

Integrated Logistics Model Design for China's Pharmaceutical Industry

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Abstract With economic globalization and market competition intensification, how to quickly improve the competitiveness of China's pharmaceutical industry and promote the scientific development of medical logistics becomes a top priority. This paper analyzes the present developing situation and existing problems of medical logistics. According to the supply chain management, the paper puts forward the point of view of integrated development in the medical logistics, and designs the integrated logistics mode for china's pharmaceutical, on the basis of pharmaceutical production enterprise, large pharmaceutical wholesale enterprises, large pharmaceutical retail chain enterprise and third party logistics enterprise, and furthermore, analyzes the characteristics and applicability of various models.

Key words Pharmaceutical logistics; Supply chain; Integration; Model

1 Introduction

Pharmaceutical industry is recognized internationally as the most promising high-tech, high investment, high profitability, high-risk sunrise business. According to a forecast, future sales of pharmaceutical products worldwide will reach 7% annual growth, while China's annual average growth rate is 17.5%. By 2010 China's pharmaceutical market value will reach 60 billion U.S. dollars. By 2020 it will reach 120 billion U.S. dollars. It will surpass the U.S. as the world's largest pharmaceutical market, medical logistics will enter a new stage of development, associated with pharmaceutical market.

Medical logistics is a form of flow that transfers pharmaceutical products from manufacturers to consumers. Pharmaceutical logistics industry abroad has gone through the stage of free competition. The market has become quite mature and standardized while a highly concentrated industrial pattern has formed. In developed areas like Europe, America and Japan, medical logistics enterprises in large-scale, especially some super medical logistics chains, dominate buyers' market. For example, the top three of medical logistics enterprises in America has now possessed a market share of 95% while the top two among them, McKesson Corporation and Cardinal Health, occupy respectively more than 30% of the domestic market. Similarly, the 75 largest pharmaceutical wholesale enterprises in Japan also dominate more than 95% of the business. All in all, such are the characteristics and trends of pharmaceutical logistics industry in developed countries: oligarchy, monopolization, management of scale. However, the medical logistics market in China is now small and disordered. In contrast to the situation abroad, the top three among 16.5 thousand wholesale enterprises in China, Sinopharm, Shaphar and Jointown only share 3~5% of the sales respectively. This distribution dampens both production and vendition, thus severely limiting the development of the whole pharmaceutical industry.

In recent years, China's macro-economic development trend is developing better, which provides a good external environment for the pharmaceutical industry. In 2000 the former State Economic and Trade Commission issued the "China's Pharmaceutical Industry Tenth Five-Year Development Projection" as well as large pharmaceutical logistics centers fiscal policy, which offers discount loans; in 2005 the State Food and Drug Administration issued the "Concerning the Strengthening of Drug Supervision and Management, Promoting Drug Modern Logistics"; in 2006 the State Development and Reform Commission issued "China's Pharmaceutical Industry Eleventh Five-year Development Projection". These policy documents have pointed out the importance and urgency to develop modern medicine logistics.

2 The Development of China's Pharmaceutical Industry Logistics

China's pharmaceutical industry grew out of the traditional planned economic system. Under the conditions of the planned economy, medicine is produced on national plan, state monopoly for purchase and sales, and the price on the implementation of national centralized control of management at different levels. Along with the deepening of reform and opening up, China's pharmaceutical industry has established a market economic system, but for a long period, the pharmaceutical companies focuses on production, ignore logistics. It has multi-drug supply chain, many trading levels, and drugs from the

hands of the factory to the final consumer, in the mature abroad markets generally 2-3 middle traders, in China tend to have 6-7 middle traders. According to the survey, China's pharmaceutical logistics cost rate is 19.63% on average, in the average proportion of sales, logistics costs account for 10% or more, far more than the United States, the rate of pharmaceutical logistics costs in developed countries (in the United States, this rate is only 2.6%). At present, there are 16,500 distributors, 14,000 wholesalers, but the annual pharmaceutical sales is as small as 10% of the global market, pharmaceutical distribution margins accounts for about 45% in the total margins, while the majority of pharmaceutical business margin becomes into sales expenses. Its net profit is less than 1% (Jing Liu, etc., 2006). These data shows that China's pharmaceutical distribution business is under high energy consumption, low efficiency state, market concentration is low, no scale. In addition, the lack of medical logistics management, the lack of medical logistics network system, pharmaceutical industry has not formed unified standard codes of medicines, these reasons have become a bottleneck on the development of China's modern medicine logistics development.

3 The Trend of China's Pharmaceutical Industry Logistics

3.1 Pharmaceutical logistics industry concentration will gradually increase

In accordance with "Tenth Five-Year" projection requirements, the state in recent years to cultivate a number of large pharmaceutical distribution companies, an increase of pharmaceutical distribution company's coverage and overall strength. National "Eleventh Five-Year Projection" started to focus on the regulation of the circulation industry standards, comprehensive Good Supply Practice (GSP) certification to promote the standardization of the construction industry. Through capital merger, combination, reorganization, integration of existing pharmaceutical resources, to achieve maximum profits and ultra-conventional development, and this will progressively change over pharmaceutical companies, more quantities, small scales, scattered, chaotic status, so that production and sales of pharmaceutical industry concentration and economic efficiency improved significantly. In addition, the increasingly fierce competition in the market, leads to the concentration development of China pharmaceutical logistics will tend to focus on the major driving force.

3.2 Trans-regional group distribution system is taking shape

With the changes in the pattern of the pharmaceutical industry, the previous administrative areas based on distribution model will become into a cross-regional group distribution system development. January 1, 2005, China allows foreign enterprises to engage in a full range of marketing services, including drug purchase, storage and distribution, wholesale, retail and after-sales service, which will have a significant impact on the traditional wholesale, retail and mode of operation. International, modern, professional pharmaceutical industry enters into the commercial companies to make the domestic pharmaceutical business and logistics enterprises are facing severe challenges. Through mergers, joint small and medium sized wholesalers, large-scale logistics enterprises become into a node company with a wholesale distribution network, at the same time, some manufacturers and retailers have no logistics functions, they are looked as the target customer. Gradually, cross-chief regional distribution large pharmaceutical groups formed; its target market is large domestic market.

3.3 The transition from medical logistics information technology to e-commerce systems

In the overall development trend of logistics industry, medicine logistics technology is moving from manual-based approach to gradually transition to the use of e-commerce systems, e-commerce system is designed for buyers and sellers throughout the pharmaceutical industry to provide electronic trading services from third-party independent system. It consists of the data preparation, transaction matching, order processing, billing and settlement services, membership-based management, transaction monitoring, and other subsystems. This system does not have the traditional entities of the physical form, but it can provide physical medicine market trading service functions, the effective integration of pharmaceutical industrial chain business flow, information flow and capital flow, representing the development trend of modern medicines in circulation.

3.4 Medical logistics operation to supply chain integration management

With the logistics integration is changing from the integration of internal logistics activities within the enterprise to enterprise collaboration, supply chain and supply chain management came into being. Modern medicine logistics becomes into supply chain management model. As a platform of large logistics center, manufacturers and distributors establish a market-oriented supply system, improve the efficiency of drug distribution, and form a relatively stable production and marketing alliance network, it is a medical logistics operation trends. Pharmaceutical supply chain upstream and downstream

enterprises in the production of varieties, supply quantity, delivery time, delivery methods collaboration with each other, via the Internet between the upstream and downstream cooperated companies effective internal net work interface, automatic billing, automatic replenishment, automated purchase, etc., common pursuit value-added and reducing costs, and continue to enhance their competitiveness, and strengthen their own advantage.

4 A Integrated Logistics Model for China’s Pharmaceutical Industry

Integrated medical logistics is to integrate effectively distributed resources on the market from the pharmaceutical supply chain management, large-scale pharmaceutical enterprises play a central role, computer network technology and information technology is a backbone, integrated advanced logistics technology and management approach, to integrate supply chain nodes and management, in order to achieve the integration of logistics functions, integration between logistics channels and business flow channels, integration between within logistics ,achieve resource sharing, to provide customers with integrated and efficient integrated logistics services, and through integration of logistics strengths, absorbing small and medium pharmaceutical companies and eventually become a medical circulation system, which has a good network, advanced delivery methods, good quality service, becomes into a low consuming and high efficient pharmaceutical distribution system (Xia Xudong, 2009) . Among them, supply chain management is a prerequisite for integrated logistics, modern logistics technology and information technology support, logistics functions and channel integration is characteristic.

4.1 Integrated medical logistics model with a major business of pharmaceutical manufacturing enterprises

To the supply chain of large pharmaceutical companies as a core business, to build a modern logistics distribution network system, will be the upstream suppliers and downstream distributors, retailers and other organically integrated, both to achieve the integration of logistics functions, but also Logistics channels and business channels, between logistics channels, to achieve resource sharing and integration for the production and marketing of integrated logistics services, as shown in figure 1.

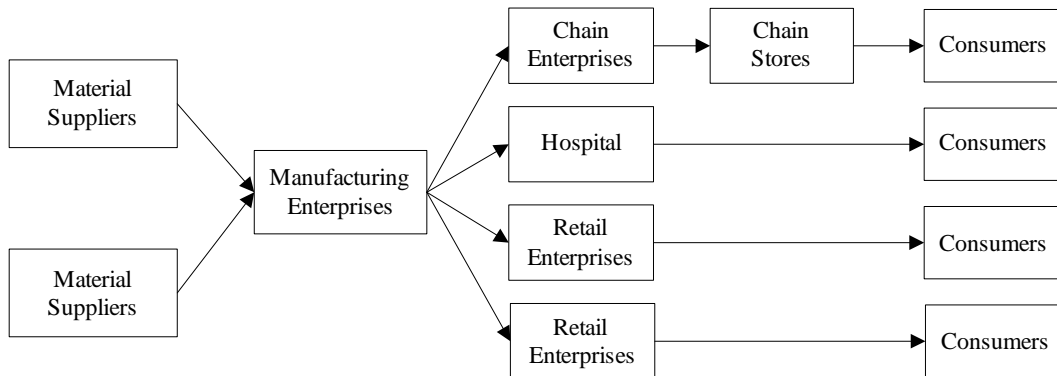


Figure 1 Integrated Medical Logistics Model with a Major Business of Manufacturing Enterprises

Advantage of this model is to ensure that pharmaceutical manufacturers on the supply chain has a strong control ability; responsive to customer needs, able to establish effective customer relationship management; to reduce leakage and other trade secrets and intellectual property risks. But the re-structuring business logistics, high construction costs, this model will bring a certain barriers to the normal operation of the enterprise to requiring companies to have a strong management capabilities. At the same time, it can easily lead to full use of logistics resources, logistics and various links fragmented, from a long term, it can not form the core competitiveness (Yan Cui, 2009).

This model is suitable for large pharmaceutical companies which has a strong logistics capabilities and experience, and has sufficient economic strength and scale of logistics.

4.2 Integrated medical logistics model with a major business of pharmaceutical wholesale enterprises

In the supply chain of large wholesale pharmaceutical enterprises as the core businesses, to make use of its management, technical, financial advantage, with the other nodes in the supply chain enterprises, in the supply chain and logistics systems, to build an integrated operation, to achieve the integration of logistics channels and commerce flow channel, integration of logistics functions (Xia

Xudong, 2009), it is shown in Figure 2.

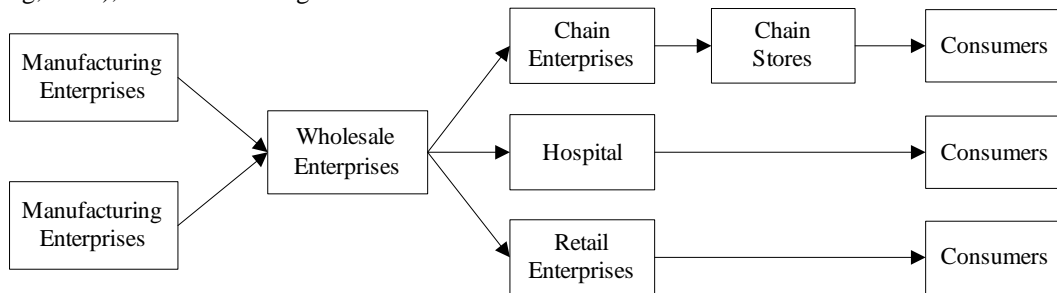


Figure 2 Integrated Medical Logistics Model with a Major Business of Pharmaceutical Wholesale Enterprises

This model is suit for wholesale enterprises with large-scale logistics system platform .Make use of their logistics management and operational strengths and experience, the core status in the supply chain, to provide “one-stop” series logistics services.

4.3 Integrated medical logistics model with a major business of retail chain

To the supply chain of large retail chains as the core business, with the other nodes in the supply chain, building into the formation of the integrated enterprise logistics system to achieve the integration of logistics functions, but does not include the logistics channel integration; but it has a strong capacity of logistics and distribution, a higher degree of integration. The model through the core logistics and distribution center from the manufacturer or wholesale organization, organize purchasing and logistics, and through the distribution center to the chain stores, medical institutions, organizations, distribution, logistics, to form logistics model with a unified purchasing, uniform distribution. This model has a low-cost, high efficiency, can achieve immediate purchase and instant delivery.

4.4 Integrated medical logistics model with a major business of third-party logistics

For a major third-party logistics enterprises as the core business, through the supply chain into the other nodes to form the integrated enterprise logistics system, its main business of third-party logistics as a professional, social-oriented logistics system, it is available for the field of medicine circulation side and demand-side entities, provide a full range of logistics services companies business model, it is shown in Figure 3.

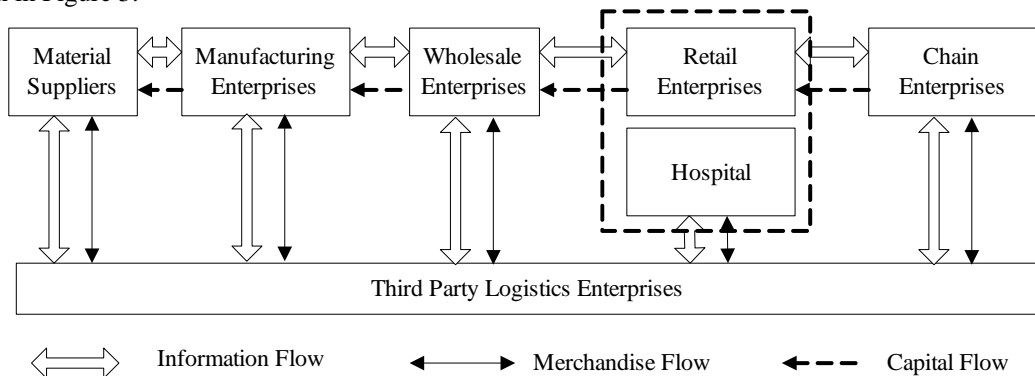


Figure 3 Integrated Medical Logistics Model with a Major Business of Third-Party Logistics

Third-party medical logistics to provide professional logistics services, from logistics design and logistics operation, logistics and technical tools, logistics facilities, logistics management, it must reflect the level of specialization and professionalization, this is both the logistics needs of the consumer, but also the basic requirements of third-party medical logistics self-development. In addition, third-party medical logistics compared with normal pharmaceutical logistics company, its most notable feature is not involved in any activity, just do the logistics and distribution functions, what provide is a highly targeted logistics services and value-added services, it has obvious personal and professional strengths.

5 Conclusions

Integrated medical logistics model is an inevitable trend of the pharmaceutical industry development; it is a way to improve the overall competitiveness of the pharmaceutical industries. The

development of integrated medical logistics models also need to enhance networking and information technology, promotion of the basic work of drugs and logistics coding standardization.

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