

The Spread – Exploring the reason for the high cost of pharmaceuticals



By Chuck Dinerstein, MD, MBA — June 1, 2017

The difference between the cost of a product or service and the price charged for that product or service is the spread. The pharmaceutical industry, more of a pharmaceutical industrial complex (PIC), has been responsible for many miraculous things. Harvoni, a medicine that has a greater than 95% efficacy in eliminating Hepatitis C, for example. But there is no more extraordinary feat by the PIC than for a manufacturer to price a medication at \$10 a pill, receive \$5 a pill as payment and along the way they and five or six intermediaries profit – and profit hugely. This ‘miracle’ of market forces, regulation and brokers are the ‘secret sauce’ behind the increasingly frequent distress over the high cost of drugs. The spread drives and often best describes these forces. Rather than blindly continue to blame manufacturers, or wholesalers, or the latest villain, pharmacy benefit managers (PBMs) it is time to view PIC through the lens of the spread.

My original goal was I to find both the manufacturer’s ‘sticker price’ as well as the lowest price possible. I discovered that this is an impossible task, Adam Smith’s invisible hand [1] is not so much invisible as deliberately opaque. I am not alone in this dilemma. After a brief introduction, I will consider the spread and its interaction among the PIC’s players - drug manufacturers, distributors or wholesalers, and retail pharmacies that physically provide the drug to a patient. As well as the payers, insurance and the government and finally intermediaries, pharmacy benefit managers, and price publishers.

Introduction

The PIC is a big business. In 2015, pharmaceutical sales in the US amounted to \$333 billion or about 1.9% of our GDP. It represents about 11% of total healthcare spending. Directly or indirectly PIC employs 3.4 million individuals in the US. In the words of our Commerce Department, “The United States has one of the world’s most supportive domestic environments for the development and commercialization of pharmaceuticals with minimal market barriers.” Because of strong protection of intellectual property, an extensive scientific research base and direct to consumer marketing, we are the largest free-pricing market in the world – three times the size of China, our nearest competitor. But enough bragging about how big we are, it is tiresome, and everyone does it. Let’s begin with the first of the players, the drug manufacturers.

Manufacturers and wholesalers

Price setting by the manufacturers is based on competition between like manufacturers. The branded compete among themselves; the generics among themselves. Now branded pharmaceuticals prices are always higher than the generics, after all, there are research and development (R&D) costs generics do not have. And branded pharmaceuticals spend money on

branding itself, to create a quality brand-name value that generics do not have. For a portion of the market, a brand name is an important signal of quality, and they will pay extra for it. When cost is only a secondary consideration, are you a Tesla or a Prius owner; what is your signal? Branded pharmaceutical manufacturers compete within the market of people who desire brand names, the market is smaller but the prices and profits greater. Generics were thought to be the remedy for high prices, bioequivalent products providing the same chemistry as the branded version at lower costs. A far larger market developed for those lower prices. But becoming a generic manufacturer was a lot easier to do than to become an innovative pharmaceutical manufacturer. There were more generic manufacturers and their product, by definition, was identical - they could only differentiate on price, and that is what they do. The prices set by these two groups of manufacturers are different because they sell to markets with different needs.

In calculating costs manufacturers consider the cost of physically producing the drug, the cost of R&D, packaging and delivering the drug, the cost of advertising their product and running their company. Setting the price is a guess about how much the market will demand your pharmaceutical. Drugs that cure rather than comfort and drugs serving the needs of less common disease with smaller markets are the most in demand. Profit resides and hides within the spread, but there are only three factors to control cost, price, and volume. Increasing the spread requires lower costs, higher prices, increased volume alone or in combination. As we wander deeper into the pharmaceutical market, ignore price, maintaining the spread is the driver.

About a hundred years ago pharmaceuticals or drugs (the words are interchangeable), became efficacious and there was a reason to produce them in bulk. There was a single market, consisting of a manufacturer and a pharmacy, seller, and buyer. For the manufacturer, the biggest difficulty was to find, sell and deliver to so many small drug stores. Distribution, especially to many customers was not their 'core competence.' So, they enlisted a wholesaler who took actual possession of the drug, found clients and delivered the pharmaceuticals to them – all for a small fee covering the wholesaler's cost of doing business and profit, the wholesaler's spread. The fee charged by the wholesaler became the manufacturer's cost of distribution, incorporated into calculating their spread.

As the market grew with many manufacturers and wholesalers, competition breaks out to find the best deals. Manufacturers maximize their spread by paying the wholesaler with the lowest fee and largest volume of customers; while wholesalers maximize their spread by paying less for the pharmaceuticals, finding more customers and charging them higher prices. Supply and demand curves, utility functions and other economic measures can quantify these changes, but for our purposes, Adam Smith's invisible hand is a simpler description as each player seeks to optimize their spread driving the market toward an equilibrium of these interests.

The invisible hand's balance is never perfect; there are frequently small differences within a market that allow someone to exploit (leverage) that difference to their advantage. So, it is not surprising that at least one wholesaler noticed that every year in December, manufacturers raised their prices. If the price increase was greater than the wholesaler's cost of holding excess inventory, a wholesaler could enhance their spread by 'stocking up' at December's lower price and selling in January at the new higher price, keeping the price increase for themselves. Arbitrage,

exploitation of small differences, in this instance purchasing for a future sale requires information about future demand. Wholesalers have information on anticipated sales and warehouses, that is their business, so wholesalers began making investments in pharmaceutical purchases buying low to sell high. Wholesalers only risk was that they would be no market for those stockpiled pharmaceuticals. But their sales information pointed to a market with stable demand, people with chronic illness that require daily medications - the drugs of chronic disease. Soon other wholesalers detected and exploited the price difference. In this increasingly competitive market, a genuinely strategic wholesaler could lower their fees to the manufacturer, after all their spread was now larger – the reduced cost to manufacturers would make them a more attractive partner. The invisible hand of Adam Smith brought everything back into balance.

Meanwhile back at the manufacturer the people responsible for production noticed something very strange. Wholesalers were buying a lot of product in December and very little until June throwing off production schedules. Hours of overtime in December and little work to do from January to June. They soon recognized that wholesalers were hoarding product to increase wholesaler's spread at the expense of manufacturer's spread even though some returned to them in lower wholesaler fees. Manufacturers tried to reduce or eliminate this arbitrage by introducing inventory management agreements limiting the amounts of pharmaceuticals a wholesaler could hold (hoard). By limiting inventory to wholesaler's monthly needs, production costs were reduced, and the price increase returned to the manufacturer. The invisible hand returns us to a new equipoise.

Wholesalers and Retailers

Wholesalers have their customers, the pharmacies that distribute the product to patients. Pharmacies buy the drug from the wholesaler and add a fee, covering the cost of running their enterprise and dispensing the medication. The dispensing fee incorporates all their costs and profit – it is their spread. To the wholesaler, the pharmacy with the largest volume is the best customer, makes sense. Their volume increases the wholesaler's profit through sales and reduces wholesaler's costs by the efficiencies of delivery and billing to a few large customers rather than many small clients. But at some point, pharmacies begin to recognize they improve their spread by lowering pharmacy's acquisition cost. Perhaps a wholesaler will sell pharmaceuticals for slightly less, a wholesaler who sees the advantage of selling 1000 units for a profit of 4% versus selling 700 units for a profit of 5%. So, the large retail pharmacy, the volume purchaser, increases their spread. The decrease in the wholesaler's spread can be accepted as their cost of doing business or propagated upstream to the manufacturer when the wholesaler asks for a further reduction in their cost because of the increasing volume of sales they bring to the manufacturer. And the market returns to a new equilibrium among the spreads.

Payers

But customers are no longer paying all their pharmaceutical bills, insurance covers the costs for some (36% ^[1]), for others it is the government (33%) and for a decreasing number (30%) payments come directly from their pockets. Insurance companies have been using predictive analytics for longer than the term has been around, a lot longer. They put their actuaries to work and can predict what their expenditures will be in the near term, expenses that include purchasing pharmaceuticals. As volume purchasers, they turn to retail pharmacies asking for a better price,

after all, they buy for thousands of people so surely, they should get a break – which they do. Their lower price for the acquisition of drugs cuts a bit into the retail pharmacies spread. The pharmacies turn around and ask the wholesaler for a better price who in turn asks for a better price from the manufacturer. The request moves upstream, each market adjusting its spread, Smith's invisible hand resetting the equilibrium between these competing spreads.

In the second and final part, we will consider the interactions of competing interests resulting in the consolidation of market power and the role of intermediaries who lubricate the system by trading in and maintaining asymmetries of information that can be exploited.

[1] Adam Smith author of the Wealth of Nations is arguably the first economist to describe the workings of the free market.

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