

The Role of Group Purchasing Organizations (GPOs) in the U.S. Medical Industry Supply Chain

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ABSTRACT

A group purchasing organization (GPO) is an intermediary in the supply chain for pharmaceuticals and medical equipment. Hospitals and clinics join GPOs in order to aggregate purchases and thereby extract lower prices from suppliers. In the United States, GPOs currently account for more than \$25 billion of hospital procurement.

Though supporters of GPOs claim they save hospitals and clinics considerable sums, several recent studies have found that lower prices can often be obtained outside of the GPO. This paper argues that GPOs have turned the market for medical products in the U.S. into a bilateral oligopoly. Congressional hearings in 2002 and 2003 revealed that several GPOs had been engaged in non-competitive practices, such as receiving excessive rebates and providing executives with stock options in supplier companies. Faced with possible anti-trust suits and greater Federal government oversight, GPOs have begun to modify their behavior. All this means a solid gap between theory and practice.

Keywords: oligopoly; health care; group purchasing

El Papel De Las Organizaciones De Grupos De Compra (Gpos) En La Cadena De Suministros Médicos En Estados Unidos

RESUMEN

Los grupos de compra (GPOs) son intermediarios en la cadena de suministro, tanto farmacéuticos como de equipo. Los hospitales y clínicas se agrupan en estas organizaciones de compra con el objeto de obtener mejores precios de los proveedores y en la actualidad suponen más de 25.000 millones de dólares del presupuesto de los hospitales norteamericanos.

Mientras que los defensores de estas organizaciones afirman que contribuyen a ahorrar cantidades importantes de recursos a los hospitales y clínicas, algunos estudios recientes señalan que se podrían obtener precios más bajos fuera de estas organizaciones. En el presente artículo se pone de manifiesto que estas organizaciones han transformado el mercado americano de suministros médicos en un oligopolio bilateral. Las audiencias del congreso en 2002 y 2003 revelaron que varias GPOs habían estado implicados en prácticas contrarias a la competencia como la percepción de rebajas excesivas, o la entrega a sus ejecutivos de opciones sobre acciones de las compañías proveedoras. Actualmente estas GPOs han modificado ligeramente sus conductas aunque sigue existiendo una amplia diferencia entre la teoría y su aplicación práctica.

Palabras clave: Oligopolio, Salud, Grupos de compra.

JEL Classification: I1

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1. INTRODUCTION

GPOs – group purchasing organizations – have become increasingly important in the supply chain of pharmaceutical products and medical equipment in the United States.

This paper examines both theoretical and policy issues presented by GPOs. It begins with a short history of U.S. GPOs, which is followed by a theoretical discussion that explains how they came into existence.

These theoretical considerations will have to be mitigated by experimental facts and figures, which will be taken up in a third section: how do U.S. GPOs operate concretely, how do their members judge them, and how do vendors respond to their presence? It should be underscored that there has been no empirical research in the United States on the problem, so this study fills a gap. The available figures used have been carefully checked and will substantiate the developments just mentioned.

Market efficiency is then taken up in a fourth section, followed by conclusions and references.

2. THE EVOLUTION OF GROUP PURCHASING ORGANIZATIONS

A group purchasing organization (GPO) is an intermediary in the supply chain for a number of items including pharmaceuticals, medical equipment, and supplies. The original idea behind the GPO was to convey some market power to small hospitals, clinics, and individual medical practitioners by aggregating purchases of large-volume, disposable items such as syringes, catheters, and pharmaceuticals. Since then, GPOs have dramatically changed the way health care goods, especially pharmaceuticals, are marketed to hospitals and clinics. For example, membership in a GPO gives medical facilities more bargaining power when dealing with vendors that can result in lower prices, higher service levels, or both. Presumably, these collaborative activities allow participants to achieve efficiencies that will ultimately benefit patients at their institutions.

GPOs started evolving in the late 1950s. As of 1962, there were 10 GPOs in existence, but their focus was metropolitan or statewide, such as the Hospital Bureau of New York, which did purchasing for the city's municipal hospitals. The products in the 1960s were primarily large-volume disposables and other commodity items. Agreements generally were for one year, and no administrative fees were paid.

Growth of GPOs accelerated in the 1970s, and by the end of that decade more than 120 GPOs were in operation. Importantly, with the entry of private, investor-owned hospitals and nursing homes during the 70s, national accounts began to evolve, and consolidations began among many of the GPOs. At about this time, the spectrum of products purchased by the GPOs expanded, with drugs becoming an ever-larger portion of purchase contracts.

The 1980s witnessed continued expansions and consolidations both on the demand and supply sides of the medical marketplace. Investor-owned health services providers multiplied dramatically as many public and not-for-profit hospitals were sold to private companies. At the same time, not-for-profit hospitals, clinics, and nursing homes expanded in size through consolidation. Indeed, by the late 1980s, consolidation was the rule in the investor-owned sector of the hospital industry as well (“Purchasing Groups,” 1996).

As GPOs grew during the 1980s and 1990s, so did their membership. For example, in 1992 it was estimated that 88 percent of hospitals were members of a GPO (Scott, 1995). By 1994, only 27 U.S. hospitals did not belong to a GPO or purchase through a government contract. VHA, one of the larger GPOs, was founded in 1977 with a membership of 30 hospitals. By 1988, VHA had 834 members, and the number rose to 1,650 in 1997. Now called Novation (due to the consolidation of UHC and VHA, see below) it has more than 2,200 members. The typical large GPO today includes hospitals and clinics of all sizes and institutions providing both general and specialized health services.

GPOs have also become fewer and larger over the past decade. For example, in 1990 the purchasing programs of the Greater New York Hospital Association, Rochester Regional Hospital Association, and Nassau-Suffolk Hospital Shared Services formed a new group called Healthcare Purchasing Alliance. In 1996, three of the largest GPOs at that time—Premier Health Alliance, SunHealth Alliance, and American Healthcare Systems—merged into Premier. In 1998, Novation became the largest GPO in the U.S. by combining the supply programs of the VHA and the University HealthSystem Consortium.

As GPOs have consolidated, the lion’s share of the contracts has ended up in the hands of a small group of GPOs. Whereas in 1994 the bulk of contracting could be found in 56 GPOs, currently the six largest GPOs administer almost \$25 billion in contracts for about 80 percent of the nation’s 5,400 acute-care hospitals (Becker, 2001). Novation and Premier by themselves account for more than \$17 billion in purchasing volume. By contrast, in 1991 total purchasing by *all* the GPOs in the U.S. totaled \$11.1 billion. And a recent study by Muse & Associates, conducted for the Health Industry Group Purchasing Association (HIGPA), estimated that GPOs accounted for between 72 and 80 percent of the \$206 billion of hospital and nursing home non-labor expenditures in 1999 (Muse, 2000). Of that, hospitals spent an average of 12.5 percent (\$21.9 billion) on pharmaceuticals.

3. A THEORETICAL MODEL: ON OLIGOPOLY, POLY- AND OLIGOPSONY.

In this section we lay the theoretical basis for the empirical analysis to come. We start by defining the relevant variables:

- a = index of an oligopoly cum polyopsony situation;
- b = index of an oligopoly cum oligopsony situation;
- π = profit;
- q_i = quantity bought by a polyopsonist, i;
- p = price charged by the oligopolist considered;
- q_i^* = quantities bought by the other clients of that oligopolist;
- r = probability that those clients will start claiming the price reduction claimed by buyer i;
- q_{\sim} = relates to quantities in a possible price war;
- s = the probability of such a price war;
- q = quantities bought by an oligopsonist;
- q^* = quantities bought by the other clients of the oligopolist considered;

In current terminology one finds the expression “bilateral oligopoly,” but we prefer to qualify the buyer with either “polyopsonist” (the case of dispersion of independent buyers) or “oligopsonist” (a limited number of buyers—i.e., the GPOs).

The following assumptions will be made:

A₁: the selling industry (pharmaceutical firms, producers of medico-technical equipment) is organized on an oligopolistic basis;

A₂: it faces a generalized kinked oligopoly demand curve, generalized in the sense that products may differ by some special qualities; in other words the oligopoly is diversified, so the kinks in the demand curves may lay on different price levels;

A₃: costs will be ignored, as in practice they are sunken costs from research and development.

The model then runs as follows.

3.1. Situation a

The expected losses in the respective left and right hand expressions of the inequality in equation (1) concern the losses due to no price reduction on the one hand and a price concession on the other. No concession will be made if:

$$-q_i p > -q_i \Delta p - r q_i^* \Delta p - s \Delta q_{\sim} (p - \Delta p) \quad (1)$$

or:

$$q_i < (q_i + r q_i^* + s \Delta q_{\sim}) \Delta p / p + s \Delta q_{\sim} \quad (2)$$

For a small polyopsonist, this condition is likely to be satisfied. It is to be contrasted with the following case.

3.2 Situation b

The analog of equation (2) is here:

$$q < (q + r q^* + s \Delta q_{\sim}) \Delta p / p + s \Delta q_{\sim} \quad (3)$$

Under the decision rule mentioned above, this is much less likely to be satisfied, so price concessions are to be expected. The rule itself sets a maximum to their order of magnitude, as do the sunk costs mentioned under assumption 3.

4. EXPERIMENTAL FACTS AND FIGURES

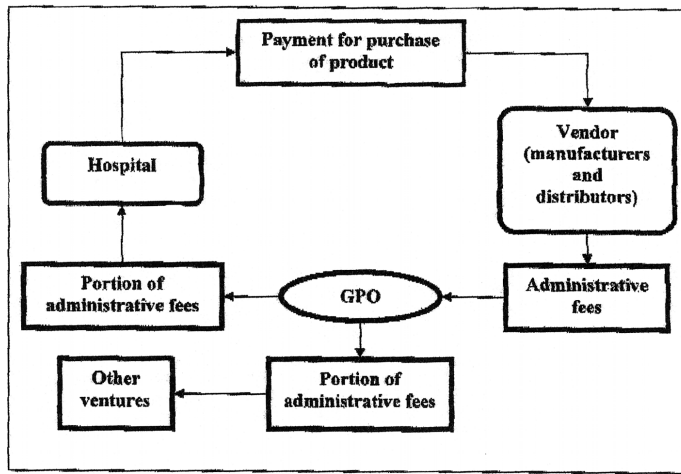
In this section – keeping in mind the teachings of the theoretical model – we expose how practice has managed to follow its lines of thought. We start with the operating rules of GPOs.

4.1. How GPOs operate in practice

Typically, a GPO obtains from vendors price concessions for all its members and administrative fees in exchange for some guaranteed minimum purchase volume. To deliver the minimum volumes necessary to negotiate attractive purchase contracts, the GPO must maintain discipline over its members. A GPO can do this in one of two ways: It can terminate an institution's participation in the GPO, plan or it can withhold so-called "incentive payments," which are actually rebates from vendors (Hensley, 1997). Further, even in cases where a hospital might be able to secure lower prices

on certain drugs, the GPO also seeks compliance by promoting the notion that over the long-term members will realize lower overall operating costs as a result of GPO membership. Figure 1 presents a schematic of a typical GPO's operation.

Figure 1. Money flows related to hospital purchases using a GPO.



Source: Author

Usually, GPO contracts with vendors have terms of three years or longer. To qualify for discounts, hospitals and other health care facilities must purchase between 50 and 95 percent of their requirements from GPO-contracted vendors. In general, the level of discounts rises in tandem with the percent of purchases. GPOs also assist hospital staff with product standardization and comparison shopping as well as streamlining their health care products and services. In addition, GPOs assist hospitals with procurement, storage and transfer of pharmaceuticals, supplies, medical equipment, and food.

4.2. GPOs from the members' perspective

As discussed above, in most cases the agglomeration of purchasing power through GPOs allows member institutions to lower their procurement costs significantly. Indeed, HIGPA claims GPOs saved hospitals about \$19 billion in outlays during 1999 (Muse, 2000). Not surprisingly, hospital administrators are reluctant to purchase products outside the GPO for fear of losing manufacturers' rebates as well as administrative fees that are paid by vendors to the GPOs and partially passed through to member hospitals, clinics, and nursing homes to the extent they exceed operating costs.

At the same time, health care providers—especially hospitals—are under increasing pressure from insurance companies and government agencies to control costs. Purchasing through GPOs is viewed as one way to hold down costs, not only by extracting discounts from vendors but also by reducing the number of products and pharmaceuticals in the hospital formulary. Put differently, if two devices or drugs are perfectly substitutable, a hospital can reduce its inventory costs by stocking only one in its formulary. What's more, by relinquishing contracting and negotiating authority to the GPO, member hospitals can significantly reduce their administrative expenses.

4.3. GPOs from the vendors' perspective

In practice, the GPOs have become the “gatekeepers” for pharmaceutical and medical equipment companies wishing to sell to the lion's share of the nation's hospitals, clinics, and nursing homes. With contracts becoming longer in duration and higher in percentage of purchases, top flight vendors must sign up with GPOs, leaving only lesser vendors to consider the independent route. In practice, vendors—and most especially pharmaceutical companies—must do business with GPOs if they are to maintain or increase their market share.

5. MARKET EFFICIENCY

The central problem – from the analytical viewpoint – is to know whether GPOs have contributed to more transparent markets, as the situation previously was one of oligopoly-polyopsony, in which oligopolists fix prices according to the model selected by the vendors – Cournot, Bertrand, price leaders, and the like. The model of section 3 predicts benefits for buyers, allowing them to better balance budgets.

Two points will be considered in this critical interpretation: to wit, competition and innovation on the one hand, market dominance and organizational flaws on the other.

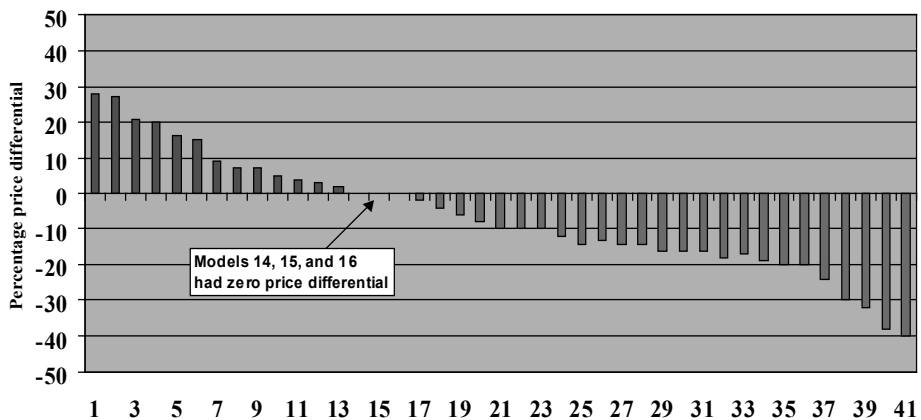
5.1. Do GPOs restrict competition and innovation?

Supporters of GPOs claim these organizations are saving member hospitals about five percent on commodity products and as much as 25 percent on high-tech equipment. But critics argue these organizations, by removing purchasing decisions from clinicians, limiting competition, and discouraging products innovation, may actually be inflating medical costs. They also point out that because vendors pay administrative fees to the GPOs, ostensibly to cover their operating expenses, contract prices are inflated above those that would prevail in an arms-length transaction.

A recent study by the U.S. General Accounting Office found that large buying groups do not always offer hospitals lower prices (GAO, 2002). For example, for some pacemaker models, the hospitals using GPO contracts got considerably better prices—up to 26 percent lower—than hospitals buying outside a GPO. But for other hospitals, using a GPO contract resulted in prices up to 39 percent *higher* (see Figure 2). For hospitals participating in very large GPOs—more than \$6 billion of annual purchases—prices paid for the most popular pacemaker models were almost universally higher than would have been the case buying outside the GPO.

Figure 2. Differences between median GPO contract prices and median non-GPO contract prices for 41 pacemaker models.

Source: GAO survey of hospitals in a greater metropolitan area.

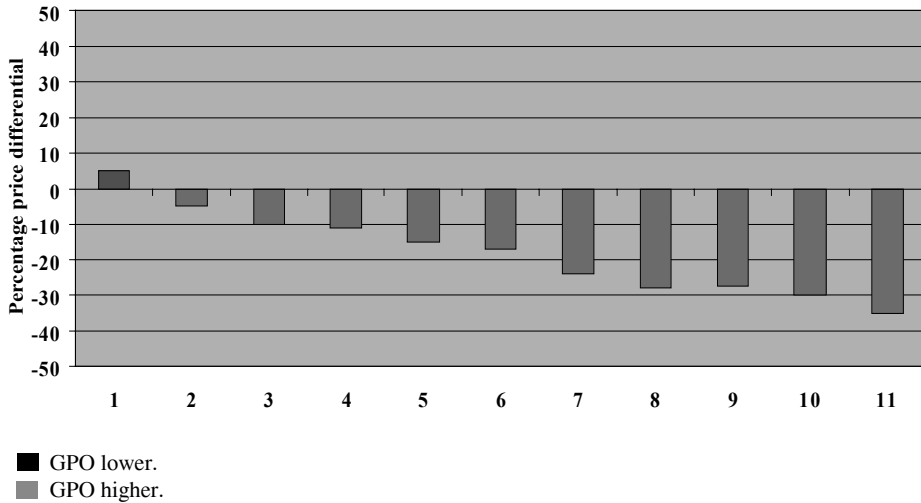


■ Models for which GPO contracts yielded savings compared to hospitals purchasing their own.

■ Models for which GPO contracts did not yield savings compared to hospitals purchasing on their own.

Figure 3. Differences between GPO contract prices & non-GPO contract prices for 11 pacemaker models purchased by large hospitals.

Source: GAO survey of hospitals in a greater metropolitan area.



Without question, GPOs are practicing something akin to exclusive dealing with their vendors and members. They typically require participating hospitals to utilize the purchasing organization for 80 to 95 percent of their requirements in a particular product line. Some GPOs actually forbid members from contracting independently for *any* products. To maintain discipline among member hospitals, the GPO has two courses of action: it can terminate the institution’s participation in the plan, or it can withhold so-called “incentive payments,” which are actually rebates from vendors.

The most serious criticism of GPOs comes from small manufacturers who find it difficult to get their products into the marketplace, even within the five to 20 percent “outside purchase window” allowed by some of these organizations (Weinstein & Clower, 1999). Many GPOs require alternative products to be “significantly different” to justify an outside purchase. But what constitutes significantly different is open to broad interpretation, and most hospitals don’t want to risk losing promised discounts through the GPO. To make matters worse, the duration of purchase contracts has grown to seven years and longer, making the entry of new vendors even more problematic.

In short, the market for medical products in the United States is rapidly becoming a bilateral oligopoly—that is, relative few suppliers selling to relatively few buyers. With high barriers to entry, product innovation is discouraged which, in turn, may be putting patients and medical practitioners at risk. And while the GPOs claim they’re saving member hospitals money, the continued escalation of healthcare costs suggests

otherwise. After all, what incentive do GPOs have to lower purchase prices when their salaries and overhead expenses are being covered by the manufacturers from whom they're buying?

5.2. Lawsuits and the threat of regulation: Can GPOs change their ways?

GPOs have come under scrutiny in recent years as a result of lawsuits filed against them by small manufacturers as well as a series of Congressional hearings focusing on unfair competitive behavior. Hearings in 2002 and 2003 revealed that several GPOs were receiving excessive rebates and that some executives had been awarded stock options in supplier companies (Walsh, 2002). Facing possible anti-trust and anti-kickback action, or even Federal regulation of their operations, the largest GPOs—Novation and Premier—agreed to use more suppliers, shorten the length of contracts, and limit fees from suppliers (Walsh, 2004). Both Novation and Premier promised they will no longer require hospitals to “bundle” purchases nor will they invest in supplier companies. They also agreed to drop their 90 percent minimum purchase requirement policies.

At the same time, many hospitals have decided to unilaterally withdraw from GPOs, finding they can do better negotiating with suppliers directly. For example, a 10-hospital chain in Iowa recently left Premier and now negotiates directly with vendors, claiming they're saving 12 to 14 percent over the prices they paid to Premier. Because manufacturers don't have to pay administrative fees to the GPO, they can pass these savings on to hospitals and clinics. What's more, shorter contracts allow hospitals to take advantage of falling prices when that occurs.

Finally, GPOs are being disciplined by the growing importance of electronic commerce. Hospitals and clinics can now “shop” for their requirements on the internet, which allows them to easily receive multiple bids from a variety of vendors. In short, technology may make the middlemen—the GPOs—obsolete.

6. CONCLUSIONS

In terms of the model of section 3 in particular, and economic market theory in general, GPOs represent a typical case of partial market failure due to a number of factors.

But we should recognize that GPOs also convey some benefits that have helped hospitals to increase their operating efficiency. These include:

- price discounts, allowing to control operating costs;
- technical assistance, such as product standardization;
- pressure on vendors.

On the other hand, it has been argued that GPOs discourage long run innovation (see again section 3, especially assumption 3 about sunk R&D expenses). A monopoly-monopsony market model – with possible lateral polyopsonist and polyopolists – might have pushed the market towards game-theoretic solutions which – as a function of the strategies played – would not be detrimental to both parties involved. In fact the argument of section 3 has been conducted along those lines.

Finally, weak points lie within the operations of GPOs, which have their main expenses covered by their own vendors. An alternative would be to have those expenses covered by the joint buyers—which might still be profitable for the latter—with the GPOs functioning as their brokers, thereby guaranteeing minimal price reductions on a “no cure no pay” basis.

America’s experience with GPOs may have lessons for other countries. Though the American healthcare system is largely private, a GPO approach to medical cost control in countries with national health systems (NHS) might make sense. For example, the Netherlands will adopt a uniform healthcare system starting in 2006. Expensive new drugs, such as Taxol and Plavix, may threaten the budgetary equilibrium of Dutch hospitals. Perhaps these hospitals could pool their purchasing power through a GPO-type organization that could negotiate for lower drug prices.

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