

Pharmacy and Therapeutics Committee in Bangalore Institute of Oncology - Promoting Rational Pharmaceutical Management

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Abstract

Bangalore Institute of Oncology (BIO), a Comprehensive Cancer Center operating since 1989 has initiated Pharmacy and Therapeutics Committee (PTC) in 2007 as a forward looking step in promoting rational use of medicines. The first step in establishing role of PTC was to carry out ABC Analysis of Anti-Cancer Drugs procured at BIO for the period of October 2006 to September 2007, according to Management Sciences for Health (MSH) and World Health Organization (WHO) guidelines. ABC Analysis provided a comprehensive and clear picture of consumption of chemotherapy medicines. The number of brand names procured for individual medicines were also collated. Constructive debate amongst PTC members resulted in making the decision to streamline the procurement of only three brand names for each medicine that had numerous brands procured earlier. PTC members of BIO have constructively utilized the forum in further improvising the pharmaceutical management as a first step in establishing PTC as a decision making body for rational use of medicines.

Key words: Pharmacy and Therapeutics Committee; ABC analysis; Rational use of medicines

INTRODUCTION

Growing expenditure on pharmaceuticals is one of the driving factors that resulted in initiating Pharmacy and Therapeutics Committee (PTCs) in developed countries like Germany, Australia, Canada, Ireland, and Holland, along with other countries that have utilized PTCs effectively to optimise therapeutic health outcomes for patients as well as economic benefits for hospitals (Thurmann et al, 1997; Weekes and Brooks, 1996; Feld, 1986; Ferrando and Henman, 1986; Mannebach in Fijn et al, 1994). Developed countries have traditionally used PTCs to initiate and maintain rational use of medicines programs at hospitals. Internationally, hospitals in developed countries have had PTCs for over 70 years with built-in methods to monitor and evaluate their performance (Thurmann et al, 1997; Summers and Szeinbach, 1993; Bochner et al, 1994; Rucker, 1988; Mehr 2006). The individual activities of PTCs differ while maintaining a common theme and approach of advisory and educational activities to maximize the rational use of medicines. The beneficial effect of hospital PTCs in monitoring and promoting quality use of medicines and containing costs in hospitals and other institutional settings has been generally well-accepted in

developed countries. Unfortunately, there has been little critical evaluation of the clinical or economic impact of this approach in developing countries.

PTCs have been mandated standards in hospital settings in the USA even before 1960s (Bagozzi, 2005) for safe and cost effective use of medicines in hospitals. In this context there is a need to highlight an important concept that maximum expenditure is not necessarily the only method to achieve optimal health benefits. Developed countries use the concept of balancing therapeutic efficacy with cost and not just striving for cost effectiveness. Formularies are updated by using different approaches to evolve decision-making methods (Bagozzi, 2005). These include inventory management approach, cost accounting approach and criteria based approach, to develop and manage an effective formulary. The WHO in promoting the rational selection of medicines has used the same concept by highlighting four paramount features to be considered, which are: efficacy, safety, quality and cost of medicines (WHO, 2001). The rich countries have used the same concepts despite lack of financial constraints in order to balance the expenditure without subrogating the quality of care provided to patients. Hence the policies in developed countries have supported PTCs for many years, by using PTCs as mandated standards in health care organisations (Hochla and Tuason, 1992). Australia considers PTCs

pivotal to the rational use of medicines (Weekes and Brooks, 1996) and it has been shown that effective PTCs play a very active part in educational, communication and advisory roles when clinicians, pharmacists and nursing representatives work together with administrative personnel on PTCs. Based on this proven evidence from developed countries, some developing countries such as Brazil (Cruz and Paola, 2006) and Laos (Vang, 2006) have actively adopted the concept of PTCs in their hospitals to advocate rational therapeutics that promote evidence-based medicine along with clinical effectiveness and not just cost effectiveness.

Pharmaceutical management as proposed by the Management Sciences for Health (MSH) (Quick et al, 1997) and the World Health Organization (WHO) involves four functions: Selection, Procurement, Distribution and Use. This cycle requires support of legal and policy framework as well as management support that comprise financing, information management, human resources and organization. Analytical techniques are designed in developed countries and cost-conscious countries to identify and control excess costs in pharmaceutical management. Even by the 1980s, developed countries spent about 100 times as much on health and 20 times as much on pharmaceuticals, on a per capita basis, when compared to developing countries (Patel, 1983) and this trend continues to be predominant. Hence, industrialized countries have adopted techniques to contain costs. This resulted in techniques such as ABC analysis and Therapeutic Category analysis to quantify costs and identify areas where costs could be reduced (Quick et al, 1997; Quick 1982). Cost reducing strategies are aimed at increasing the effectiveness and efficiency of pharmaceutical supply.

ABC analysis is also known as Pareto analysis. It is a well-known method in inventory management, and is a useful tool in analyzing consumption patterns and the value of total consumption. A Canadian study highlights the extent to which cost effectiveness evaluation is a useful input in decision-making moving beyond examining budgets and towards broader balanced benefits of therapeutic outcomes with economic outcomes (Dugal et al, 2002). This approach is a direct consequence of growing concern about rising health care costs due to pharmaceuticals as the main component of expenditure (Levy and Gagnon, 2002; Fernandes, 2002). Cost-cutting strategies from policy makers, hospital administrators, and health care professionals generally targeted pharmaceutical expenditures first.

This article describes initiatives in rational pharmaceutical management as a part of the newly initiated PTC's activities of Bangalore Institute of Oncology (BIO). BIO was founded in 1989 as the flagship unit of Banashankari Medical and Oncology Research Center Ltd (BMORC). BMORC, initially incorporated as a Private limited Company on 13 November 1986, became a public limited company in 1992. It was the first private Comprehensive Cancer Hospital in Bangalore and Karnataka. The idea for such a hospital was initiated and is managed, by like-minded and dedicated cancer specialists who realized that the existing facilities in the government hospitals were not sufficient to meet the demands and the private sector needed to step in. BMORC manages and operates BIO, a comprehensive cancer center which started its services in 1989 with 5 consultants and 30 beds. It is now a 145-bed hospital with over 60 consultant physicians and a staff strength of 546 people. BIO treats nearly 3000 new cancer patients every year, and around 110 patients receive radiotherapy every day. Besides, the daily outpatient attendance exceeds 300. Nearly 1800 major operations are performed every year. These numbers are ever increasing.

BIO's PTC was initiated in October 2007, with the objective of promoting rational use of medicines. The PTC is a standing hospital committee responsible, through its chairman, to the Hospital executive board. It is a policy recommending body to the medical staff and administration of the hospital on matters related to the therapeutic use of drugs. Improved health and economic outcome of the hospital care, particularly those related to the medication remains the core objective of the PTC.

Methodology

Pharmacy and Therapeutics Committee of BIO decided to use the concept of ABC Analysis for rationalizing the decisions of pharmaceutical procurement of Antineoplastic medicines to start with.

ABC analysis ranks a set of pharmaceuticals by calculating the expenditure on each medicine as a percentage of the total expenditure on all medicines in the set. It is a method advocated by WHO and MSH for assembling data to determine where money is being spent (Quick et al, 1997).

- a. All items purchased are listed according to year and unit cost.
- b. Consumption quantities for each are entered.
- c. Value of consumption is calculated for each by multiplying the unit cost by the number of units

- consumed or purchased to obtain the total value for each item.
- d. The values of all items is then totaled at the bottom of the column.
 - e. The percentage of total value represented by each item is calculated by dividing the value of each item by the total value of all items.
 - f. The list is rearranged to rank the items in descending order by percentage of total value, starting at the top with the highest value.
 - g. The cumulative percentage of total value of each item is calculated

Results

Concept of ABC Analysis was used for Anti-Cancer medicines procured for the period from 1st October 2006-30th September 2007. The percentage value of procured medicines with the highest, second highest and least number of brand names were tabulated. Docetaxel (18.91%), Gemcitabine (9.37%) and Paclitaxel (8.87%) were in the list of percentage value of ABC Analysis for medicines with the highest number of brand names. Table 1 shows the percentage value of ABC analysis for medicines with second highest number of brand names and the least number of brands is shown in Table 2.

ABC Analysis which was done for the first time in the institution gave a comprehensive and clear picture of overall consumption of chemotherapy medicines for a period of one year. The complete details of individual consumption of chemotherapy medicines and number of brand names procured for individual medicines were obtained. This helped in making decisions to streamline the procurement of only three brand names for each medicine that had numerous brands procured earlier.

Discussion

The constant monitoring of programs in developed countries helped in identifying increasing pharmaceutical expenditures. A Canadian study reports growth of pharmaceutical expenditure as being close to double the rate of growth in other health care expenditure (Willison, 2002). Similarly, a study in Italy reports growth of 11% per year in the last five years resulting in pharmaceutical expenditure becoming a challenge in the health care system (Rocchi et al, 2004). In response to constant increases in pharmaceutical budgets, developed countries faced the challenge by introducing various interventions. It required them to make hard decisions about fundamental values in their health care systems (Laupacis, 2004). The need to balance benefits of medicines with costs was the prime issue in order to provide accessibility, equity, and affordability of

medicines to all their citizens.

Developed countries such as New Zealand resorted to intervention in pharmaceutical management by highlighting the need for better information to make effective medicines available without bankrupting the health care system (Brougham, 2002). One of the first steps most developed countries adopted is computerising the procurement process and documenting the usage of medicines. Studies reports the extent to which their purchasing and inventory control of pharmaceuticals improved by initiating computerised inventory control, which progressed into formulary management and other related interventions in pharmaceutical management (Rubin and Keller, 1983; McAllister, 1985). On similar lines BIO has been operating with the computerised inventory for procurement which made it easy to have ready access to the data for ABC Analysis. Based on ABC analysis and decisions taken to promote rational use of medicines, formulary management is in the process of being initiated at BIO.

ABC analysis in conjunction with computerisation is one of the common methods adopted to optimise inventory. The reason for the majority of health institutions to initiate inventory management techniques is due to the recognition of raising pharmaceutical budgets and the realisation by hospital administrators that reducing the pharmacy budget is an effective method of containing institutional costs (Hutchinson et al, 1989). Consequently ABC analysis has become a popular method of quantitative measurement of inventory control (Noel, 1984). Thus, an efficient and productive purchasing system results in cost savings (Bair and Lee, 1984) leading to ABC analysis becoming one of the management techniques. Similarly in BIO, PTC decided to list only three brand names based on criteria like cost and extent to which they are prescribed instead of procuring all available brands or brands based on clinicians' choices, which is increasing the cost of inventory. It was decided there should also be the option of two more additional brand names in the list and for those additional item the clinicians will have to wait till the medicine is procured.

PTCs have been widely accepted both in the developed and developing countries as these represent a voluntary and advisory control strategy with physicians in a central position (WHO, 2004). Many PTCs report their activities and one of them reported the important feature required for PTCs to be successful, as "a well-prepared agenda, good educational material, active members and strong

leadership” (Cohen, 1984). A study reported the reason for success of their PTC as an 'evolution' rather than a 'revolution' and an 'educational' rather than 'confrontational' approach. Their members view their involvement in the PTC as a forum of “valuable interaction that helped them stay at the forefront of important therapeutic advancements”(Hinthorn and Godwin, 1989). Unless physicians see the benefit of their interaction in PTC and perceive that benefit as important for their clinical decisions, it is difficult to expect ownership of a PTC concept. The profile of the committee and mechanics of its functioning strengthen PTCs. BIO's PTC has adopted these principles to the best possible extent by providing a central role for clinicians to make decisions in an evolutionary manner. Constructive debate followed by buy-in of clinicians to allow procurement of only three brand names for chemotherapeutic agents instead of all brand names, demonstrates the steps taken in the direction of rational pharmaceutical management.

National Health Services hospitals in the UK use PTCs effectively to control the introduction of new medicines by applying principles of evidence-based medicine (Jenkins and Barber, 2004). Overall, the traditional roles of PTCs have been in advisory capacity and as policy-recommending committees within health care systems, for promoting rational use of medicines. These roles expanded to incorporate Drug Utilization evaluations, medical staff education, continuous quality improvement, formulary restrictions and therapeutic interchange (Wade, 1996). Evidence from developed countries has shown that unless the PTC has wide representation from all key stakeholder departments, the focus simply remains on cost containment rather than clinical efficacy, which would defeat the purpose of a

PTC (Woodhouse,1994; Borreson, 1986). On similar lines BIO's PTC is well represented by all key stakeholders under the strong leadership resulting in evolutionary steps taken towards implementing institutional rational use of medicines.

Traditionally, PTCs have been used to steer the process of maintaining updated formularies at hospitals. A study in Malaga, Spain, shows how hospital policies operating their formulary can be used to maintain the optimal balance of using new medicines while considering cost containment. The hospital reports potential therapeutic and economic benefits as well as educational benefits resulting in uniformity of pharmaceutical use. A study reports their PTC as instrumental in establishing a “flexible and dynamic formulary in an ever changing health care environment”(Zoloth, 1989). Another study stresses the importance of communicating updated formulary decisions to medical staff. This educational intervention plays a vital role in advocating rational therapeutics (Dreyfus and Bender, 1987). These principles are being adopted in decision making for initiating and maintaining a formulary at BIO.

PTCs have been known to achieve objectives such as availability of safe, efficacious, and quality medicines at an affordable price (WHO, 2004). The shift in the decision-making authority from the physicians to the PTCs is likely to be resisted especially since physicians traditionally hold an influential profession with extensive freedom to prescribe. The negative attitude towards a control body could be reduced by projecting a need for information and the rationalization of drug therapy and by advocating economic prescribing, which is being adequately addressed in BIO.

Table No. 1: Percentage value of ABC Analysis for Medicines with second highest number of Brand Names

Names of Medicines	% Value from ABC Analysis
Doxorubicin	7.138%
Oxaliplatin	6.453%
Carboplatin	2.630%
Temozolamide	1.535%

Table No.2: Percentage value of ABC Analysis for Medicines with least number of Brand Names

Names of Medicines	% Value from ABC Analysis
Rituximab	15.951%
Cetuximab	6.194%
Trastuzumab	2.649%
Bevacizumab	2.135%
Epirubicin	1.981%
Gefitinib	1.795%
Capecitabine	1.481%
Cisplatin	1.458%
Vinorelbine	1.309%
Fludarabine	1.205%
Irinotecan	1.196%
Ifosfamide	1.020%
Goserelin	0.735%
Letrozole	0.733%
Thalidomide	0.726%
Dacarbazine	0.617%
Bleomycin	0.390%
Cytarabine	0.382%
Exemestane	0.312%
Cyclophosphamide	0.296%
Erlotinib	0.255%
Etoposide	0.201%
Asparaginase	0.173%
Anastrozole	0.158%
Tamoxifen	0.153%
Melphalan	0.132%
Chlorambucil	0.132%
5-Fluorouracil	0.107%
Vinblastine	0.104%
Daunorubicin	0.095%
Bortezomib	0.094%
Dactinomycin -D	0.086%
Lenalidomide	0.083%
Leuprolide	0.078%
Arsenic Trioxide	0.062%
Vincristine	0.057%
Imatinib	0.048%
Methotrexate	0.047%
Hydroxy Urea	0.040%
Megesterol	0.028%
Altretamine	0.025%
Lomustine	0.018%
Mitoxantrone	0.007%
Mitomycin	0.005%
Interferon	0.002%

Conclusion

Pharmacy and Therapeutics committee in BIO has been used effectively in initiating the rational inventory and procurement of chemotherapy medicines to start with. The advisory and educational objectives of the PTC are being initiated to promote rational use of medicines. The economic spin offs of rational inventory management not only results in effective pharmaceutical procurement but it also paves the path in a stronger a role for PTC in rational use of medicines.

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