



# Pharmacies and Cosmetic Packaging: Cost Control

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## ABSTRACT

Pharmaceutical packaging is one market across the globe which is advancing at constant pace. It is expected that market will grow to worth \$78.79Billion by 2018 [1]. Packaging is a key for sale, safety and success. Like other packaged goods, pharmaceuticals packaging need to be in

such a manner that it will provide speedy packaging, protection, identification, product quality, patient comfort, display and needs of security. Advancement in research of pharmaceuticals development had always being dependent on the packaging technology. Maintaining integrity of pharmaceuticals during storage, shipment, and delivery is assured by quality of packaging available. This article reviewing current pharmaceutical packaging trends and predicting the packaging outcomes in future.

**Keywords:** Pharmaceutical packaging, Current pharmaceutical packaging trends, Speedy packaging.

## 1. INTRODUCTION

Packaging is defined as a technique which allows containment of pharmaceutical product from the time of production in a unit till its use. Role of pharmaceutical packaging is to provide life saving drugs, surgical devices, blood and blood products, nutraceuticals, powders, poultices, liquid and dosage forms, solid and semisolid dosage forms. Packaging of pharmaceuticals essentially provides containment, drug safety, identity, convenience of handling and delivery. Pharmaceutical packaging has to balance lots of complex considerations. Leaving behind relatively simple issues such as developing good designs and communicating with customers, pharmaceutical packagers are concerned to more pressing concerns which include fighting with counterfeiting, encouraging patient compliance, ensuring drug integrity and balancing child-resistance and accessibility for the elderly. Issue of environment safety is also key concern for both developed and developing countries packaging industry. Pharmaceutical packaging firms are some of the industry's leading innovators evident by the recent advancement in technology. The current trends are result of continuous series of challenges faced by industry. Packaging is a science which is continuously evolving and is a major success contributor for pharmaceutical industries. Categorically differentiating pharmaceutical packaging:[1-5]

**1. Primary Packaging:** This is the first packaging envelope which is in touch with the dosage form or equipment. The packaging needs to be such that there is no interaction with the drug and will provide proper containment of pharmaceuticals. E.g. Blister packages, Strip packages, etc.

**2. Secondary Packaging:** This is consecutive covering or package which stores pharmaceuticals packages in it for their grouping. E.g. Cartons, boxes, etc.

**3. Tertiary packaging:** This is to provide bulk handling and shipping of pharmaceuticals from one place to another. E.g. Containers, barrels, etc. [6]

**Packing:** Packing consists of enclosing an individual item, or several items, in a container, usually for shipment or delivery. This operation is mostly done by hand and machine. **Pharmaceutical Packaging:** Pharmaceutical packaging means the combination of components necessary to contain, preserve, protect & deliver a safe, efficacious drug product, such that at any time point before expiration date of the drug product, a safe & efficacious dosage form is available. [7]

**Primarily two types of containers are used for packaging:**

**1. Glass Containers**

**2. Plastic Containers**

**Glass Containers:** These need to be chemically inert, impermeable, strong and rigid proving FDA clearance.

**Four types of Glass is being used in pharmaceutical industry,**

**1. Type I-Borosilicate glass:** Highly resistant and chemically inert glass. Alkali's and earth cations of glass are replaced by boron and/or aluminum and zinc. These are used to contain strong acids and alkalis.

**2. Type 2-Treated soda-lime glass:** These are more chemically inert than Type I glass. The glass surface is de-alkalized by "Sulfur treatment" which prevents blooming/weathering from bottles.

**3. Type III- Regular soda lime glass:** Untreated soda lime glass with average chemical resistance.

**4. Type IV- General Purpose soda lime glass:** Glass is not used for parenterals, used only for products intended to be used orally or topically. Colored glass is used to screen out Ultraviolet rays and is thus effective for protecting contents from light. Amber glass and red colored glass is used for this purpose. Major disadvantage of glass as a packaging material is its fragility and weight.[8]

**Plastic Containers:** Plastic containers of high quality can be easily formed with different designs. These packages are extremely resistant to breakage and leakage.

**Primarily plastic containers are made from the following polymers:**

**1. Polyethylene (PE):** Provides good barrier against moisture, relatively poor one against oxygen and other gases. High density polyethylene is used with density ranging from 0.91-0.96 leading to four basic characteristics of container, (1) Stiffness, (2) Moisture-vapor transmission, (3) stress cracking and (4) clarity or translucency based on polymer density used.

**2. Polypropylene (PP):** Polypropylene has features of polyethylene in addition it does not stress-crack in any condition. Hot aromatic or halogenated solvents soften the package. It has high melting point making it suitable for boilable packages and products needed to be sterilized. Brittleness at low temperature is its major disadvantages.

**3. Polyvinyl Chloride (PVC):** Can be produced with crystal clear clarity, will provide good gaseous barrier and stiffness. Reduction in residual vinyl chloride monomers had further enhanced PVC quality. PVC is used as coating on glass bottles providing shatter resistant coating.[9]

**4. Polystyrene:** Rigid and crystal clear plastic. Not useful for liquid products. Polystyrene has high water and gaseous permeability also these are easily stretchable and breakable. To increase their strength and quality for permeability polystyrene is combined with rubber and acrylic compounds. Based on the composition these are classified as intermediate impact, high impact and super impact packages.[10]

**5. Nylon (polyamide):** Many dibasic acids and amines combine to provide numerous varieties of nylon. Nylon is extremely strong and is quite difficult to be destroyed by mechanical means. Nylon provides resistance to wide range of acids and alkali only disadvantage of it is being permeable to water vapor for some amount this can also be dealt with coating of PE over the container. Not used for long term storage of products.

**6. Polycarbonate:** Has an ability to be sterilized repeatedly. It has immense rigidity and is a possible replacement for glass, vials and syringes. It has qualities like high dimensional stability, high impact strength, resistance to strain, low water absorption, transparency, and resistance to heat and flame. Polycarbonates have impact strength five times greater than any other common packaging plastics.

**7. Acrylic multipolymers (Nitrile Polymers):** These are polymers of acrylonitrile or methacrylonitrile monomers. These provide for packaging of those products which are not packed in usual packages as they provide for high gas barrier, good chemical resistance, and good strength.

**8. Polyethylene terephthalate (PET):** Condensation polymer formed by reaction of terephthalic acid or dimethyl terephthalic acid with ethylene glycol. It has excellent strength and provides barrier for gas and aroma making it as a useful package for cosmetics, mouth washes and other products. While there are different packaging materials approved by FDA for packaging it has to be known that FDA doesn't approve the container but its material that is being used. A list of substances considered by FDA are published as, "Generally recognized as safe (GRAS)". It's responsibility of manufacturer to prove the safety of a packaging material and to get an approval from FDA. The specific FDA regulation for drugs states, "Containers, closures and other component parts of drug packages, to be suitable for their intended use, must not be reactive, additive or absorptive to an extent that identity, strength, quality or purity of the drug will be affected." A material that is not included in GRAS can be used by manufacturer but prior to that manufacturer need to test the material and send the report to FDA for New Drug Application, NDA. [11-15] Current trends in pharmaceutical packaging "Need is mother of all Inventions", phrase is best describing the emerging technologies towards pharmaceutical packaging. Indian Packaging market is expected to grow up to US\$ 55 billion by 2020 from the 2009 levels of US\$ 12.6 billion, as per a McKinsey & Company report titled "India Pharma 2020: Propelling access and acceptance realising true potential". [16] Counterfeit prevention With counterfeiting accounting for annual losses estimated at \$75bn [1], packaging always been at the heart of the industry's strategy to protect itself. It has employed an array of security techniques to combat this issue, with varying success, including : micro text, debossing and embossing, customized varnishes, holographic materials, tamper- evident stickers, RFID (Radio Frequency Identification) track-and-trace tagging and customized graphics and fonts.

**1. Ink technology:** Technique allows color to reappear when rubbed or scratched. E.g. "Secur" labels, Ad Tape & Label, Menomonee Falls,

**2. Radio-frequency identification (RFID):** RFID is another technology with anti-counterfeiting potential. RFID tags can help authenticate products and support data collection for pedigree records. Equipment that encodes and prints tag-equipped labels verifies the tag before and after encoding. If a nonviable tag is detected before encoding, the label is marked with a checkerboard pattern and ejected. Good labels are encoded and rechecked. If tags read properly, labels are printed and their bar codes are verified. If the bar code doesn't scan correctly, the unit pulls the label back in, imprints it with a checkerboard pattern, ejects it, and encodes and prints a new label "Smartline SL4M RFID" printer, Printronix Inc., Irvine, . For automated applications, encode, print, and apply unit is available. It performs all the checks of the RFID printer and applies the labels at a maximum rate of 100/min "Smartline SLPA8000" label printer applicator, Printronix [18]. In multipanel labels, at least one label converter can incorporate ultrahigh-frequency (UHF) or high-frequency (HF) RFID inlays to support product security, inventory control, and track-and-trace functions "InfoPac label," Tursso Companies, St. Paul, MN . [19]. RFID can be combined with cryptography, to enable on- or off- network authentication. When the tag is encoded with the electronic product code EPC (Serialized 96-bit that can be encoded at a rate of as many as 550/min) it also receives a digital signature using public key infrastructure (PKI) based on IEEE 1363a [20]. Dual-function tags - RFID with temperature sensing, having cost less than traditional devices for temperature monitoring e.g. integrates a sensor, microchip, battery, and antenna on a paper-thin label e.g. 13.56 MHz "TempSens " smart label, KSW- Microtec, Dresden, Germany . This type of smart sensor label-equipped blister package is being used by the National

Institutes of Health (Bethesda, MD), for a multiyear study of chronic obstructive pulmonary disease that will involve nearly half a million individual doses of medication. Radio-frequency identification (RFID) tagging helps to simplify shipping, receiving, inventory location, and control has been mandated by the department of defense, several other retailers, and various hospitals. Carry and collect the data needed to track and trace product through the supply chain prevent counterfeiting and diversion coupled with sensors to monitor conditions during shipping and storage and provide alerts if parameters are exceeded.[21]

**3. Tamper-evident stickers:** Needs a special substrate designed for the purpose. The cellulose acetate film is very intricately designed so that it has adequate strength to undergo conversion into label stocks in roll form. The stickers can be automatically dispensed on automatic label dispensers and when attempted to be removed these break-up into very small pieces. Vinyl had now replaced acetate film being cost effective.

**4. Holographic materials:** Large and important part of the security label market and are an ideal choice for product authentication. The holographic foil an optically variable device is usually made using a polyester film base. The perception of the holographic image by the human eye makes it ideal for brand promotion and security. Packages reveal the holographic image when tilted against light source. By increasing the complexity of hologram manufacturer can make it difficult for counterfeiters to duplicate the products. Many holograms besides offering brand authentication also offer tamper evident properties. If the hologram is attempted to be removed, the top polyester layer will peel off leaving the hologram on package.[22]

## 2. RELATED CONCEPTS AND THEORETICAL BASIS RELATED CONCEPTS

### The concept of cost control

Cost control means that the main body exercising control is within the scope of power. Before the production, the management objectives and corresponding standards are formulated. In the production process, the actual costs are supervised according to the plans and standards, and the deviations are adjusted to ensure the goals. Cost control consists of "cost" and "control". The cost is the value that needs to be paid during the operation of the company. Control is the process of correcting and controlling. The scope of cost control involves a wide range, including the entire process of business management, including production costs, sales costs, research and development costs, human resources costs, quality costs and crisis costs. For the characteristics of their own companies, they can implement full-process cost control. According to the characteristics of the time flow and cost formation process of pharmaceutical distribution companies, they are divided into procurement cost control, production cost control, and marketing cost control. Cost control is the practice of identifying and reducing business expenses to increase profits, and it starts with the budgeting process. A business owner compares actual results to the budget expectations, and if actual costs are higher than planned, management takes action. As an example, a company can obtain bids from other vendors that provide the same product or service, which can lower costs.[23]

Because of the difference in the existence of enterprises, the control structure of their costs is also different. Sales-type enterprises mainly focus on the cost control of marketing, while logistics companies mainly focus on the cost control of the transport link, and the raw materials of large-scale pharmaceutical companies have large costs and are the main cost. From Figure 2-1, we can see the cost formation diagram of pharmaceutical companies. The enterprises studied in this article are pharmaceutical distribution companies. The main cost control points are the cost control of marketing, procurement and warehousing.[24]

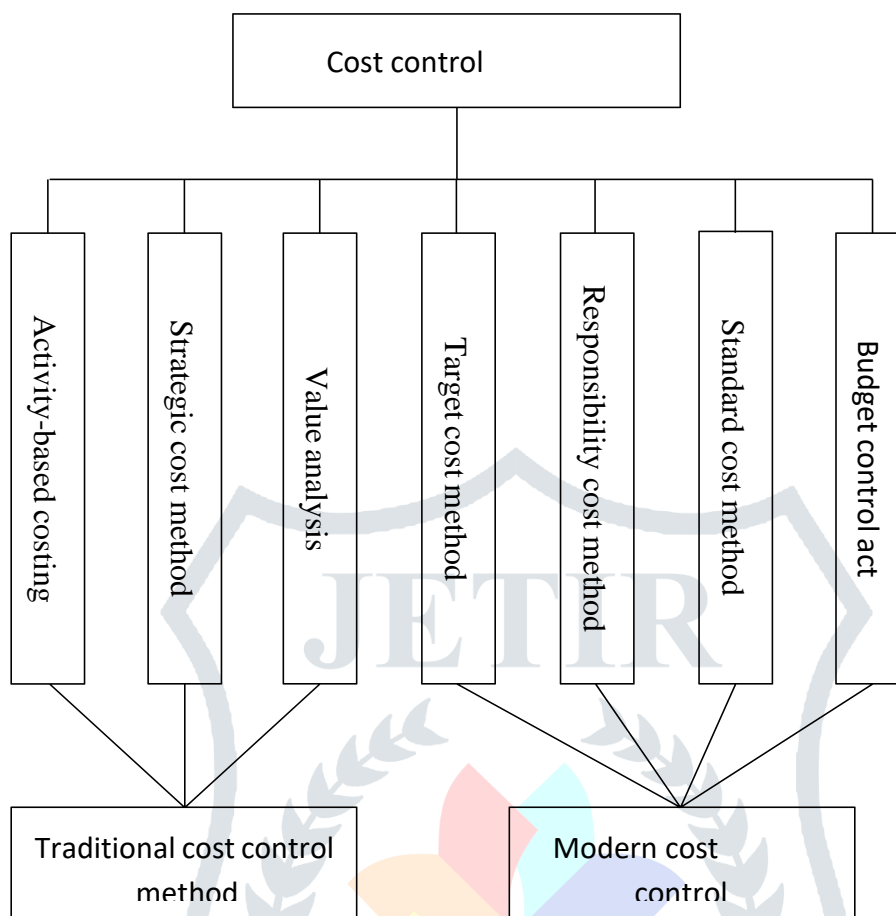
## 2.1 Principle of Cost Control

- (1) The principle of system control : System control is the process and result of the operation of the organization or the combination of dynamic and static cost control. A variance is defined as the difference between budgeted and actual results, and managers use variance analysis to identify critical areas that need change. Each month, a company should perform variance analysis on each revenue and expense account. Management can address the largest dollar amount variances first, since those accounts have the biggest impact on company results.
- (2) The principle of differentiation: The management of cost control should adopt flexible and differentiated methods and means according to the needs of its cost control. For example, if a process and link of cost control indicators in a certain period is expected to have a large difference in practice, then it is necessary to pay special attention to and attach importance to the cost control of this link to find out the reasons.
- (3) Principle of economic efficiency: The important principle of cost control is to reduce consumption and increase the economic efficiency of enterprises. The evaluation of cost control economic benefit level shall adopt the principles of horizontal comparison and vertical comparison to ensure the scientificity of its cost control.
- (4) The principle of timeliness: The cost control is time-bound. Scientific cost control must take timely cost control measures according to different stages of the company's business management to ensure the effectiveness of cost control. Many times miss the best period of cost control, it may cause huge losses.[25-28]

## 2.2 Cost Control Methods

With the in-depth study of cost control theory and practice, cost control methods have also achieved unprecedented development and formed different methods. From Figure 2-2, we can see that the cost control method is summarized into traditional methods and modern methods. The traditional activity-based costing method refers to the practice of cost-control in Western developed countries that has not been innovated but has been directly followed and applied to the practice of cost control. It mainly includes activity-based costing, strategic analysis, and value analysis. The modern cost control method is the innovation of the original traditional cost control method or proposes a new cost control method, including the target cost method, the standard cost method and the budget control method. Enterprises generally adopt differentiated cost control methods based on their own actual conditions, and can adopt a single method or a combination of multiple methods.[29]

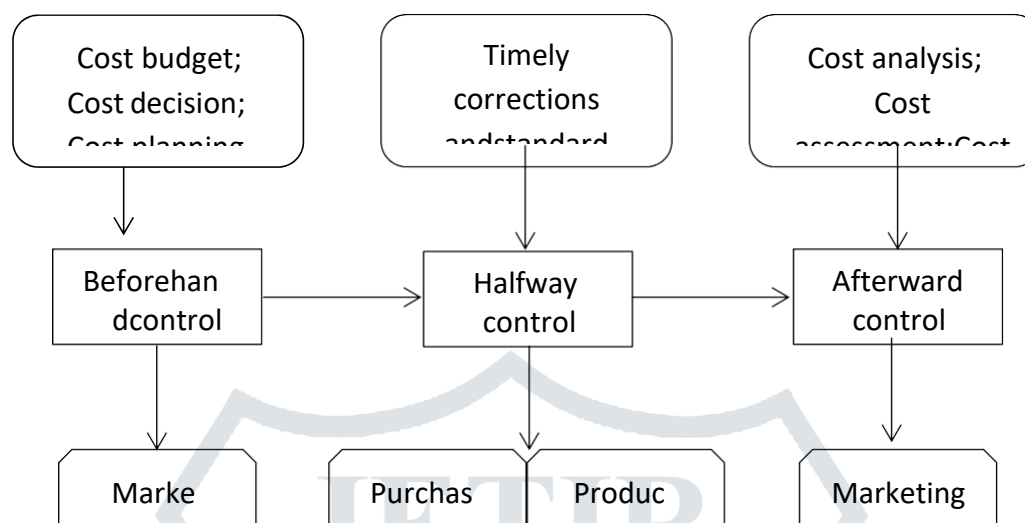
Figure . The methods of cost control chart



### 2.3 Cost Control Procedures

From Figure 2-3, we can see that the process of cost control is in the business process of market research, raw material procurement, product production, and product marketing. Ex-ante control is the basis and key point in the cost control process, as well as the basis for formulating standardized costs; Intermediate cost control is the rectification of cost control, ensuring that the cost runs within the standard range; Post-event cost control is the analysis and feedback of pre-control and in-process control with cost control results.

Figure Cost control program diagram



## 2.2.Theoretical basis

### 2.2.1.Constraint Theory

Constraint theory is the conclusion of the Israeli physicist Goldratt on the basis of researching and optimizing the production technology. It brings a new perspective to people's management. The production and operation of an enterprise are restricted by resources, and the maximum operating capacity is often determined by the shortest resource shortage. The theory of constraints (TOC) is a management paradigm that views any manageable system as being limited in achieving more of its goals by a very small number of constraints. There is always at least one constraint, and TOC uses a focusing process to identify the constraint and restructure the rest of the organization around it. TOC adopts the common idiom "a chain is no stronger than its weakest link". This means that processes, organizations, etc., are vulnerable because the weakest person or part can always damage or break them or at least adversely affect the outcome. Generally speaking, the constraints of the organization's operation come from two aspects: the constraints of internal resources and the constraints of external resources. Constraints on external resources or the environment are generally the same, and constraints on internal resources vary widely. The internal resources of manufacturing-based pharmaceutical companies mainly include production capacity, equipment carrying capacity, and staff working efficiency. The resource constraints of pharmaceutical distribution agency companies are mainly marketing capabilities, warehousing capabilities and related management capabilities. Constraint theory is based on bottleneck resources to set the company's strategic objectives and business objectives mutually unified, to ensure that enterprises with a reasonable investment or control measures to achieve maximum efficiency, in fact, is a management philosophy and control methods.[30]

The TOC distribution solution is effective when used to address a single link in the supply chain and more so across the entire system, even if that system comprises many different companies. The purpose of the TOC distribution solution is to establish a decisive competitive edge based on extraordinary availability by dramatically reducing the damages caused when the flow of goods is interrupted by shortages and surpluses.

For cost control, the constraint theory more scientifically clarified the company's business objectives, and objectively analyzed the current status of business cost control and cost control principles. Constraint theory



believes that getting more profits is the ultimate goal of every company. It restricts the constraints that companies have in the pursuit of profits to become “bottleneck” or “constraints”. This constraint is manifested in many aspects. Such as corporate resources, institutional aspects and market demand within the supply and demand chain. Enterprises need to gradually identify and eliminate these "bottleneck", so that the company's direction of improvement and improvement strategy clear, so as to achieve the company's profit goals effectively. In the internal pursuit of logistics balance, rather than the balance of production capacity, so that all aspects are synchronized with the bottleneck node, in order to achieve the shortest production cycle, reaching the maximum production and sales rate concept formed the core of the famous constraint theory.[31-33]

### 2.2.2 Value Chain Theory

The value chain cost control theory was developed based on the value chain theory put forward by Michael Porter. It mainly refers to the scientific control of the costs of the internal value chain and external value chain in the business process of the company. Companies get the greatest return with the smallest investment. Value chain cost control content is mainly divided from two aspect, the value chain management level and the value chain management object are divided. The cost control of the value chain management level mainly includes the strategic level cost control, the management level cost control and the operation level cost control; and the value chain object cost control includes the supplier value chain cost control, the internal value chain cost control, the customer value chain cost control and competitor value chain cost control. On the basis of the value chain cost control theory, cost driver analysis is carried out. The motivations at the strategic level are mainly the causes of structure and execution, and the motivations at the operation level are the operational and resource drivers.[34]

Through the interpretation of the concept and content of the value chain, we can see that the value chain cost control has the following characteristics: First: systemic, open and dynamic. Systematic mainly refers to the value chain cost control throughout the entire process of business operations, the openness is the cost control department and the main body involved in the value chain, all clear in advance its cost control objectives and content, dynamic is the value chain Cost control is based on the company's objectives within different time periods to take dynamic control measures. Second, qualitative cost control is the control of the prior control period. It is mainly based on the company's development strategy and sets clear cost control objectives. The prescribed amount of objectives mainly refers to the cost control of the process and operation stages, with emphasis on the controllability of cost control and the refinement of indicators. Third, cost control across the boundaries of the original organization. Crossing the border is a cost control method that compares the cost control of the value chain with the cost control of the enterprise itself, and realizes the goal of the enterprise. It controls all the internal and external organizations of the enterprise value chain.[35]

### 2.2.3 Cost Driver Theory

The cost driver theory is proposed in the book “Cost Planning and Control”. He pointed out that the cost driver is the factor that influences or drives changes in the company's cost. The traditional cost driver theory has been the sole theory of cost control for many years, and it is believed that the business volume is the only factor affecting the cost change. With the complexity of the company's job process, the job is considered to be an important cost control link. That is the theory of job cost motivation. With the increasing role of strategic theory in the management of enterprises, the theory of strategic cost drivers emerged. Through combing the cost control theory, we can find that the traditional cost drivers, activity cost drivers, and strategic cost drivers are the three stages of cost driver development. They are the relationship between foundation, development, and sublimation. The development of the three stages of theory is not the theory of the next stage can replace the theory of the previous stage, but the result of the in-depth study of the theory of cost motivation is the result of diversification and differentiation based on the needs of practice. The medical enterprises studied in this article have the

characteristics of liquidity. In the analysis of cost motivation theory, the sales department takes the traditional cost driver analysis as the main, and the circulation link mainly focuses on the analysis of the operating cost drivers.[36-38]

#### **2.2.4. Basic Competitive Strategy Theory**

The basic competitive strategy was first put forward by Porter in his book "Strategy and Management". He pointed out that in order to meet the needs of market competition. It will adopt one or several organic combination of cost leadership strategy, differentiation strategy, and centralized strategy. Each company can use its own advantages and adopt appropriate strategic options based on the characteristics of its products and resources. The cost-leadership strategy is also a low-cost strategy. It refers to the products or services that the company produces in the course of its operations. Its operating costs are much lower than those of its competitors. The cost leadership strategy ensures the company's ability to profit, and can use its price advantage to squeeze its competitors out of the market. Differentiating strategy is also called strategy innovation, which is based on the needs of the company's own development and adopts different management strategies for products, services, channels, prices and promotions. The centralization strategy is also called focusing strategy. It refers to the strategy that the company focuses its limited advantage resources on a product, a service object, or a market segment.

According to the types and characteristics of the basic competitive strategy theory, as pharmaceutical companies, their capital and marketing capabilities are limited. Therefore, the agents' products must be differentiated, and they should be centralized in a certain market according to their different uses Strategy. and at the same time, in order to reduce the operating costs of the company, the cost-leadership strategy always runs through every link of the company's operations, so as to achieve both open-source and cost-saving.

#### **2.2.5. Uses the fixed cost method to control the cost**

The fixed cost method to control costs is the current method used by Pharmaceuticals Company. Fixed costs are one of the two major inputs, along with variable costs, in cost accounting that are used by a company's management team to determine budgets and control expenses in relation to revenues. The finance department plans an annual cost plan for this year, based on the company's previous year's cost control completion status. The company's sales revenue increases or decreases, and the profit increases or decreases. The company's cost control targets for the current year are formulated. Finally, the cost indicators (the breakdown of costs and the proportion of the total cost) are delivered to each company department. The Ministry of Finance shall. Based on the principle of not exceeding "the ratio of sales expenses to total sales revenue in the previous year", formulate the annual assessment standards and specifications. However, the target of current cost control for Pharmaceuticals Company is mainly the general expenses of the company's basic business activities (mainly concentrated in procurement and sales). The normal operations of various departments and companies are inseparable from these general expenses. This part of the cost of the Ministry of Finance as the competent department, they conduct a unified supervision and inspection, supervision of each department is in accordance with the company's quota indicators for cost control, and supervision at the same time inspect the cost savings of various departments completed.

Sales and marketing play an important role in the pharmaceutical industry and are important barriers against entry of small firms. Sales and marketing activities are very costly, as advertising is highly restricted, and pharmaceutical companies have to approach hospitals and doctors by sales agents. It takes large fixed costs to cover the whole market by sales agents. Therefore, large pharmaceutical companies have competitive advantages compared to smaller firms as they have already covered most of the market, and they can add another drug to their product portfolio more cheaply.[39-40]

The other major cost component that companies consider in cost accounting is variable costs. Variable costs are the direct production costs that, unlike fixed costs, do vary according to levels of production or sales. Variable costs are commonly designated as cost of goods sold, whereas fixed costs are expenses not usually included in. Fluctuations in sales and production levels can affect variable costs if factors such as sales commissions are included in per unit production costs.

### **3.THE COUNTERMEASURES OF COST CONTROL OF PHARMACEUTICAL COMPANY**

The strategic goal of Pharmaceuticals is to double its sales revenue within the next three years. In order to achieve strategic development, it is urgently necessary to implement cost control in a comprehensive and efficient manner. In order to achieve high efficiency in company cost control, first of all, we should use advanced cost control methods to find the main sources of influence on company costs and determine the object of cost control. We must fully consider the company's actual operations, establish a sound product cost target system, and strive to control costs. Full implementation in every aspect of the company will ultimately solve the cost control problem of Pharmaceuticals Company.

#### **3.1.Establishing a Target Cost System**

In the production and business activities, the current cost control of enterprises is based on the fixed cost method and neglects the target cost method. The target cost method is a method that is in line with the actual development status of Pharmaceuticals. This method is also more valuable than the current fixed cost method used by the company. The establishment of a target cost system by Pharmaceuticals is also conducive to improving the effectiveness of the company's cost control. This method is based on the principle of target cost and combines the actual development strategy of Pharmaceuticals, which is more conducive to the sustainable development of the company. The target cost method is to calculate the difference between the target cost and the actual cost, and to make a strict budget for the difference, effective control and supervision. Use effective means to minimize the occurrence of unfavorable balances, optimize business operations to minimize the difference, and reduce unnecessary costs in the company's operations and management activities. The method of controlling the actual cost of the enterprise in the target cost range.

##### **3.1.1Establish product target costs**

###### **3.1.1.1Set the target price of the product**

There are various kinds of pharmaceutical products sold by Pharmaceuticals in the pharmaceutical market. Therefore, the market competition is fierce, and the products have more stable customers in the market. When formulating the target selling price of products, there are three questions to consider:

(1)Consider the needs of different regions. No matter whether it is hospitals at different levels, other pharmaceutical companies or pharmaceutical retailers, they all want to purchase at the lowest cost. However, the level of economic development varies from region to region, and there is also a difference in the demand for efficacy and quality of medicines. Therefore, pharmaceutical companies should meet the demand. Determine the supply, specific analysis of the specific circumstances, combined with differences in the situation around the use of differential pricing methods.

(2)Consider the price of drugs from competitors in the same industry. In today's fierce pharmaceutical competition environment, some need to understand in real time the advantages and disadvantages of competitors in the industry compared with the company, and conduct comparatively comprehensive research on the company's pricing. Therefore, X Pharmaceuticals must grasp the real key information of its adversaries in advance to serve the

decision. Our pricing can't be much higher than similar products, can't violate the laws of the market, blindly reduce the price, therefore, considering the price of competitors in the same industry under the premise of market dynamics, timely adjustment of the price.

(3) Consider the product purchase price. Pharmaceuticals, a representative of distribution companies, is only responsible for sales and cannot produce drugs without authorization. You can only obtain products by purchasing medicines. Therefore, in formulating the target price, it is necessary to fully consider the purchase price and consider the cost input during the purchase process.[41]

### **3.1.1.2 Establish Product Target Profit**

The significant increase in profits and total sales in the coming years is a short-term goal of Pharmaceuticals. Therefore, the business activities of Pharmaceuticals must be based on complete product target profits. The higher profit targets are achieved through the sale of high-end products by the company. Appropriately reduce target profit of low-end products and try to control within 6 percentage points. The development of a reasonable product target profit will help improve the company's competitive advantage, thereby increasing the company's operating income and market coverage.

### **3.1.1.3 Develop product target costs**

The difference between the target selling price and the target profit constitutes the target cost. Pharmaceutical Company, as a pharmaceutical sales company, combines the company's upstream purchase price with the determined target price, and ultimately sets the target profit, and considers the company's cost composition as a whole. In order to determine the target cost.

### **3.1.2 Implementation Target Cost Control**

(1) Calculate the cost gap. The marketing department, finance department, procurement department and other departments perform cost gap accounting at the various levels under the direction of company leaders. Under the current market economy, the difference between the target cost and the actual cost is calculated, and guided by the theory of value chain and cost drivers. Ultimately, all organizational departments and all employees complete cost control objectives.

(2) Target cost dismantling. The total target cost is dismantled, and the various combined costs after dismantling are summarized and analyzed one by one. Corresponding measures and implementation plans are formulated for different cost elements, and finally the cost control effectiveness of each department is improved.

(3) After the follow-up investigation. Follow-up investigations are carried out after the implementation of the target cost control, before determining the target cost and product target price. It mainly investigates the following: Examines in advance whether other competitors' expected behavior is consistent with current behavior, whether adjusting the target selling price affects the achievement of the target cost and whether it affects the achievement of the target cost. Post-mortem tracking can make full use of the role of the market mechanism and make timely adjustments to the target cost as the external environment changes.[42]

### **3.2 Improve procurement process cost control**

Procurement activities are an important activity of Pharmaceuticals Company, improving the cost control of the procurement process and directly increasing the profits of the company. Products, company office supplies, fuel and other foreign purchases are the main forms of procurement activities. X medicine public can be used as a commodity circulation company. The procurement link is the logistics point of the company. The purchase price

and purchasing time of the procurement time together becomes a comprehensive indicator of the purchase value. The satisfaction of the purchase value is in addition to the demand of the purchase buyer is the satisfaction of the purchase the measure of the goal. In order to make the cost of procurement evident, the following aspects must be achieved:

### 3.2.1 Improve the basic work of purchasing cost control

Pharmaceuticals Company has a wide range of operations. In order to prevent the behavior of gray transactions, it should have a sound procurement system and a standardized procurement process. This paper believes that perfecting the company's procurement system mainly includes:

(1) Establish a strict procurement system. Responsibility should be refined to every procurement process, and the efficiency of procurement should be ensured. This will help standardize company procurement activities and control procurement costs. The effective prevention of inappropriate situations in the procurement process ensures that the interests of the company are not harmed. The procurement system includes the criteria for applying for procurement, authorization of the identity and rights of the purchaser, the price of the quoted price of the purchased product and the price of the final transaction, Establish criteria for departmental rights guidelines (guidelines for departments related to the purchasing department) and other details related to procurement. For example, unified management of suppliers and quotations, to verify the phenomenon of unprovoked high prices in the procurement process, the accounting department to calculate the purchase price, to the audit department for approval, Establish a comprehensive procurement system for the company and ensure that the system is effectively implemented at all stages of procurement.[43]

(2) Establish supplier files and access systems. The supplier is the object that the purchase directly faces, and the supplier's selling price decides the purchase cost of the enterprise. Therefore, the enterprise with good reputation in the record and the number of cooperation in the real-time record should perform all kinds of information for the filed enterprise. Detailed records, can't ignore any supplier information, and supplier files to do every month to verify and update, and strive to grasp the latest first-hand information. The supplier access system is a necessary condition for guaranteeing the quality of suppliers. This requires all departments of the company (especially the purchasing department) to carry out the assessment of suppliers in a cooperative manner, and to approve those with high quality and low price for filing and establish a long-term cooperation relationship.

(3) Establish price file and price evaluation system. The establishment of a detailed price file mainly focuses on the company's main merchandise and commonly used materials, so that before each purchase, the previous price file is referenced. Based on the current actual market dynamics, the approximate price of the product can be easily determined. To a certain extent, it prevents the company from wasting a lot of unnecessary procurement costs. For some key procurement products, the company should establish a price evaluation system, and the company's relevant departments form an assessment team to conduct evaluations, collect supply price information and aggregate analysis, forecast current price levels, forecast future price trends, it Update the price of the archive at any time.

(4) Establish the standard purchase price of materials. The company provides the standard purchase price based on the previous price file, supplier profile, and market dynamics, which is set by the finance department before the quarterly procurement activity. The purchaser uses the standard purchase price as a reference to seek a better price. At the same time, establish a corresponding reward and punishment mechanism to encourage those who are lower than the standard purchase price, and according to the extent of reduction to give corresponding incentives, and vice versa to punish those who are higher than the standard purchase price, also according to the extent of

promotion given the corresponding punishment. Such a clear and rewarding mechanism can greatly mobilize the enthusiasm of the procurement staff and ultimately reduce the company's procurement costs.[44]

(5)In accordance with the principles of the system approach, any system must first examine the relationship with the external environment, only in its internal structure. The principle of consistent progress should be achieved at the stage of creating the system to insist on designing the logistics information system. Information systems should be considered functionally and organizationally. The functional structure can be represented in the form of a pyramid on the basis of the pyramid functional logistics information. The system is a trading system between the logistics systems and determines the relationship between the company's functional departments.

### 3.2.2 Reducing Purchase Costs

Procurement standards rank quality as a top priority, with the first option being price. The product must meet the manager's requirements, and the purchaser will then process the best price according to the intended quality. They will try their best to get the best price with the best quality. Purchasing personnel will try their best to strike a balance between price and quality, but “quality is the most important”.

(1)Change the payment method. Change the traditional way which they buy something on account, because this way can't win larger price concessions. When the company's funds are abundant, it can be paid in one lump sum or in direct cash settlement.

(2)Grasp the timing of price changes. The price is not static, and the price will change with changes in market supply and demand, climate, seasons and other factors. This is a test for the procurement personnel. The procurement personnel must accurately grasp the changes in the market environment and the nature of the procurement, in the most appropriate Opportunity to obtain the most favorable price concessions at the lowest purchase price.[45]

(3)Change the supplier's selection method. Establishing a fair competition environment and selecting the most suitable supplier through tendering can not only select the best supplier, but also increase the intensity of competition among suppliers. Ultimately, the company must be the biggest beneficiary.

(4)Purchase directly from manufacturers. If the company can purchase from the manufacturer directly from the dealer when purchasing, it will save the middle dealership and save the profits earned by the seller, which undoubtedly reduces the purchase cost. Dialogue with manufacturers directly can also provide better communication opportunities, better technical services and after-sales services.

(5)Choose a supplier with good reputation and sign a long-term contract with it. Enterprises should look for suppliers with similar brand reputation and high reputation. This will ensure product quality and ensure consumers' rights and interests. For the company itself, cooperation with reputable suppliers can also save a lot of unpleasant links and improve service efficiency. If we can maintain long-term and stable cooperation with such suppliers, we can get more preferential treatment.

(6)Survey the procurement market and collect information. Only by fully accessing the various procurement information of the market can we fully understand the trend of the market and the price, so as to formulate a sound procurement strategy to make this company in a powerful position for price, for which Pharmaceuticals has specially set up personnel to conduct research. Periodically form a research report for reference.

### **3.3 Strengthen Transportation, Storage, Handling, Distribution Cost Control**

In order to optimize the results of external and internal impact assessments, the corporate environment must use critical information sources in the monitoring subsystem for the logistics system's logistics manager's behavior. Aspects to consider. First, use the company's information staff to assess the effectiveness of its logistics solutions. For example, financial information or the price of a competitor's finished product can provide comprehensive answers to the effectiveness of the management; the company's transportation department can use information about the size of the goods. Second, the logistics partners of the company, such as material resource suppliers, distributors, operators, and partners, finished products can also use the information subsystem to improve the joint role, coordinate and reduce their own costs. The original important place was to predict its baseline data collection and use the most effective forecasting methods.

#### **3.3.1 Transportation Cost Control**

The company's procurement, sales and other business activities are inseparable from the logistics support and protection, so transport plays an important role in the pharmaceutical companies. In order to achieve optimal transport cost control, the company's logistics administration department should investigate some of the transportation-related costs (such as unit costs, motor vehicle costs, etc.) and conduct integration and analysis. The specific transportation tasks should be analyzed in detail, the optimal route selection, the use of specific vehicles, and the choice of load limits should be analyzed. Finally, a weekly sample transportation plan should be established. Based on the mathematical analysis method, the transportation cost is combined with the transportation plan, and the cost savings are maximized on the premise of accomplishing the goal. To achieve the optimal vehicle scheduling program, the most reasonable vehicle scheduling time, the largest load and the most complete transportation route. Between production and transportation, transportation and consumers should always persevere in their age-appropriate facilities, aiming to eliminate unbalanced production, consumption and production cycle of various transport operations. In this regard, the material flow from the producers and consumers' logistics chains must be included in the overall promotion of networks with different storage systems.[46]

#### **3.3.2 Storage Cost Control**

To improve warehousing cost control, there must be a sound system guarantee. The logistics administration department and the financial department jointly implement and strictly monitor the storage, acceptance and accounting. Accurately calculate the difference between the actual cost of warehousing and the target cost, and control each activity within the target cost. In the premise of determining the target cost, we must also increase the mechanization rate of storage and improve work efficiency. We must use modern network systems to establish cash bar code identification systems and automated machinery platforms, reduce the workload of workers in warehousing, minimize human error, and reduce labor at the same time. In addition, warehouses should not be considered in isolation, but should be considered as an integral part of the supply chain. Only such a method can ensure the successful implementation of the basic functions of the warehouse and a high level of profitability.

#### **3.3.3 Loading and unloading cost control**

Due to the different nature of goods, the equipment and methods of loading and unloading will change. The use of a reasonable loading and unloading scheme enables the orderly circulation of goods, avoiding unnecessary damage and causing losses to the company. For this reason, Pharmaceuticals will improve the loading and unloading transport efficiency as its destination, effectively plan loading and unloading operations, eliminate the occurrence of invalid transport, and take effective measures to prevent the occurrence of product damage. Concentrated efforts

will be made to adjust the transportation from fragmentation to intensification to improve the transportation efficiency.[47]

### **3.3.4 Distribution cost control**

The distribution cost control mainly involves many aspects, including the selection of the location in the distribution, the preferred distribution method and the distribution route, the reasonable labor costs for the distribution staff, and other management costs related to the goods. Therefore, according to the analysis and research issues of the above-mentioned control content and seeking truth from facts, the leadership team formulated targeted distribution strategies, implemented each distribution link, and improved the management level of distribution.

### **3.4 Perfecting the control of capital cost**

#### **3.4.1 Strict control of payment recovery**

The majority of Pharmaceuticals Company funds are in the operation of upstream companies and downstream hospitals. This part of the funds is an important part of corporate assets. If the purchase price is not recovered in time, it will have a significant adverse impact on the normal operation of the company. The auditing department of the financial department jointly compared the purchase prices one by one, reducing the incidence of non-performing loans. At the same time, establish an orderly rewards and penalties mechanism to reward employees with outstanding loan recovery, and to punish employees who have collected more bad loans, which is conducive to the improvement of employees' work efficiency.[48]

#### **3.4.2 Strictly Controlling Product Funding**

As a distribution company Pharmaceutical Company. has a considerable amount of funds for the backlog of products. The backlog of product funds has increased the company's operational risk. In order to allow this part of the capital to be controlled within the ideal range, the sales department and the finance department are required to conduct comprehensive control in conjunction with the user's needs and the transportation costs of the product to formulate detailed inventory plans, minimize risks, and establish strict Reward punishment system to ensure the smooth implementation of this control.[49]

### **3.5 Strengthen Human Resource Cost Control**

The human resources costs of Pharmaceuticals are mainly reflected in the employees' salaries and bonuses, and the training fees required for the skills. pharmaceutical companies are growing in size, the number of employees is also rising, and the cost of human resources will inevitably increase, which cannot be ignored. In order to achieve the long-term development of the company and achieve effective control over the cost of human resources, the most important thing is to improve the efficiency of the employees and keep the employees' salary bonuses and training costs increasing. Instead of blindly lowering employee wages, employees training costs are reduced. The company mainly implements human resource cost control from detailed salary standards and strict employee system.

#### **3.5.1 Formulate salary standards and distribution system**

Make the appropriate salary standard in time. On the one hand: domestic economic inflation, prices rose significantly compared with last year. Only by increasing the amount of wages can we meet past needs and ensure the stability of employees' lives and mentality. On the other hand, considering the needs of employees, we must also consider the company's cost-receiving ability, and we must not blindly raise the wage standard.



Organizational professional evaluation assesses the growth of the company's operating scale and the growth of company profits to obtain professional data to form a professional evaluation report. In combination with the company's current operating conditions and previous reference data, determine the salary standards for each position. The long-term development of the company should be considered in the process of formulating the salary index, and considering the company's target cost, profit cost, and sales income wage standards for the employees.[50]

### **3.5.2 Strict staffing**

Pharmaceuticals currently belongs to medium-sized companies and must strictly examine the number of company managers and temporary support personnel. When the actual requirement is less than the number of personnel in the staff, on the one hand, it will have an adverse effect on the company. Not conducive to the improvement of management level, is not conducive to the improvement of employee enthusiasm, on the other hand, will increase the company's wages and benefits of cost expenditures, beyond the company's cost acceptance ability, is not conducive to the company's long-term development. In this regard, the human resources department must do a good job in the market investigation of the previous period to determine the number of reasonable company managers and auxiliary personnel, strictly control the entry of new employees, and improve the management efficiency of the company while controlling costs.[51]

### **3.6 Improve Cost Control Responsibility**

After years of development and growth, the current cost control responsibility system has been initially established in Pharmaceuticals. Now that this system is not perfect, it is urgent and necessary to improve the system and overcome the problems existing in the system. On the basis of cost driver analysis and value chain analysis, it is imperative to improve the cost control responsibility system of Pharmaceuticals. Clear division of labor and clear responsibilities are the basic requirements of the cost control responsibility system. It is obvious that a dedicated department is responsible for specific cost control tasks. From Figure 5-1 you can draw:[52]

The general manager of the company is the primary responsible person for the company's product cost control, and allocates the cost control work to each department. The deputy general manager of the company is the assistant to the general manager and helps the general manager to coordinate the cost control work; The Finance Department is the company's comprehensive management department. It not only manages to lead the main responsible persons of various functional departments, but also actively takes charge of the cost control work of the department. The quality inspection department mainly controls the quality cost; The main control aspects of the sales department are whether the payment proceeds in time for the recovery of the standard income, whether the target income is up to standard, whether the surplus of finished product funds is used, and whether the sales cost is excessive or not. The human resources department is mainly responsible for the cost control related to human resources; The Purchasing Department is mainly responsible for the cost control of procurement, especially the control of the material's own possession. The warehousing department is responsible for the cost control that occurs during the storage of the goods, which mainly includes warehouse rental fees, delivery charges, and handling costs.[53]

### **3.7 Improving employees' awareness of cost control**

Improve employees' awareness of cost control and fundamentally improve employees' initiative to save costs. Medicines has a low level of cost control, neglects the construction of corporate culture, lacks awareness of cost control, and believes that cost control is the task of leadership. Employees do not realize that their own interests are closely related to the level of company's cost control. To this end, we should adhere to the principle of comprehensive coverage, strengthen the ideological awareness of all employees, and eliminate the indifferent

attitude of cost control, so that the cost control theory enjoys popular support. This article proposes the following to raise employees' awareness of cost control:[54]

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