THE IMPACT OF DRUG PROCUREMENT STRATEGY ON THE AVAILABILITY OF CANCER DRUGS IN THE DEVELOPING WORLD: A CASE STUDY OF ZIMBABWE

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Abstract:

There are massive shortages and inconsistent supplies of cancer drugs to the public health sector of many developing countries. The purpose of this research is to explore the impact of the national drug procurement strategy on the availability of cancer drugs in Zimbabwe. The study employed both qualitative and quantitative methodologies to collect data from various stakeholders and pharmacists in Harare, Zimbabwe. A total of 84 usable questionnaires from a sample of 100 were returned; and this was augmented by data from 16 in depth interviews with key informants selected from judgmental sample based on their specialized knowledge of the subject matter

The major finding is that the pharmaceutical procurement strategy has been effective over the past years. The adoption of the multicurrency system in 2009, led to a huge improvement in the operations of the national pharmaceuticals procurement company. In terms of affordability it was established that the chemotherapy drugs at public health institutions were affordable. The research also established that the Government has greater control of the pharmaceuticals procurement system in Zimbabwe, through various state controlled organizations. The results from the surveys also indicated that the Key Performance Indicators (KPIs) were critical factors that were considered by pharmaceutical procurement managers in Zimbabwe.

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The main recommendation from the research is that less procurement complexity can produce higher customer service in terms of reduced stock shortages, while keeping costs down. By reducing lead times and uncertainty, increasing order frequencies, and moving order points and safety stocks, there may be better integration between information and goods flows and bottlenecks in the procurement system

Keywords: procurement strategy; cancer drugs; stock shortage;

1.1 Introduction

Cancer is one of the emerging public health challenges of the 21St century. In 2008 there were 12.7 million cancer cases in the world with 56% (when skin cancer is excluded) of these coming from the developing world (GLOBCAN, 2008). This figure is estimated to rise to 21 million by 2030. Treatment of cancer is mainly through surgery, radiation therapy, chemotherapy (cancer drugs) and hormone therapy. The availability and affordability of these modes of treatment are critical to the management of the cancer pestilence. Developing countries are often blighted by resource constraints that severely eviscerate their capacity to provide the necessary treatments to their citizens. Given such limitations it is imperative for the countries to develop cogent drug procurement strategies. This study investigates the impact of the 2012 drug procurement strategy by The National Pharmaceutical Company of Zimbabwe (NatPharm) on procurement of cancer drugs, more commonly called chemotherapy drugs.

The availability of medicines, access to health services and competent healthcare staff are essential components of any healthcare system. According to Omaswa (2002:17) of these three components, availability of medicines is of utmost significance as it maps perceptions of the quality of health care prevailing within a nation. The purpose of any government is therefore to ensure that all public health institutions have an adequate and continuous supply of safe and efficacious medicines. Unfortunately, in Zimbabwe, essential medicines are usually not available. This is particularly true of cancer drugs. Where they are available, their supply is erratic in the public health sector. This was established by The Access to Health Care Services Study (2008) which noted that in Zimbabwe medicines are often not available (52%) at public institutions, where most communities should conveniently access them. This has consequently jeopardized the effectiveness of the health delivery system in the country.

The Zimbabwean government adopted the National Drug Policy (NDP) to contribute to the fulfillment of good procurement practices, thereby ensuring the availability and affordability at all times of essential medicines of appropriate quality, safety and efficacy (MOHCW, 2012:30). The National Health Strategy (NHS, 2009–2013) of Zimbabwe set the agenda for launching the drug procurement strategy of the public health sector into the new era. Recognizing that improvement in the drug procurement strategy of the country would not depend on health sectorial actions alone, Ministry of Health and Child Welfare (MOHCW) sought to pull together all national efforts that had potential to enhance availability of essential medicines to the public.

The Zimbabwean Government mandated NatPharm as the major buyer and distributor of drugs to the public health sector in a bid to achieve greater control, increase availability and gain bargains through economies of scale. However, essential cancer drugs are often not available to the public sector. This inconsistency or unavailability of drugs to the public is generally blamed on the lack of funds, (Kaseke, 2011:17) but the question is whether money is the only reason. This brings to question the effectiveness of the supply chain management of pharmaceuticals to the market. The aim of this research paper is therefore to look at the supply chain management of medicines, with particular emphasis on cancer drugs, by NatPharm to establish if the current procurement system is in any way negatively influencing the availability of these drugs in the country.

Objectives

The research paper is informed by the the following objectives:

- To identify the existence of a drug procurement system.
- To measure the performance of Natpharm against the goals which were set by Government on its formation.
- To establish the major impediments in the current procurement system.

Methodology

The study employed a cross sectional design coupled with a triangulation of qualitative and quantitative methodologies. Semi structured interviews were conducted with pharmacists from Natpharm, health institutions, MOHCW and other private pharmaceutical companies. This data was augmented by a questionnaire survey administered to a sample of pharmacists from Harare.

For the quantitative study a sample of 100 pharmacies was selected randomly from a register kept by Medicines Control Authority of Zimbabwe (MCAZ). This sample was selected from

retail pharmacies that have the freedom of procuring from Natpharm. The buyers from these pharmacies were asked to respond to the questionnaire. The key informants for the qualitative study were selected by judgmental sampling based on their specialized knowledge of the subject matter under study

Results

Of the 100 questionnaires sent out, 84 usable questionnaires were returned; translating to 84% response rate. Beever (2007:19) asserts that a response rate of above 75% in questionnaire surveys can be relied upon to make population inferences using sample data. On the other hand, McKinsley (2008:85) posited that a response rate of 80% and above undoubtedly gives population estimates that are very close to the truth. Therefore the findings from the research can be relied upon. Of the 84 questionnaires returned, 60 of them were completed by medical staff at hospitals and clinics together with the employees of Natpharm. The remainder was completed by patients who volunteered and were physically fit. Nine of the sixty employees had less than 2 years' experience in the organisation. Nineteen of them had between 2 and 5 years' experience while 25 had experience ranging from 5 to 10 years. Seven of the employees had 10 and above years of experience. The participants therefore had adequate experience to provide useful information to the study.

The Objectives of Government

Upon the formation of Natpharm, Government sought to achieve increased availability of pharmaceuticals, enhanced affordability of user fees on the part of health services recipients and the realization of economies of scale, greater control of the pharmaceuticals procurement process among other objectives. The following are the results from the questionnaire and interview results with respect to whether the mentioned objectives were achieved or not.

Availability

Table I Availability of Pharmaceuticals

	Number	**Percentage**
Always available	4	5%
Available most times	6	7%
Erratic	53	63%
Not Available at all	21	25%

Total	84	100%

The vast majority of the participants opined that cancer drugs are unavailable or the supply is erratic. However, 85% were of the view that the supply of cancer drugs has improved since Natpharm assumed its mandate. Forty nine (58.3%) of the participants also indicated that they believed that Natpharm was the major supplier of cancer drugs.

From the preceding analysis, the majority of employees and patients whom questionnaires were administered to revealed that cancer drugs were largely unavailable in Zimbabwe. According to Murray and Frenck (2000:19), availability is perhaps the single most important indicator of the functioning of a pharmaceutical management system. Thus Natpharm's pharmaceutical procurement strategy seems to be ineffective in so far as procurement of cancer drugs is concerned. The respondents agreed that had been increased availability of pharmaceuticals as a result of Natpharm over the previous years. Interview respondents also felt the same way, although some disagreed, indicating that there was spatial variation across societal classes. However, the noted increase could be a result of a convergence of seasons. Most cancer drugs are imported. Between the years 2000-2009 Zimbabwe suffered a crippling economic crises characterized by runaway inflation an unavailability of foreign currency. The importation of cancer drugs therefore became almost impossible. The creation of Natpharm coincided with the adoption of the US dollar as the legal currency and the recovery of the economy. The perceived improvement in the supply of cancer drugs may actually be a reflection of the recovery of the economy in general and not the cogency of Natpharm's procurement strategy. Furthermore, while there has been increased availability of cancer drugs, it may only be the rich who can access them, and Natpharm's strategy may not be so effective after all in this respect.

Affordability

On the question of free drugs, 46% of questionnaire respondents indicated that Government health centers did provide free drugs. In the cases where public health institutions provide drugs at a fee, 54.8% revealed that the fees were still affordable, as compared to private pharmacies and dispensaries. However, affordability is meaningless without availability.

Budget Pressure

Fifty two percent of respondents opined that most patients never visit private pharmacies to procure drugs. This can be attributed to the affordability of drugs in the public hospitals. Thus,

there is a link between budget pressure and affordability of pharmaceuticals to the general populace, in terms of end user fees. Related to that, the research established that due to the fact that there is enhanced affordability of pharmaceuticals at public health institutions, there could be the risk of moral hazard**.** There is the danger of arbitrage if the Government subsidizes pharmaceuticals to levels that are much less than the market prices. This is where unscrupulous agents in the economy procure drugs at a low cost from public dispensaries and then resell on the parallel market. This would create an artificial shortage in the public hospital and at the same time push prices up in the retail pharmacies.

Economies of Scale

Managers who took part in the survey were of the opinion that there had been realization of economies of scale as a result of Natpharm's pharmaceutical procurement system. The managers said that economies of scale had cascaded down as affordable user fees, although some acknowledged that it could be a culmination of several other factors. Sixty two and a half percent of interview responses indicated that there had been economies of scale while 37.5% of them thought otherwise.

This goes hand in hand with assertions by Al-Kindi (2007:9) and Nichelsen and Green (2004:13), who put forward the idea that buying in bulk is one of the important key principles of pharmaceuticals procurement. The idea is to benefit from purchasing synergies (Karjalainen, Kemppainen and Van Raaij (2009:20)) while Lames (2011:21) shares the same view, indicating that organisations in several countries have established framework agreements in order to jointly procure for goods and services with selected suppliers.

Greater Control

Managers also maintained that there is enhanced Government overseeing of the pharmaceuticals procurement system. Managers indicated that as a result of subsidized prices, even private pharmaceuticals were buying from Natpharm and then retailing them to the public using the Over The Counter (OTC) channel or the prescription way (ethical approach). Eighty seven and a half percent of respondents revealed that Government now enjoys enhanced control of the procurement sector, while 12.5% did not feel that way.

Through the operational instructions and standards checks and inspections from MCAZ and Standards Association of Zimbabwe (SAZ), the Government is now able to effectively monitor and supervise the pharmaceutical procurement process in Zimbabwe; as revealed by the majority

of managers interviewed. This reduces the incidence of counterfeit and sub-standard drug proliferation. On the other hand, it is important to note that increased Government control is not itself free from inefficiency and corruption that affect most public institutions. There are tendencies of corruption in the tender processes and the bias in the distribution of pharmaceuticals.

Costs

The majority of interviewed managers revealed that costs were a highly important factor in the pharmaceuticals procurement system. As many as 63% and 13%, of managers indicated that costs were an important and relatively important factor to consider respectively. Seventy six percent of the mangers lamented that costs were a major hindrance in the procurement of pharmaceuticals. Some of them indicated that Zimbabwe had turned to the "East", whereby it procures drugs from countries such as India. However, Brazil was the other source of pharmaceuticals the country was procuring from. The managers indicated that other drug manufacturers in other countries such as the US were highly priced, thus the continued dependence on the countries in the East as they offer lower prices.

Timelines

Fifty six and twenty five percent of managers revealed that timelines are of high importance and relatively high importance respectively. This is particularly important for cancer drugs because of the propensity of malignant cancers to metastasize and spread quickly if left untreated for a period. Prognosis and survival is strongly linked to prompt commencement on treatment. The preferred treatment also depends on the stage of disease. Delaying commencement of treatment can alter the disease stage, prognosis, quality of life as well as total cost of treatment.

Overview of the Key Performance Indicators (KPIs)

It emerged from the responses that costs, timelines, risks and quality requirements are all important key performance factors in the pharmaceutical procurement sector. The main issue that came out is that these factors cannot be analyzed in isolation. They are intertwined, and therefore they should be examined together. At the same time, when measuring the performance and effectiveness of the sector, these factors still have to be looked at using a holistic approach.

While the majority of managers felt that costs were a very important factor in deciding the quantity of pharmaceuticals and the source of procurement, the other managers maintained that cost minimization was outweighed by other equally important factors such as quality and the

need to save lives in a crisis, regardless of the cost. At the same time the costs factor may be affected by corrupt motives in the tendering process through the awarding of tenders on the grounds of obtaining kick-backs from the company receiving the tender.

Apart from that, an unwise desire to save costs and take too much time looking for the lowest priced quotation may result in shortage costs. These may actually be higher than the intended savings. According to Rao et al. (2003:3), they include expenditures on emergency purchases (generally available) and estimates of revenue loss (if cost recovery is in place); more difficult to quantify are costs associated with increased morbidity and mortality that may result from stock outs, and the political cost of loss of goodwill from beneficiaries.

Also, the objective of cost minimization may be affected by the need to preserve quality. Thus there is need for trade-off between and amongst these factors, rather than hope to achieve all the objectives. At the same time it would be perilous to want to achieve a single objective. The managers indicated that the risk factor is always there. This result concurs with Thai (2007:30), who asserts that the risk that characterizes the pharmaceutical procurement stems from the various challenges that are inherent in the industry. On the other hand to avoid risk means to procure from large and credible drug manufacturer, who would obviously be more expensive compared to new market entrants. Thus the objective of minimizing risk also contrasts with that of minimizing costs.

Effectiveness of Procurement Strategy Against Key Performance Indicators

The efficiency of a market can be measured against the prices that are charged in the market. Monopoly markets are associated with inefficiency because prices are too high and economists indicate that consumers would be paying more that the value or the marginal cost of producing the product. Thus if prices are too high, it shows that the producers of goods and services are not performing efficiently. In this case, end user costs are measured in terms of the monetary cost of seeking medication, waiting time and travel time. These are imputed into the end user cost equation as time has monetary opportunity cost.

Table2: End User Costs

	Number	Percentage
High	**10**	**63%**
Moderate	**1**	**6%**

Low	**5**	**31%**
Total	**16**	**100%**

Table 2 indicates that 63% of managers believe that the end user costs of pharmaceuticals in Zimbabwe are high. Six percent of the managers were of the opinion that the end user costs were moderate, while the remaining 31% believed that the end user costs were low.

Exposure to Risk

Interview respondents were asked to give a narration of the country's incidence of risk exposure. 13% indicated that risk exposure to Natpharm's pharmaceutical procurement system was high while 31% percent said it was moderate. The majority of the managers (56%) were of the opinion the procurement system was largely safe.

The Quality of Pharmaceuticals

69% of the managers said that the quality of pharmaceuticals procured by Natpharm is high, although these chemotherapy drugs are not necessarily the recommended first line treatment drugs. Nineteen percent of the managers believed that the pharmaceuticals were of a moderate quality while 13% were of the perspective that the pharmaceuticals' quality was low.

The majority of the respondents felt that all the drugs were subjected to a rigorous inspection process to protect the health of the nation. They indicated that The Standards Association of Zimbabwe (SAZ) and The Medicines Control Authority of Zimbabwe (MCAZ) were both instrumental in ensuring that Natpharm's procurement procedures conform to quality requirements.

Discussion

From the primary study, it emerged that pharmaceuticals were generally available in Zimbabwe. However with an indication that sometimes in public hospitals they were not always available and patients had to rely on private pharmacies. It was evident from the study that the issue of costs was an important concern to both respondents although there were mixed opinions with respect to whether the costs of accessing were too high or too low.

It became apparent from the study that the Government had been able to retain control of the movement and distribution of pharmaceuticals in Zimbabwe. The Government had also been successful in ensuring that economies of scale cascade to the grassroots population by way of reduced end user costs. It was observed that Natpharm had generally been successful with respect to its pharmaceutical procurement strategy.

Conclusions

Generally, Natpharm's pharmaceutical procurement strategy has been effective over the previous years. Especially after the adoption of the multicurrency system, there was a huge improvement in the operations of the organisation. After the adoption of Natpharm, there was increased availability of pharmaceuticals in the country. Respondents indicated that rarely were pharmaceuticals unavailable at public health dispensaries, especially after the adoption of the multicurrency system.

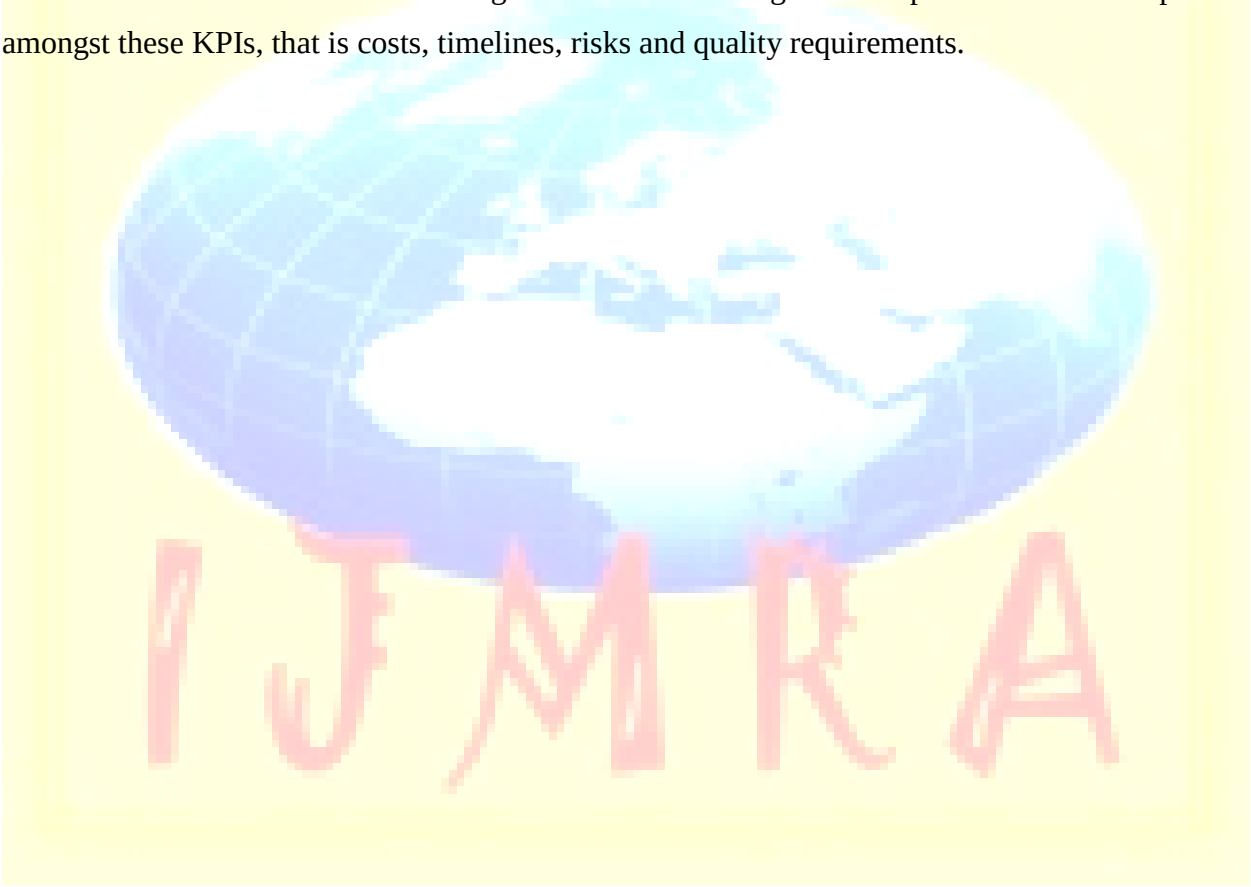
In terms of affordability it was established that pharmaceuticals at public health institutions were generally affordable. Survey respondents claimed that they rarely visited private pharmacies for the purchase of drugs unless in special circumstances where special types of drugs would be in short supply and not available at the public health dispensaries. Related to this, it was also established that affordability had been partly due to the economies of scale as a result of Natpharm. It was established that economies of scale had cascaded down to the general public in the form of enhanced affordability.

The research also established that the Government had been able to have greater control of the pharmaceuticals procurement system in Zimbabwe, through MCAZ and SAZ. Thus with regard to the objectives of Government upon the inception of Natpharm, it can be concluded that its pharmaceuticals procurement strategy has been effective. However, there is need for care in analyzing this result as the adoption of the multicurrency system resulted in a lot of positive gains in most sectors of the economy; pharmaceuticals procurement included. That availability and affordability improved as a result of the adoption of the multicurrency regime and the subsequent arrest of hyperinflation is a hypothesis that cannot be completely ignored.

Notwithstanding the fact that the multicurrency system also had a positive effect on the pharmaceuticals procurement strategy by Natpharm, the Key Performance Indicators (KPIs) also generally indicate that Natpharm's pharmaceutical procurement strategy has been effective. In terms of risks, it was revealed that there had been few cases of the proliferation of counterfeit or substandard drugs in Zimbabwe. It was also established that quality was given top priority in the procurement process, and that procurement managers do realize the need to meet timelines and procure pharmaceuticals within the set timeframes. In respect of these, it can also be concluded that Natpharm's pharmaceutical procurement strategy has been effective.

In terms of costs, there were mixed indications with respect to the end user costs as a measure of strategy effectiveness. Managers believed that end user costs were too high, and thus there was no efficiency. At the same time employees expressed gratitude as they said that the costs of pharmaceuticals were low at government hospitals and clinics compared to private clinics and hospitals. Therefore it is not clear whether Natpharm's pharmaceutical procurement strategy is cost efficient and cost effective in terms of end user costs.

The results from the surveys also indicated that the Key Performance Indicators (KPIs) were critical factors that were considered by pharmaceutical procurement managers in Zimbabwe. However it was established that managers had mixed feelings with respect to the most important amongst these KPIs, that is costs, timelines, risks and quality requirements.



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