's economic losses from the discontinuation of inventory investment. Essentially, pharmaceutical manufacturers have been paying their wholesalers not to speculate with inventory. In some IMAs, wholesalers are not reimbursed if no price increase occurs, maintaining a link between wholesaler compensation and pharmaceutical price inflation.

CONCLUSIONS

Investment buying by wholesalers supported artificially high sales levels at manufacturers.

The elimination of investment buying using IMAs has led to short-term sales declines for manufacturers as extra inventories are eliminated from the channel. Without IMAs, investment buying behavior by wholesalers may have allowed a pharmaceutical manufacturer to perpetually pull sales forward in time as if on a never-ending treadmill.

Bristol-Myers Squibb

The shift away from investment buying appears to have been prompted by the actions of Bristol-Myers Squibb. The company was alleged to have had its wholesalers purchase excess inventory in 2000 and 2001 in order to meet sales and earnings projections. The investment buying system apparently created a temptation to “rent” market share by encouraging forward buying by the channel.

Subsequent investigations forced Bristol-Myers Squibb to restate its financial records from 1999 through 2002 and officially announce an end to forward buying by wholesalers in March 2003. The company entered into a final settlement with the Securities and Exchange Commission in August 2004 that was reported to “limits future sales to wholesalers based on demand or on amounts that do not exceed approximately one month of inventory on hand.”⁷

Pfizer

Pfizer’s acquisition of Pharmacia required aligning inventory practices between the two companies. Wholesalers of Pharmacia products maintained over two months of inventory in mid-2003. By the end of 2003, those inventories were reduced to Pfizer’s target levels of one month, lowering revenue for the combined companies by approximately \$500 million.⁸

Unlike some other pharmaceutical manufacturers, Pfizer has a policy of maintaining stocking levels at its wholesalers to under one month on average and keeping monthly levels consistent from year to year based on patterns of utilization. Pfizer has not publicly announced any IMA agreements with its wholesalers.

Merck & Co.

Public disclosures by Merck & Co., one of the largest global manufacturers, have been unusually forthright in acknowledging the one-time impact of realigning shipments to actual demand. Merck estimated that its 2003 annual sales would be reduced by \$700 to \$750 million due to its new inventory agreements with wholesalers⁹, although the actual reduction was only \$565 million.¹⁰ This sales reduction will not occur again as long as sales and wholesaler inventory remain closely aligned in the future.

AstraZeneca

Similarly, AstraZeneca reported that its 2004 U.S. sales growth was five percentage points lower due to inventory adjustments. Actual U.S. sales growth was 10 percent although “estimated underlying sales growth” was 15 percent when the company adjusted sales for the destocking of wholesaler inventory in 2004 and in 2003.¹¹

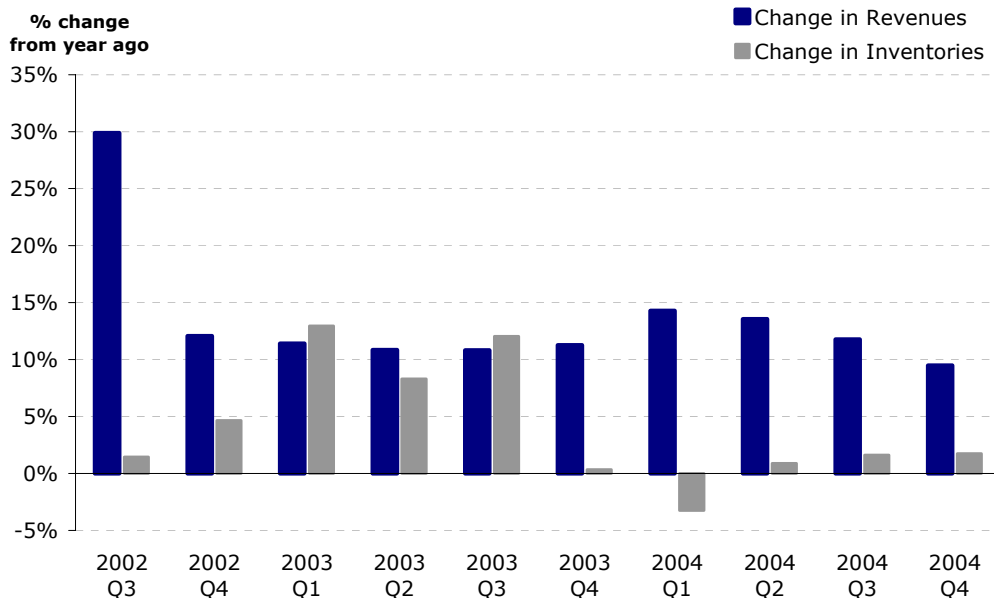
Wholesalers avoided \$4.6 billion in inventory growth.

We estimate that the shift to new inventory management agreements (IMAs) allowed wholesalers to avoid approximately \$4.6 billion in inventory investments on their balance sheets.

Exhibit 2 shows the diverging growth rates of revenue and inventory for the three largest wholesalers. The top three wholesalers increased their inventories by \$1.4 billion (+7 percent) between the fourth quarter of 2001 and the fourth quarter of 2004. During the same period, revenue grew by \$10.2 billion (+37 percent). Public disclosures by these companies suggest that IMAs have been the most important cause of the decline.

To put these figures in perspective, the ratio of inventories to sales at the top three wholesalers was 0.56 in the fourth quarter of 2001. By the fourth quarter of 2004, the ratio was 0.42, a decline of 25 percent.

Exhibit 2: Change in Revenues and Inventories at Largest 3 Pharmaceutical Wholesalers



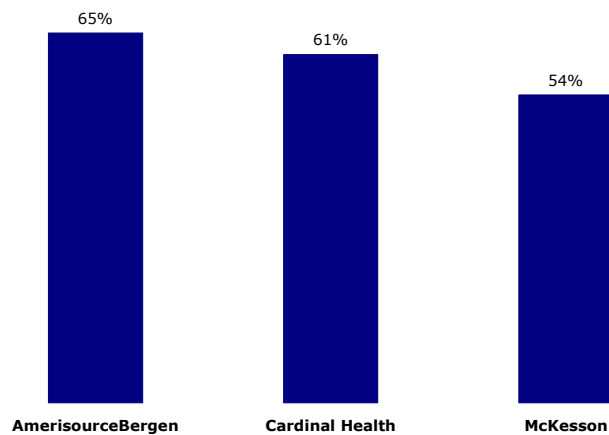
Note: Wholesaler data includes aggregate revenues and inventories of Cardinal Health, AmerisourceBergen, and McKesson.
Source: Pembroke Consulting analysis of 10-K and 10-Q SEC filings

If the ratio of inventory to sales had remained at 2001 levels, then these three wholesalers would have been expected to add \$6.0 billion of inventories between the fourth quarters of 2001 and 2004. In other words, the implementation of IMAs allowed wholesalers to avoid adding an incremental \$4.6 billion (\$6.0 billion minus \$1.4 billion) of inventories to their balance sheets.

IMAs have not provided wholesalers with the same amount of profit as the investment buying model. As a result, the transition away from inventory profits has shrunk wholesaler profits and created substantial volatility in stock prices.

The economic significance of the transition away from forward-buying due to IMAs was highlighted in financial disclosures made by Cardinal Health. Cardinal reported in June 2004 that its product inventories were \$500 million lower than expected in the second calendar quarter of 2004 due to the adoption of inventory management agreements with manufacturers. The company estimated that the reduction in inventory translated into substantial lost income potential because the company had historically earned a 15 to 20 percent return on inventory.¹² Cardinal's profit warning reduced its stock price by nearly 25 percent in one day. McKesson and AmerisourceBergen, the two other large wholesalers, have made similar disclosures.¹³

**Exhibit 3: Inventory as a Percentage of Current Assets
as of December 31, 2004**



Source: Pembroke Consulting analysis of 10-Q SEC filings

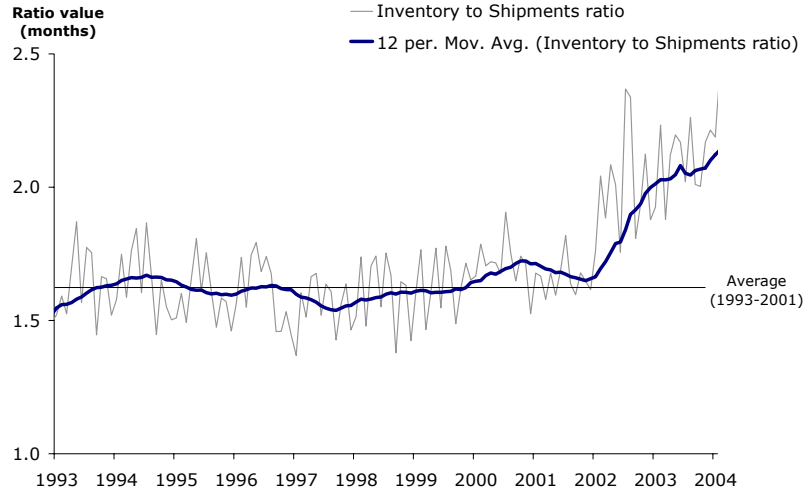
In the fourth quarter of 2004, inventories made up from 54 percent to 65 percent of current assets at the largest three wholesalers, making inventory management a significant contributor to financial performance metrics such as Return on Net Assets. (See Exhibit 3.)

IMAs have had limited net impact on supply chain inventories.

Surprisingly, IMAs have had little net impact on product inventories in the U.S. healthcare system. The U.S. Census Bureau's monthly M3 reports, the only consistent data source for product inventories in pharmaceutical manufacturing, clearly shows inventories increasing

relative to shipments from 2002 through today. (See Exhibit 4.) This pattern diverges sharply from the historical ratio from the era of extensive investment buying by wholesalers.

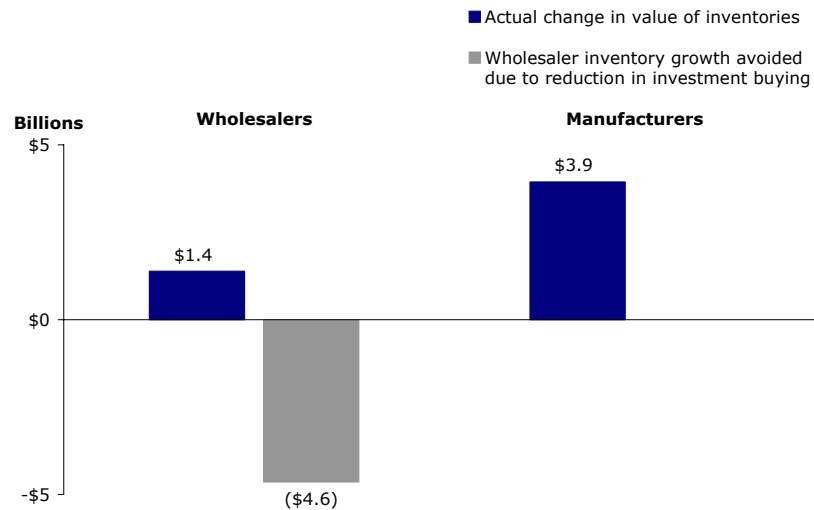
Exhibit 4: Pharmaceutical and Medicine Manufacturing Inventory to Shipments ratio, Jan 1993 to Dec 2003



Source: Manufacturers' Shipments, Inventories, and Orders (M3), US Census Bureau

Manufacturers added nearly \$4 billion of inventories during the period when the largest three wholesalers avoided adding \$4.6 billion in incremental inventory. (See Exhibit 5.) In other words, the increase in total manufacturer inventories is only \$700 million less than the inventory investment avoided by the largest three wholesalers. Thus, inventory has primarily shifted one step up the channel back to manufacturers rather than vanishing from the supply chain.

Exhibit 5: Change in Inventory Value at Wholesalers and Manufacturers, 2001:Q4 to 2004:Q4



Note: Wholesaler data includes aggregate inventories of Cardinal Health, AmerisourceBergen, and McKesson
 Source: Pembroke Consulting analysis of 10-K and 10-Q SEC filings; Manufacturers' Shipments, Inventories, and Orders (M3), US Census Bureau.

It is reasonable to think that the introduction of IMAs might have led to a decrease in inventories held by manufacturers. When faced with potential forward buying activity, pharmaceutical manufacturers may have been holding excess inventories to avoid being out of stock if a wholesaler placed an unexpectedly large order. In theory, IMAs could have reduced manufacturer inventories by more closely linking prescription demand and shipments to wholesalers. However, the data suggest that IMAs have unexpectedly led to an increase in inventories held by manufacturers.

IMAs have added at least \$785 million to manufacturer operating costs.

Wholesaler stock prices have suffered because of the perception that IMAs and the elimination of forward buying is much worse for wholesalers than for manufacturers. However, our research found that manufacturers are bearing substantial and generally unrecognized costs since the introduction of new inventory agreements.

In addition to adding \$3.9 billion to manufacturers' current assets, we estimate that manufacturers have incurred at least \$785 million in additional physical holding costs from 2002 to 2004 as a result of the shift of inventory.¹⁴

This figure probably understates the total costs because it only includes the physical holding costs, or carrying costs, or the additional inventory. The total cost of holding inventory includes the physical holding costs (carrying costs), the cost of capital for money tied up in inventory assets, plus the "hidden costs" associated with product returns or price changes.¹⁵

These hidden costs could be substantial in the pharmaceutical industry. If products are not at the right place at the right time, then manufacturers will incur extra costs associated with emergency orders and expedited shipments. They also risk lost sales due to regionalized stock outs even when overall channel inventory levels may appear to be acceptable.

**Exhibit 6: Inventory as a Percentage of Current Assets
as of September 30, 2004**

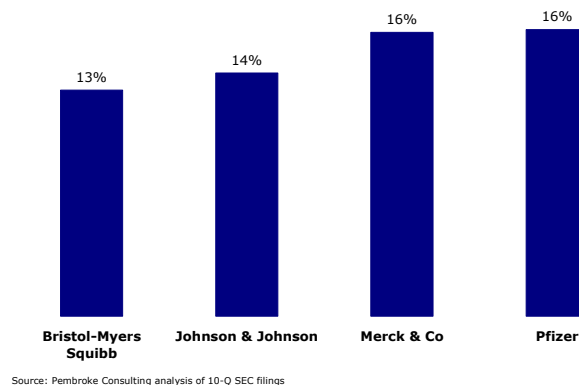


Exhibit 6 shows inventory as a percentage of current assets for three of the largest U.S. based pharmaceutical manufacturers. Although these figures are not directly comparable to wholesaler data¹⁶, inventory management could be a significant contributor to certain financial performance metrics for manufacturers.

Unfortunately, publicly available information makes it impossible to estimate the total costs of this shift or the relative costs of wholesalers versus manufacturers. Neither manufacturers nor wholesalers report sufficient data to compute these costs. Some companies may not even have credible internal estimates of these costs.

The risk of drug shortages has increased.

Our analyses suggest that the introduction of IMAs may have increased the risks of drug product shortages, raising critical questions about the impact of new supply-chain agreements on patient care and additional costs imposed on hospitals and pharmacies.

Like intermediaries in many other industries, pharmaceutical wholesalers serve as a buffer between manufacturers and customers, often holding inventory that customers such as hospital and pharmacies would be unwilling or unable to carry. Many hospitals and pharmacies rely on daily replenishment, leaving them with few reserves and greater risk of inadequate drug product availability for patients.

Consider the shift in hospital buying behavior. Beginning in the early 1980s, hospitals began pushing inventory management back to the wholesalers in an effort to reduce investments in inventory and receivables. By the early 1990s, hospital pharmacies had sharply increased their purchases from wholesalers at the expense of manufacturer direct sales, often dealing with only one wholesaler under a “prime vendor contract.”¹⁷

However, our analyses demonstrated that wholesaler inventories have grown only one-fifth as fast as sales, leaving substantially less buffer inventory at wholesale facilities. These reduced levels may limit the ability of wholesalers to maintain product availability during any type of supply disruption. Furthermore, reduced levels of wholesaler inventory may mean that hospitals and pharmacies will feel the impact of a supply disruption much more quickly due to the reduced inventory supply. The American Medical Association recognized this risk, noting “just-in-time inventory management systems” as one of the factors contributing to drug shortages.¹⁸

The aggregate data strongly suggest that manufacturers have compensated for the reduced levels of inventory in the wholesale channel by holding additional safety stocks. If manufacturers can consistently maintain the same service levels with direct distribution as wholesalers, then this shift of inventory would have no apparent impact on patients, providers, or pharmacies.

This assumption is highly questionable given the current capabilities and distribution networks of most manufacturers. Pharmacy channels remain complex, with prescriptions

dispensed at more than 140,000 outlets. (See Exhibit 7.) Only six percent of sales are sold directly by manufacturers. The greatest impact would be felt by healthcare customers that are currently served primarily by wholesalers, such as independent pharmacies, nursing homes, and hospitals.

Exhibit 7: Manufacturer Sales by Customer and Channel

Customer	Outlets	2003 Dollars (billions)	Manufacturer Sales by Channel of Distribution*		
			Wholesaler	Chain Warehouse/ Mail Order	Manufacturer Direct
Chain pharmacy	19,824	\$64.0	25%	75%	1%
Independent pharmacy	17,913	\$31.8	98%	0%	2%
Mail service	366	\$28.8	23%	71%	6%
Hospitals (no. of departments)	9,992	\$26.4	80%	0%	20%
Clinics	62,364	\$19.6	85%	0%	15%
Food stores with pharmacy	9,918	\$19.4	67%	32%	1%
Mass merchants with pharmacy	4,872	\$15.1	97%	1%	2%
Nursing Homes/Home Health	5,397	\$10.1	93%	0%	7%
Healthcare plans	1,170	\$1.5	32%	0%	68%
Miscellaneous	9,775	\$0.9	43%	0%	57%
Total	141,591	\$217.5	59%	34%	6%

Source: IMS National Sales Perspectives as reported in the HDMA 2004 Industry Profile and Healthcare Factbook.
* 12 months ending March 2004

Full replacement of wholesalers with direct distribution by manufacturers at equivalent service levels would add an estimated \$10.5 billion per year to industry costs, equivalent to an 11.6 percent increase in manufacturers' total costs.¹⁹

A drug shortage can have many potential causes, such as manufacturing disruptions, a shortage of raw materials, a voluntary recall, a decision to cease production of a particular product, or inaccurate demand forecasting. It has also been suggested that investment buying contributed to shortages as large supplies were purchased by wholesalers or retailers.²⁰

There is evidence to suggest that drug shortages have become more prevalent during the period when IMAs began to be implemented. *The New York Times* recently reported that "...drug supply disruptions in the United States have become routine."²¹ Shortages are also lasting longer today than in the past. As of June 1, 2004, there were 66 active drug shortages, but only 11 of them began in 2004.²² At this point, information in the public domain is not sufficient to directly link shortages of specific drugs to inventory management agreements between manufacturers and wholesalers.

RECOMMENDATIONS

Manufacturers and wholesalers must work together to study the impact of inventory agreements on availability and access.

The industry should take a leadership role in studying the potential supply chain impact of manufacturer-wholesaler agreements. If these agreements have contributed to drug shortages, then substantial costs may have been added to the whole U.S. healthcare system. Possible areas of impact include the following:

- Patient care – The impact of drug shortages on patient care can be significant due to treatment delays or inappropriate product substitution.²³
- Higher pharmaceutical prices – A recent survey of U.S. pharmacy directors estimated that drug shortages added \$100 million to U.S. hospital costs because of higher prices paid during a shortage.²⁴
- Operating costs of healthcare institutions – Drug shortages burden healthcare institutions with substantial indirect costs associated with time spent tracking shortages, locating alternative suppliers, or identifying therapeutic alternatives.
- Integrity of the pharmaceutical supply chain – In the event of a product shortage, two-thirds of hospital pharmacy directors use secondary wholesalers as a resource to obtain needed supplies.²⁵ If inventory agreements have contributed to drug shortages, then they may also have had the unintended consequence of encouraging the use of unauthorized wholesale companies.

The Healthcare Distribution Management Association (HDMA) has developed a set of voluntary industry guidelines for ensuring product availability in the event of a shortage.²⁶ Manufacturers and wholesalers should work together to evaluate the products that have been listed as being in short supply on the ASHP Drug Product Shortages website²⁷, determine if inventory agreements have contributed to shortage or limited availability either nationally or regionally, and take corrective actions to minimize any potential disruptions to patients or quality of care.

Manufacturers should only accept performance-based fee-for-service agreements with wholesalers.

Pharmaceutical manufacturers should recognize that they can use fee structures to leverage their influence and encourage true supply chain partnerships. Successful fee-for-service agreements can reward concrete actions by wholesalers to build manufacturer brands, lower healthcare supply chain costs, or speed the availability to patients of beneficial new products.²⁸

Channel compensation programs represent powerful tools for motivating change and driving business results. Representative outcomes include service levels to retail customers, transparency to customer sales and inventory, control over secondary market activities, price integrity across channels, or reduction of the manufacturer's internal supply chain costs. In our view, the recently announced performance-based distribution agreement between Eli Lilly and Cardinal Health²⁹ represents a step in the right direction.

All three major wholesalers are attempting to replace lost profits from investment buying with new fee-for-service agreements in which wholesaler compensation is not linked to pharmaceutical prices. Fee-for-service is a compensation approach in which manufacturers pay directly for the wholesaler's services rather than having the value of those services bundled into a gross margin or unreported forward buying allowance.

By separating product costs from service costs, fee-for-service pricing could provide a more accountable way of measuring and compensating for the value activities in the supply chain. Many wholesalers outside of the pharmaceutical industry are also experimenting with these new approaches.³⁰

Without a strategic approach, manufacturers risk formalizing the non-productive inventory shifting dynamic of the past few years and incurring much higher costs today as well as higher costs to remedy the situation later. Fee-for-service payments by manufacturers to wholesalers should be designed to reward concrete actions that lower overall supply chain costs, not merely encourage an inventory shell game.

Wholesalers will have to accept much higher levels of accountability than in the past. Fee-for-service will change relationships from seller-buyer to customer-service provider. The wholesaler is selling a service to the manufacturer, who is now explicitly a customer and can hold the wholesaler accountable. We have not yet seen the full implications of this power shift.

One barrier to change has been the organizational and budgeting processes that manufacturers use to manage their channels to market. Despite the potential for commercial and financial impact, many manufacturers relegate relationships with wholesalers to functional areas such as supply chain or customer service that lack a strong connection to commercial strategy.

Manufacturers should no longer bear sole responsibility for the majority of wholesaler compensation.

In other industries, a distributor's sell-side margin comes from both manufacturers and customers. Manufacturers set prices or provide buy-side incentives that allow a distributor to earn a "fair" margin, while distributors provide value add that customers recognize and are willing to pay for.

The dynamics of the healthcare industry have created an unstable situation in which powerful customers have successfully demanded that the cost of a wholesaler's service be deleted from the price. Manufacturers have been responsible for almost all of a wholesaler's profit margin on product distribution.

Going forward, wholesalers will have to accept even more responsibility for developing new service innovations for customers. Customers will resist paying for services that were once received for free, even if those customers can be convinced of the economic logic behind a fee. A senior executive with Amerinet, one of the largest group purchasing organizations (GPOs), recently stated that healthcare providers are not able to bear any increased costs due to fee-for-service arrangements between manufacturers and wholesalers.³¹

Therefore, wholesalers will have to move even farther away from their physical distribution roots to become suppliers of customized and differentiated relationships that provide customers with related services instead of merely reliably providing goods.

Actual experience has already shown that services can be more profitable than the core wholesaling business. Pharmaceutical wholesalers have been adding higher margin services for customers, such as on-site inventory management, pharmacy automation, pharmacy staffing services, and technology consulting. Instead of struggling to get customers to pay for previously “free” services, they have built new fee-based services as well as acquired existing service companies. These services help hospitals and pharmacies provide better end-to-end patient care and increase operating efficiencies.

AmerisourceBergen, Cardinal Health, and McKesson have all demonstrated the disproportionate profit impact of their service operations versus pure product distribution. Nevertheless, it is not yet clear if service businesses will have the scale to compensate for the lost profits from investment buying. A services business has a very different economic model. Services revenues are lower because fee-based services do not include the pass-through cost of goods sold. Return on total assets rises because services do not add to inventory assets and add relatively little to accounts receivables.

Controlled investment buying should be allowed to gradually return as a source of wholesaler profit.

Manufacturers and customers both rely on competition among wholesalers to ensure fair pricing and excellent service. Superior profitability of the core product distribution business derives from being better at the basic services as well as capturing favorable pricing opportunities with strategic investment buying.

In light of the changes documented in this paper, the virtual elimination of investment buying was a radical change in supply chain behavior that appears to have had many unintended consequences, including an apparent increase in total supply chain costs and a potentially increased risk of drug shortages.

We believe that the goal of manufacturer-wholesaler inventory agreements should be to shift costs to the most efficient point in the supply chain without compromising patient access to medicines. Manufacturers and wholesalers must evaluate the supply chain expense and product access implications of IMAs to determine if the cure has not been worse than the disease.

Customer buying power and the likely slowdown in drug price inflation preclude a return to investment buying on the scale seen previously. However, controlled investment buying could be allowed to gradually return if manufacturers restructure IMAs to allow wholesalers more flexibility. Tight limits and strict accountability should be put in place to ensure that this source of profit should never become as important to wholesalers as in the pre-IMA period. In our view, investment buying should not increase to more than 15 to 20 percent of wholesaler gross margin.

Placing some limits on investment buying will also encourage more manufacturers to consider the performance-based fee-for-service agreements suggested above. Otherwise, some manufacturers may reject fee-for-service compensation in order to retain the option of using wholesalers as a conduit to take on product at the end of the month or quarter to meet sales targets.

Investment buying forced manufacturers to use the sales and profit dollars they could have earned to compensate wholesalers for distribution services. As a result, a partial return to investment buying may reduce drug price inflation slightly if manufacturers choose to pass along these supply chain savings to patients.

ENDNOTES

- ¹ See *Facing the Forces of Change: The Road to Opportunity* (2004). Available at www.nawpubs.org.
- ² Adam J. Fein, "Understanding evolutionary processes in non-manufacturing industries: Empirical insights from the shakeout in pharmaceutical wholesaling," *Journal of Evolutionary Economics*, 1998. Available at www.PembrokeConsulting.com.
- ³ *1996 NWDA Industry Trend Report*, National Wholesale Druggist's Association, and *2004 Industry Profile and Healthcare Factbook*, Healthcare Distribution Management Association.
- ⁴ These figures come from the *Annual Benchmark Report for Wholesale Trade*, US Census Bureau. Comparable data from earlier periods are not available.
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- ⁷ "Bristol and SEC Define Normal Inventory Levels as One Month," *The Pink Sheet*, August 9, 2004.
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Published in March 2005

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