

Original Research Article

ABC analysis of drugs used in health camps organized in villages of Chintamani taluk, Karnataka, India

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ABSTRACT

Background: Tracking of drug acquisition, storage, distribution, and utilization are to be handled properly with utmost care to eliminate wastage and to ensure scientific continuity of supplies. The present study was done with the objective to conduct the economic analysis of drug expenditure and to identify the categories of items needing stringent management control for health camps.

Methods: The study was done among health camps conducted in the 10 villages of Chintamani taluk during December 2015. For Always Better Control (ABC) analysis, the consumption of all the drugs was calculated after multiplying unit cost by total consumption and resulting figures were arranged in descending order of rupee value.

Results: The drugs were classified in to A B C groups according to total cost consumed 70%, 20%, and 10% respectively. The total cost incurred for procurement of drugs in these camps was Indian rupees 12872.93. We found that 15.78% of drugs were in category A. If we were to manage drug inventory solely based on ABC analysis, supervision of only 6 drugs would have resulted in control over approximately 70% of the drug budget.

Conclusions: Thus ABC inventory management analysis of health camps will promote effective management of drug inventory with minimal monetary resources and will contribute to provision of uncompromised patient care.

Keywords: ABC analysis, Drug inventory control, Health camp

INTRODUCTION

Efficient supply chain management from the manufacturer to the end user is essential for success of Essential Medicine supply system.¹ Thus, to eliminate wastage and to ensure scientific continuity of supplies, tracking of drug acquisition, storage, distribution, and utilization are to be handled properly with utmost care.^{2,3}

ABC analysis is “Always Better Control” analysis based on Pareto’s principle of “Vital few and trivial many” depending on capital investment of the items.⁴

The inventory management at tertiary care setting have been explored. However, there is paucity of similar studies conducted in the health camps. There are many supply chain problems in the health camps such as illicit drug diversion among workers for personal use, unreliable monitoring of medication utilization, and concerns for medication integrity. Hence the present study was done with the objective to conduct the economic analysis of drug expenditure and to identify the categories of items needing stringent management control for health camps

METHODS

The study was done among health camps conducted in the 10 villages of Kaiwara, Chintamani taluk during December 2015. Kaiwara is the rural field practice area of M S Ramaiah Medical College. The department of community medicine conducts health camps regularly in the villages coming under Kaiwara primary health center (PHC). The health camps are organized by the faculties and postgraduate students from the department of Community Medicine. The activities involved in organizing health camps include requesting permission from the local village leaders, meeting with local village leaders, ASHA workers, and school teachers and publicising about health camp in the form of pamphlets and through key informants.

Following this, an area that is comfortable and suitable for the population is selected. The health camps are organized using the locally available materials in the village. The postgraduate students from the departments of Community Medicine, General Medicine, General Surgery, Obstetrics and Gynaecology, Ophthalmology, ENT, Physiotherapy are involved in treating the patients in the health camps. Medico social workers, students from MS Ramaiah Nursing College and MS Ramaiah Faculty of Pharmacy operated the pharmacy under the supervision of a postgraduate. Active support was obtained from the under graduate students and interns. Many activities were happening simultaneously and hence it becomes difficult for us to allot sufficient time for drug management. Therefore, it becomes all the more important that we use simple managerial tool like ABC inventory.

All the drugs and dressing materials expended during December 2015 for the health camps were included in the study. Quantity of drugs utilized for the camp was obtained from the stock register. Expenditure on procurement of a particular drug was calculated based on its source of supply. The drugs were procured from generic pharmaceuticals. Getting the medications from generic pharmacy brought down the cost of medicines. We resorted for generic drugs as they work out at low cost and are effective at the same time. For ABC analysis, the consumption of all the drugs was calculated after multiplying unit cost by total consumption and resulting figures were arranged in descending order of rupee value. The drugs were then classified into three groups namely A, B and C according to 70%, 20% and 10% of the total cost consumed respectively.

The data were transcribed in a MS-Excel spreadsheet and arranged in the descending order based on Camp Drug Expenditure. Then cumulative cost, cumulative cost percentage, and percentage of number of items were calculated and based on capital investment A, B and C items were separated. The drugs were then classified into 3 groups, group A (items which consume 70% of total cost), group B (items which consume the next 20% of the

total cost) and group C (items which consume the remaining 10% of the total cost) based on Pareto's principle.⁵

RESULTS

Table 1: Result of ABC analysis of the camp drugs.

Group	Number of drugs (percent of total drugs)	Expenditure in rupees (percent of total expenditure)
A	6 (15.79)	8949 (69.52)
B	11 (28.95)	2735.49 (21.25)
C	21 (55.26)	1188.17 (9.23)
Total	38 (100)	12872.93 (100)

Table 2: List of drugs used in the health camp.

Category	Drugs
A	Tab. Amoxycillin(500mg)+ clavulanic acid (125mg)
	Tab. Azithromycin (500mg)
	Tab. Cetrizine 10mg
	Tab. Omeprazole 20mg
	Gauze roll
	Gloves
B	Tab. Paracetamol 500mg
	Tab. Diclofenac 50mg
	Cotrimoxazole paediatric suspension
	Tab. Calcium
	Tab. Multivitamin
	Syrup Paracetamol (half litre can)
	Syrup Chlorpheniramine Maleate
	Cough syrup (half litre can)
	Plaster
	Povidone iodine ointment (small tube)
C	Cotton rolls (small size)
	Tab. Amoxicillin 125mg
	Tab. Norflox 400mg
	Tab. Metronidazole 400mg
	Tab. Cotrimoxazole –single strength
	Tab Ciprofloxacin 500mg
	Tab. Amlong 5mg
	Tab. Salbutamol 4mg
	Tab. Domperidone 10mg
	Tab. Albendazole 400mg
	Tab. Combiflam
	Tab. Dicyclomine and paracetamol
	Tab. Ferrous sulphate
	Tab. B complex
	Tab. Digene
	Tab. Sinarest
	Ciplox eye/ear drops
	Candid v3 vaginal pessary
	Oral Rehydration Solution
	Soframycin cream
	Band aid
	Spirit

Total of 809 patients were treated in the ten camps that were conducted in different villages. On an average 80 patients were seen in each camp. Paediatric patients (≤ 18 years) seen in the camps were 93 boys and 101 girls. Geriatric patients (>60 years) were 120 males and 114 females.

The drug used in the health camps consisted of total 38 items. The total drug expenditure of the health camps was Rs. 12872.93.

The result of ABC analysis of the drugs used for health camps is shown in Table 1.

Thus, the organizers had an option of saving time by focussing on drugs in 'A' category for ABC analysis.

The list of drugs used in the health camps are summarized in Table 2. Category A consists of antibiotics which are costly than to those antibiotics in category C. Category A also comprised of antacids and antihistamines. Category B consists of anti-inflammatory drugs, pain killers, supplements and first aid items.

Table 3 summarizes the common ailments seen in the health camps. The most common ailments seen among males and females in the health camps were musculoskeletal problems and respiratory disorder which were treated with category A and B drugs.

Table 3: Common ailments seen in the camp.

Disorder or system involved	Male	Female
Musculoskeletal problems	113	245
Respiratory disorder	78	83
Gastrointestinal problems	43	45
Dental problems	23	34
Viral fever	22	14
Gynaecological problems	Not applicable	11
Ophthalmological problems	7	17
Dermatological problems	8	13
Anemia for evaluation	7	19
Others*	39	38
Total**	340	519

Note: *Others include ENT problem, hypertension, diabetes, anemia for evaluation, surgical problem, urological problem and neurological problem; **The total no. of health problems is more than the total no. of patients seen, as some patients had multiple health problems.

DISCUSSION

The idea behind these health camps is to identify the medical morbidities and treat them accordingly. The health camp acts as a screening tool for various diseases. The cases that needs referral were sent to the primary health center and tertiary level hospitals. Lot of meticulous planning goes into this. The camps were conducted in the evening which was convenient for the

public. The most common problems encountered in the health camps were musculoskeletal problems, respiratory disorder, gastrointestinal problems, dental problems and viral fever.

Mani et al in their study in primary level health care facility of Kancheepuram District found that 84 drugs were used. ABC analysis showed, 15 items (17.9%) in Category A, 17 (20.2%) in Category B and 52 (61.9%) in Category C consumed 70.6%, 19.47% and 9.9% of the total ADE.⁷ Gupta et al in their study in Pune showed that out of 325 drugs, 47 (14.6%) drugs consumed 70% of ADE (Group A), 73 (22.46 %) consumed 19.99 % of ADE (Group B) and the rest 205(63%) drugs consumed just 9.99% of the total budget.⁸ In a study done by FS Vaz et al revealed that out of 113 drugs listed , 19.47% of the drugs were found to account for 68.96% of the annual drug expenditure (22 drugs) and were classified as A category drugs. Another 23.89% of the drugs (27 drugs) consumed 21.03% of the budget (B category), while the remaining 56.64% of the drugs (64 drugs) accounted for only 10.01% of the annual drug expenditure (C category).⁹

We present an inventory analysis of drugs used at the village camps. The total cost incurred for procurement of drugs in these camps was Indian rupees 12872.93. We found that 15.79% of drugs were in category A. If we were to manage drug inventory solely based on ABC analysis, supervision of only 6 drugs would have resulted in control over approximately 70% of the drug budget.

Almost all of the existing literature is from tertiary or secondary care settings. We could not locate any publication from India that was done on health camps.

CONCLUSION

ABC inventory management enables for categorization of drugs based on cost and identifies the level of managerial control required. This analysis of health camps is expected to promote the effective management of drug inventory with minimal monetary resources and will contribute to the provision of uncompromised patient care. We believe that these planned health camps with ABC inventory management will have a lot of impact.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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