

Research Article

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Evaluation of Sustainability of An Outreach Dental Centre: A Refined Break Even Analysis

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ABSTRACT

Introduction – Outreach centres provide dental services at subsidised rates in urban and rural areas but sustainability of these centres remains a question.

Methodology- Functional Outreach rural centre of a private institution providing oral health care services was selected for the study. Retrospective fiscal data was collected for past financial year. Cost analysis was done using a contribution method.

Results- Break even existed with some amount generated as a marginal benefit.

Conclusion – Unit was found to be self-sustainable and generated some extra income which would help in the revision of the policy regarding the patients being treated for free in the outreach rural centre.

Key-words: Cost analysis, Oral health services, Outreach centre.

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INTRODUCTION

In developing countries, the demographic and epidemiological transition is putting increasing pressure on scarce government resources.¹ WHO statistics show the total expenditure on health for India is 4.4 percent of the total GDP, for a population of 1.27 billion. Hospitals are seen as vital units that contribute to provide services to community they serve and should be well managed for the benefit of the community.² They play a major role in providing health care services that community needs in a most cost effective manner. One of the means is by establishing outreach centres which fulfil the two components i.e. training for undergraduate dental students and service component for the society. According to the Dental Council of India (DCI) ordinance 2011 every dental college needs to establish two to three outreach dental centres depending on their student intake.³ But the sustainability of these centres remains a question as these units provide the services at either no cost or at a low or subsidised cost. Cost finding and analysis can help departmental managers, hospital administrators, and policymakers to determine how well their institutions meet these public needs. Cost finding and cost analysis are the technique of allocating direct and indirect costs and are also of value to management in ensuring that costs do not exceed available revenues and subsidies.⁴ Thus, the study was planned as a cost analysis for the peripheral dental unit with the following objectives :

(1) To compute the capital cost required to set up an outreach dental centre

(2) To calculate the operating cost for the unit

(3) To calculate if there is a break even in the income and expenditure and (4) To suggest recommendations according to the results to make the unit self sustainable.

METHODOLOGY

Study unit included an outreach peripheral dental centre of a private institution rendering all dental services except for orthodontics to the public at a subsidised rate and also has a policy of treating 10% of the patients for free. The same centre also confers a rural service experience to the undergraduate BDS students during their internship. Retrospective data was collected from files and records maintained by the administrative Dept. of the institution and the staff members of the out reach centre. The OPD registers confirmed the number of patients being catered to and the bill books provided the data on income and expenditure of the unit for the financial year of 2012-2013. Collection of annual data "helps to equalise the seasonal variations" since each hospital is affected by these factors differently. Seasonal variations for any institution contribute towards the variation in the number of patients at different periods of time or months and thereby leading to erratic consumption of dental materials and inconsistent revenue generation. The hospital unit needs to anticipate these possibilities. For administrative purpose three types of costs were taken into account.⁵ Patient care costs are responsible for direct patient services. eg is the consumable as dental materials used for the treatment. Second, being the Intermediate costs which provide ancillary services to support inpatient units but are organized as separate departments. Example : Laboratory charges for fabricating a prosthesis. Third is the Overhead costs - the cost that centers provide for overhead support services to both patient care and intermediate cost centers. Example : Utilities being used as water, electricity, diesel for travelling and electricity.

'Break-Even Analysis'

$$\text{Fixed Costs} + \text{Variable Costs} = \text{Net Sales Revenue}$$

An analysis to determine the point at which revenue received equals the costs associated with receiving the revenue. Break-even analysis calculates what is known as a margin of safety, the amount that revenues exceed the break-even point. This is the amount that revenues can fall while still staying above the break-even point. Break-even analysis does not focus on the time value of money. The analysis does not consider the Opportunity costs that relate to the best alternative use of your money. There are always alternative uses for funds that may be more profitable than the project as break even analysis considers every project in isolation. Despite its limitations, break-even analysis is a very useful tool with which to approach a variety of decision problems. Such questions as the costs of

expansion, evaluation of profit performance, estimation of the impact of various expenses on profit, setting service prices, and financial analysis in general are appropriately addressed using break-even analysis. It is best used in conjunction with other financial analysis techniques or as a screening device to determine whether more study is needed.⁶

The following tables show the costs calculated for the line items that appeared on the financial sheet –

Table 1. Capital costs – Capital assets are the ones having an economic useful life exceeding one year and not acquired primarily for resale.	
Space costs	Salary of one staff
Equipments	
Major equipments <ul style="list-style-type: none"> • Dental Chair • Generators • Boosters • Autoclave 	Minor equipments <ul style="list-style-type: none"> • Extraction instruments • Scaling set • Aerorotor hand pieces • Basic screening instruments • Kidney trays

Table 2. Operating costs = These are the costs for running the unit and include both the Direct and Indirect Costs.
Direct cost – Includes patient care costs and the intermediate costs included for providing services to the patients.
<ul style="list-style-type: none"> • Expenditure of the unit Cost for the manpower - Salaries were obtained from the dept. of finance. Salary of all the staffs was available. It was calculated according to the local wages paid and no staff existed as expatriate. None of the staff members received any fringe benefits from the institution. Types of personnel paid by the institution. Staff – Dental Surgeon ,Attender ,Housekeeper,Driver
<ul style="list-style-type: none"> • Cost of consumables/Materials – The indent lists of the dental materials and the cost was obtained from stores.
Indirect cost – it includes the cost of the utilities. <ul style="list-style-type: none"> • Electricity is required to run the motors required in dentistry- Diesel is used for generator in absence of electricity. Costs for both were collected from bills and unit records. The same source of data served to provide the costs for water and maintenance (space cost, Stationary costs, General maintenance) as well. • Travelling expenditure for consumables and specialty services– • Diesel expenses paid by the accounts section. • Salary paid to the driver for these two days was also included.

Table 3. Income of the unit - Income was in the form of revenue generated as the user fee charged from the patient. With a policy of treating 10% of the patients for free. If some patients received free care due to their inability to pay or because their fees was not collected, total cost recovery would be overstated if this fact was not taken into account.

A unit contribution margin analysis was performed with all the costs collected. It is a variant of Break Even analysis. So an alternative method for finding break-even values (and much more), called the contribution method, is actually a refinement of the profit break-even formula. You can think of contribution margin as the amount of money generated as revenue to contribute towards paying fixed costs/capital costs after all variable costs are covered or for improving services as and when required.⁶

Contribution margin = Net revenue - Variable cost

RESULTS

Salary of the staff and the utilities are paid by the college as their contribution towards community services. Thus our unit cost of consumables is what bothered us.

S.No	Types of costs	Amount computed
1	Capital costs	Rs 4,62,140
2	Number of patients	1995/yr
3	Consumables (Dental materials + Lab charges)	Rs 1,25,866
4	Donation	Rs 1,53,286
5	Income	Rs 1,47,837
	Break even exists	Rs 21,971

A Break even exists between the income and expenditure and thus we conclude that peripheral dental unit is self sustainable.

DISCUSSION

The present study elicited many strengths about the functional peripheral outreach centre which served 400 patients monthly. The administration department was able to give a clear picture of the salaries of the employees and the institution had a framed policy of treating 10% of the patients for free in the outreach dental centre. The simple methodology employed is replicable and can be used for estimating the yearly performance of the government peripheral units to estimate their output both for medical and dental services. Break even analysis can best handle the costs over a limited range of cost and time as new capital investments will be required to estimate costs much beyond the time frame. For example : Moving much beyond the existing OPD for patients will require additional capital expenditures for more floor space, or machinery, or more manpower which will distort the estimates of fixed and variable costs.

LIMITATIONS OF THE STUDY

This study did not address the patient perspective as its objectives solely contributed towards hospital administration and health economics. As a break even analysis was done no depreciation was applied to the capital costs in order to get the costs required to set up such units. However, lack of depreciation shows that this is not the time value or the true cost of the capital items.

CONCLUSION

The break even analysis showed the unit to be sustainable with a marginal income excess of consumables that would further lead to a revision of the policy pertaining to the free patient category.

RECOMMENDATIONS

1. In order to sustain the increase in income we should further expand the services by increasing the number of specialty visits and increasing the number of manpower appointed for the unit.
2. Further, cost benefit analysis can also be taken up to address the total costs paid by the patients.

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