GLOBUS

Cosmos An International Journal of Management
A Refereed Research Journal
Vol 9 / No 2 / Jan-Jun 2020 ISSN: 2278-1218

PHARMACEUTICAL SUPPLY CHAIN MANAGEMENT: AN EMPIRICAL STUDY ON BANGLADESH PERSPECTIVE

*Md. Rokebul Islam Shojib
**Tanzil Hasan
***Abdur Rakib Nayeem

Paper Received: 13.07.2020 / **Paper Accepted**: 14.08.2020 / **Paper Published**: 15.08.2020
Corresponding Author: Abdur Rakib Nayeem; Email: *rakib.iium@gmail.com;* doi:10.46360/cosmos.xxxxxx

Abstract

Supply Chain includes the mix of stock, warehousing, material taking care of, bundling and transportation of items alongside security. The Bangladeshi pharmaceutical industry is prepared to turn out to be internationally serious with a possibility to reach $57 billion by 2019. Flexibly chain is basic as it keeps up the mind boggling system connection between tranquilize makers, exchanging accomplices, wholesalers and retailers. Pharmaceutical items need temperature controlled capacity and dissemination under exacting administrative control in a way guaranteeing no antagonistic impact on item quality. Advancement of new exhaustive flexibly chain dissolving the between intervention of wholesalers and merchants decrease the expense by creating lower-cost-administration channel. Specific consideration ought to be paid to items containing conceivably harmful, perilous, inflammable or opiate items. Vehicles and gear used to disperse pharmaceutical items ought to be reasonable to forestall sullying and suitably prepared to forestall introduction to conditions unfavorably affecting strength and bundling respectability. Fruitful reception of SCM rehearses permits the organizations to increase a bartering control and decrease costs by five to 10%.

Keywords: Pharmaceutical, Supply chain management, Good distribution Practices, Stability, Recall, BD.

Introduction

Supply Chain and Management is the part of science identifying with obtaining, keeping up and shipping materiel, staff and offices [1]. The term SCM originates from the Greek logos, initially used to portray the study of development, providing and upkeep of military powers in the field [2]. SCM includes the combination of data, transportation, stock, warehousing, material taking care of and bundling alongside security [3]. SCM is that piece of the gracefully chain which plans, actualizes and controls the productive, viable forward and turn around stream and capacity of merchandise, benefits and related data between the purpose of root and the purpose of utilization so as to meet client and lawful prerequisites [4]. At present gracefully chain of items is worked around adaptability, responsiveness and dependability moving the flexibly worldview from a stock-based model to a request based model. The principle errand of Distribution Logistics is conveyance of the completed items to the client[6].

Importance of Supply Chain Management

Associations progressively find that they should depend on compelling gracefully chains, or systems, to contend in the worldwide market and organized economy. In the 21st century, changes in the business condition have added to the advancement of gracefully chain systems [5]. To start with, as a result of globalization and the expansion of worldwide organizations, joint endeavors, key coalitions and business associations, huge achievement factors were distinguished, supplementing the prior "Without a moment to spare", "Lean Manufacturing" and "Spry Manufacturing" rehearses [7]. Besides, innovative changes, especially the emotional fall in data correspondence costs, which are a noteworthy segment of exchange costs, have prompted changes in coordination among the individuals from the gracefully chain arrange.

The period of globalization time has driven regard for worldwide frameworks of provider connections and the extension of flexibly chains over national limits and into different mainlands [9]. Globalization of gracefully chain the board (SCM) has been invited by the associations with the objective of expanding their upper hand, esteem including, and diminishing expenses through worldwide sourcing [11]. SCM advanced as a particular help with the initiation of transportation businesses, distribution center administration, and

*Postgraduate Researcher, Logistics Engineering, Department of Mechanical Engineering, Chongqing University, China.
**Postgraduate Scholar, Department of Port and Shipping, Bangabandhu Sheikh Mujibur Rahman Maritime University, Bangladesh.
***Doctoral Scholar, School of Economics and Business Administration, Chongqing University, China and Lecture, Times University Bangladesh, Faridpur, Bangladesh. ORCID:0000-0002-1652-6889

non-resource based transporters and has developed past transportation and supply chain management into parts of gracefully arranging, cooperation, execution and execution the board.

Significance of Logistics Management in Pharmaceuticals

The pharmaceutical business is confronting unrivaled difficulties affecting the business are globalization, monetary estimating strategy, government powers over evaluating and quick propelling innovation [10]. Supply Chain is viewed as a critical piece of the pharmaceutical business since the exercises are profoundly delicate to quality and time bound. Pharmaceutical items need temperature controlled capacity and circulation under severe administrative control. In course of time, the business has offered significance to supply chain by concentrating on gracefully chain and calculated level exercises, for example, conveying the item to the end-client at the opportune time, ideal spot, in a protected structure and at a serious operational expense [12]. The significant flexibly chain factor in pharmaceutical industry are stock decrease and decrease of request process duration. The most significant flexibly chain factors in pharmaceutical industry are quality consistency all through the lifetime of the item. In spite of the fact that the capacity conditions are kept up moderately steady, the appropriation condition can fluctuate extraordinarily, particularly when a medication item is sent between different climatic zones in various nations testing the quality and solidness of item. Occasional changes, method of transportation and the quantity of drop-off focuses are variable inside the pharmaceutical gracefully chain that can go astray the quality determination [13]. Circulation of medication items requiring controlled-temperature stockpiling conditions must be in a way guaranteeing no unfavorable impact on item quality. Dissemination steadiness considers are intended to create extra information on the impact of temperature journey on item quality [14]. A powerful and composed technique is required for brief review of pharmaceutical items, with an assigned person(s) liable for reviews. The methodology ought to agree to the direction gave by the national or provincial administrative power.

Challenges of Adopting SCM Practicrs

The multifaceted nature of the pharmaceutical gracefully chain requires a comprehension of the between reliance between related procedures and item attributes. Pharmaceutical items are delivered in a way that guarantees items ought not be unfavorably influenced by ecological conditions based on item solidness, item history, bundling data, and the vehicle framework utilized. A broad administrative necessity prompts resoluteness and failure to respond rapidly to changes and offices that are either limit obliged or underutilized.

Creation: Selection of a particular assembling site for specific item strategic factors, for example, consistence, gainful, work expertise, expenses and time of gear are key components in settling on key choices. Elevated levels of stock, low turns and late conveyances have tormented numerous pharmaceutical makers throughout the years. With expanding rivalry, shorter selectiveness periods and littler group creation, pharmaceutical organizations need to relational word satisfaction capacity to produce more exact execution to guarantee access to continuous interest.

Conveyance: Distribution is a significant movement in the coordinated gracefully chain the executives of pharmaceutical items. "WHO great dissemination rehearses (GDP) for pharmaceutical items" rule helps with guaranteeing the quality and character of pharmaceutical items during all parts of the dispersion procedure. These perspectives incorporate, yet are not constrained to, obtainment, buying, stockpiling, conveyance, transportation, repackaging, relabeling, documentation and record-keeping rehearses. Transportation of merchandise and stock administration: All pharmaceutical items ought to be put away and disseminated in shipment compartments which don't adverse affect the nature of the items, and which offer satisfactory security from outer impacts, including tainting.

Follow capacity: "Electronic track and follow" innovation is utilized by the pharmaceutical makers, yet additionally by gracefully chain mediators like merchants, pharmaceutical discount providers and brokers, which is important for the consistence of Recall. Records of dispatch ought to contain enough data to empower follow capacity of the pharmaceutical item. Such records ought to encourage the review of a bunch of an item, if important, and encourage the examination of fake or conceivably fake pharmaceutical items.

Review and return: An item review is a solicitation to come back to the creator a cluster or a whole creation run of an item, as a rule because of the revelation of security issues. With continually changing and progressively severe FDA and USDA necessities, an item review is an undeniable chance and can seriously affect the day by day activities of the association. Robotized programming arrangements can be utilized for both forward and in reverse parcel recognizable and sequential number following and counterfeit tried. The multifaceted idea of the pharmaceutical effortlessly chain requires a perception of the between dependence between related techniques

and thing characteristics. Pharmaceutical things are conveyed such that ensures things should not be ominously impacted by environmental conditions dependent on thing strength, thing history, packaging information, and the vehicle structure used. An expansive regulatory need prompts determination and inability to react quickly to changes and workplaces that are either limit obliged or underutilized.

Creation: Selection of a specific collecting site for explicit thing vital elements, for instance, consistence, productivity, work skill, costs and season of rigging are key parts in choosing key decisions. Raised degrees of stock, low turns and late movements have tortured various pharmaceutical creators consistently. With extending competition, shorter particularity periods and more diminutive gathering creation, pharmaceutical associations need to social word fulfillment ability to deliver more accurate execution to ensure access to consistent intrigue.

Transport: Distribution is a critical development in the organized nimbly chain the heads of pharmaceutical things. "WHO extraordinary spread practices (GDP) for pharmaceutical things" rule assists with ensuring the quality and character of pharmaceutical things during all pieces of the scattering technique. These viewpoints consolidate, yet are not compelled to, acquisition, purchasing, accumulating, movement, transportation, repackaging, relabeling, documentation and record-keeping practices. Transportation of product and stock organization: All pharmaceutical things should be taken care of and dispersed in shipment compartments which don't advisory influence the idea of the things, and which offer palatable security from external effects, including spoiling.

Follow limit: "Electronic track and follow" advancement is used by the pharmaceutical producers, yet furthermore by smoothly chain go between like dealers, pharmaceutical markdown suppliers and intermediaries, which is significant for the consistence of Recall. Records of dispatch should contain enough information to engage follow limit of the pharmaceutical thing. Such records should support the survey of a lot of a thing, if significant, and empower the assessment of phony or possibly counterfeit pharmaceutical things.

Audit and return: A thing survey is a requesting to return to the maker a bunch or an entire creation run of a thing, when in doubt due to the disclosure of security issues. With persistently changing and continuously extreme FDA and USDA necessities, a thing survey is an obvious possibility and can truly influence the step by step exercises of the affiliation. Robotized programming plans can be used for both forward and in turn around bundle conspicuousness and successive number after and fake attempted.

Critical Issues in Understanding the Pharmaceutical SCM

The core elements of SCM are gathering, monitoring, measuring, simulating, notifying and managing across the supply chain processes viz internal organizations and external trading communities. The objective is to create smooth-running operations by seamlessly notifying the right people at the right time when action or intervention may be necessary. The pharmaceutical supply chain dislike any other supply chain, is not only bringing goods from the manufacturers to the retail shelves. The pharmaceutical supply chain is inherently different in its organization as the pricing for a particular product may be different for each end user. Authorized procurement and release procedures should be performed for all administrative and technical operations, to ensure that appropriate pharmaceutical products are sourced only from approved suppliers and distributed by approved entities. There should be an adequate number of competent personnel involved in all stages of the distribution of pharmaceutical products in order to ensure that the quality of the product is maintained. All personnel involved in distribution activities should be trained and qualified in the requirements of GDP. Appropriate measures should be adopted to ensure the integrity of the pharmaceutical products in transit. For example, if seal control programme-es for transit shipment are used, these should be issued in a tracked and sequential manner, the integrity of seals should be monitored and numbers verified during transit and upon receipt. There should be product trace ability throughout the supply chain. There should be procedures to ensure document trace ability of products received and distributed to facilitate product recall. Defined procedures and adequate systems should be in place to ensure trace ability and confidence in the quality of pharmaceutical products using electronic means for any of the distribution steps. There should be a procedure describing pedigree documentation as well as the visual and/or analytical identification of potential counterfeit products. The procedure should include provisions for notification, as appropriate of the holder of the marketing authorization, labeled entity (if different from manufacturer), the appropriate national and/or international regulatory bodies, as well as other relevant competent authorities,

For export of pharmaceutical product a suitable internationally compatible product coding and identification system should be developed in

collaboration with the various parties involved in the supply chain. Vehicles and equipment used to distribute pharmaceutical products should be suitable to prevent contamination of any kind and appropriately equipped to prevent exposure of the products to conditions adversely effecting stability and packaging integrity. In case of third-party carriers, written agreements should be made between distributors and carriers in line with national and regional regulatory requirements to ensure that appropriate measures are taken to safeguard pharmaceutical products, including maintaining appropriate documentation and records. All customers and competent authorities of all countries to which a given pharmaceutical product may have been distributed should be informed promptly of any intention to recall the product because it is, or is suspected to be, defective or damaged.

Advantages of Adopting SCM Practices

A strong relationship exists between the largest arcs of supplier and customer integration of which generates maximum market share and profitability.

Customer targeting: Customer based diversification from primarily wholesalers to retailers, providers and consumer presents opportunities for manufacturers to lower overall supply chain costs and gain visibility to real-time demand.

Inventory cost: SCM practices reduces materials inventory from 40 percent to 25 percent, which is much lower than the industry's average.

Raw material supply: SCM practices enable industry to procure materials from a reasonable number of suppliers to reduce the risk factors and the company can get shifted to a single window system. E-procurement may lower the costs when supported by strategic sourcing or supplier management so that cost structures and productivity are also enhanced downstream.

Cost reduction: Successful adoption of SCM practices allows the companies to gain a bargaining power and reduce prices by five to ten percent.

Service quality: Efficient SCM not only helps in reducing the number of transporters but also reduce the delivery time.

Customer Service: New innovations are now being implemented by pharmaceutical business world to improve and implement a value added supply chain viz. Disease Management Programs that provide specialized services for a specific disease to a particular patient directly, for example diabetic control, cancer care canters etc. Evolution of new comprehensive supply chain dissolving the inter mediation of wholesalers and distributors reduce the cost for the customer by developing lower- cost-service channel.

Security: Software for supply management provides web based solution with an integrated data base. All the functions of logistics can be controlled from a single assess point stating from Purchase, to Supply chain, Inventory, Warehouse, Distribution and sales.

Productivity measures: Buying decision power will continue to change with shifting in treatment strategies requiring more agile, tiered marketing and non profitable product fulfillment. Mass communications and sales processes that have traditionally focused on educating and building awareness within the medical provider community will need to anticipate and accommodate power shifts.

Asset management: Shrinking time frames and price pressures require adopting of innovative sales distribution methods for marketing. Drug manufacturers are now marketing directly to consumers – via television and via the Internet worldwide, but sales and marketing channel is only appropriate for certain products.

Channel Management: New channel opportunities paired with the increasing role of PBMs and disease management programs could present a ripe-for-picking time to address channel costs and performance for both non revenue and revenue business streams.

Conclusion

Supply Chain in pharmaceutical industry is basic for giving the correct medication to the correct patient at the opportune time, spot and measurements and above all at the correct cost. Since business is profoundly serious today, achievement to a great extent relies on the productivity of gracefully chain. Flexibly chain is basic as it keeps up the perplexing system connection between the associations (tranquilize makers), exchanging accomplices to source crude materials, conveyance items, retailers and emergency clinics. With the developing rivalry among significant pharmaceutical parts in the business, stock control assumes a critical job in pharmaceutical worth chain as heaps of stock exists in the gracefully chain. Thought ought to be given if practical to including innovation, for example, GPS electronic GPS beacons and motor slaughter catches to vehicles which will improve the security of pharmaceutical items while in the vehicle. In the coming years, concordat and SCM are required to assume a huge job in Bangladesh pharmaceutical

industry and could contribute towards the upgrade of profitability just as development of the business. Pharmaceutical organizations that need to be all around situated for the future, regardless of the developing difficulties and multifaceted nature of the business can accomplish greatness by concentrating on SCM.

Conflict of Interest

There is no conflict of interest in this paper among the authors.

References

1. Bhandari, M., Garg, R., Glassman, R., MA, P. C., Zemmel, R.W., (1999). A genetic revolution in healthcare. McKinsey Quarterly, Available at: www.mckinseyquarterly.com. Qrt-4.
2. Food and Drug Administration, (1998). Draft Guidance for Industry: Stability Testing of Drug Substances and Drug Products. Rockville, MD.
3. Good trade and distribution practices for pharmaceutical starting materials, (2004). In: WHO Expert Committee on Specifications for Pharmaceutical Preparations. Thirty-eighth report. Geneva, World Health Organization, WHO Technical Report Series.
4. Halldorsson, A., Kotzab, H., Mikkola, J. H., Skjoett-Larsen, T., (2007). Complementary theories to supply chain management. Supply Chain Management: An International Journal 12(4): 284-296.
5. Harland, C.M., (1996). Supply Chain Management, Purchasing and Supply Management, Logistics, Vertical Integration, Materials Management and Supply Chain Dynamics. In: Slack, N edn. Blackwell Encyclopedic Dictionary of Operations Management. UK, Blackwell.
6. Kouvelis, P., Chambers, C. and Wang, H. (2006). Supply Chain Management Research and Production and Operations Management: Review, Trends, and Opportunities. Production and Operations Management 15(3): 449–469.
7. Murray, A. and Frazier, H. (2000). A Prescription for Direct Drug Marketing. McKinsey Quarterly, Available at: www.mckinseyquarterly.com. Qrt-2.
8. Pear, R., (2002). Drug Industry is told to stop gifts to doctors New York times, Available at: www.nytimes.com. October 1.
9. Pharmaceutical Research and Manufacturers of America (PhRMA), (2001). Industry Profile, Washington, D.C., Available at: www.phrma.org.
10. Storage, temperature and humidity (2004). USP27–NF 22, US Pharmacopeial Convention. General Notices _26_, Rockville, MD 10.
11. Taylor, J., (2003). Good Shipping and Distribution Practices: paper presented at the United Kingdom Medicines and Healthcare Products Regulatory Agency, USP Packaging, Storage, and Distribution Open Conference. Washington, DC.
12. Simon, T., Nayeem, A.R., Alam, M.K., & Raja, M.S.A., (2020). Impact of Choppies Enterprise in Southern Africa: An Exploratory Study on Strategic Management Perspective. American Economic & Social Review, 6(1), 30-38. https://doi.org/10.46281/aesr.v6i1.554.
13. Nayeem A.R. and Akter M.F., (2020). Winter Vegetables Plantation Impact of Faridpur (Char Zone) in Bangladesh: An Agro-Economics Development Perspective, International Journal of Agricultural Marketing, 7(1): 233-243.
14. Simon, T., Nayeem, A.R., Alam, M.K., & Raja, M.S.A., (2020). Impact of Choppies Enterprise in Southern Africa: An Exploratory Study on Strategic Management Perspective. American Economic & Social Review, 6(1), 30-38. https://doi.org/10.46281/aesr.v6i1.554