

Cost Analysis, Cost Controlling and It's Effectiveness - Selected Hospitals

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Abstract

Cost-Effectiveness is a method for identifying interventions that achieve the greatest level of health impact per unit of expenditure. Effectiveness is typically measured in terms, improvements in health status. An important aspect of cost-effectiveness analysis is that it can be used to assess technical and allocative efficiency. Cost-benefit analysis is very widely used and it is therefore important that its methods be properly understood. In this article to contribute to the understanding by giving a formal description of the subject and examining the theoretical basis for some of the techniques which have become accepted tools of decision-making around the world. The data from the Supraja Hospital in Hyderabad can be used to identify areas of inefficiencies by comparing the costs and outputs. By comparing results of the various facilities, the range of costs for outpatient and inpatient services becomes evident and reasons for the differences can be better analyzed: low utilization, high administrative costs, personnel staffing, equipment and maintenance budgets, etc. Strategies can then be developed to address the problems, which may include increasing utilization of under-utilized facilities, changing staffing patterns, closing under-utilized facilities, etc. This study highlights the Cost analysis of various departments and the cost cutting recommendations to the Supraja Hospitals for the period of two years (2014-16).

Key Words: Cost-Benefit Analysis, Capital Costs, Personnel Staffing, Cost by Budget Category, Cost Analysis, Efficiency Indicators.

Introduction

A cost analysis is described by the American Accounting Association as "The foregoing in the monetary terms, incurred or potentially to be incurred in realization of objective of management which may be manufacturing a product or rendering of service." This particular study has been undertaken in order to ascertain various costs under different departments that are incurred in the health care industry named Supraja Hospitals and also to identify those departments where more costs are incurred. This article also focuses on cost benefit analyses where the benefits earned by investing in certain areas various areas where cost can be reduced are identified and also few suggestions are given to the industry for better cost control. The objective of cost control is to achieve the cost target and it aims at maintaining the cost in accordance with established standards. It aims at lowest possible cost under existing conditions. The article uses the step-down technique for allocating overhead and intermediate service departments costs to final service departments. The step-down technique was also used to allocate overhead and intermediate service department staff to final service department, and to estimate the full-time equivalents for each department and clinic.

Two major avenues for increasing health benefits from scarce resources are 1) increasing the efficiency and improving the management of existing health facilities and health programs and 2) increasing the allocation of resources to those programs that are most cost-effective. In order to increase the use of scarce resources for more cost-effective and efficient services, the Ministry of Health and Population undertook a cost-effectiveness exercise. Cost-Effectiveness is a method for identifying interventions that achieve the greatest level of health impact per unit of expenditure. Effectiveness is typically measured in terms of improvements in health status. An important aspect of cost-effectiveness analysis is that it can be used to assess technical and allocative efficiency.

Cost Allocation among Departments

Total costs consist of recurrent costs and the discounted present value of capital costs. These are allocated to the overhead, intermediate service, and final service departments according to the proportion of support required by each department. Data collected for cost estimation were grouped under five broad categories: major and minor equipment, building and permanent structures, labor (personnel costs), utilities, drugs and medical supplies.

1. Capital Costs are the annual costs of resources that have a life expectancy of more than one year. They include depreciated annual costs for buildings, equipment and furniture. The study uses replacement costs for capital items.
2. Recurrent Costs are costs associated with inputs that will be consumed or replaced in one year or less, such as salaries, training (refresher courses), drugs, food and utilities.

Purpose of the study

The Purpose of the study is to know the cost incurred in the various departments of Supraja Hospital. To know the cost of a departments in the particular financial years. To analyze the profit and loss account of the Supraja Hospitals and how much expenses they are bearing in the financial years.

Scope of the study

The study is confined to the period of 2014-16. In this study attempts are made to discover the general rates and prices of the equipment's and pharmacy (Medicines) used in the Hospital. This study is useful for the Supraja Hospitals to know how much they are expending in different departments and how to control the costs in next financial year. The study will also be useful in deciding the purchase of equipment's from various suppliers

Objectives of the study

The study is an attempt to seek an insight into aspects that are involved in Cost Analysis to achieve the following objectives: To find the Cost Analyzing & its effectiveness on the firm from 2014-16.

The main objectives of the cost and allocative efficiency article of the Supraja Hospitals are the following: (a). Develop a clear and appropriate methodology for calculating the service cost. (b). Estimate the actual economic costs of services delivered by each medical department of the hospital. (c). To give cost cutting recommendations to the hospital after analyzing the cost analysis of the Hospitals.

Review of Literature

Review: 1

Authors: Sheetal Vyas, Gneyaa S Bhatt, Kinnari I Gupta, Hemant Tiwari

Title: A cost analysis of deliveries conducted in various health care settings in a city of India

Description

In the present study, the differences in average total expenditure in case of ND as well as CS in Government, Corporation and Private Hospitals and in Home (for ND only) were found significant. This difference is mainly because of difference in the direct medical cost in these settings. In civil hospital, it is only that of medicines and consumables and no cost of hospital bill to the patients. Even the charges taken by personal in home delivery either in cash or in most cases in

kind were higher than the cost in government hospital. In case of CS delivery direct non-medical and indirect cost were higher in government hospital that may be because duration of stay was more in these cases. It was seen that quite a big share of monthly income was spent for child birth especially in corporation and private institutions. In case of CS delivery, it even exceeded 100%. One fifth of the family were compelled to take debt to overcome the expenditure

Review: 2

Author: Jane Doherty

Title: Cost-effectiveness analysis for priority-setting in South Africa - what are the possibilities?

Description:

Some capacity to undertake costing and CEA in South Africa already exists. CEA information has already influenced clinical decision- making and policy. The following are possibilities offered by CEA and burden of disease estimates to contribute further to decision-making in South Africa:

1. Promotion of dialogue on health and health care priorities as well as affordability.
2. Advocacy against interventions that are clearly cost-ineffective and unaffordable (especially at central hospital level).
3. Advocacy for interventions that strengthen the district health system (because of the highly cost-effective nature of primary and district hospital care), including motivation for increased funding from Treasury.
4. Advocacy for acceptable pricing of drugs and vaccines.
5. Assessment of innovative new interventions, including those for emerging conditions.
6. Identifying clusters of interventions that can enhance the shared use of inputs, reduce costs to patients, achieve synergy between interventions, reach related individuals, and screen patients at the primary level to increase efficiency of referral.

Review: 3

Title: Health Cost Containment and Efficiencies

Source: National Conference of State legislatures (NCSL Briefs for State Legislators)

Description:

NCSL's Health Cost Containment and Efficiency Series describes multiple alternative state policy approaches, with an emphasis on documented and fiscally calculated results. An article is housed at the NCSL Health Program in Denver, Colorado. It is led by Richard Cauchy, program director, and Martha King, group director, with Barbara Yonder as lead researcher and author of most of the briefs.

NCSL gratefully acknowledges the financial support for this publication series from The Colorado Health Foundation and Rose Community Foundation of Denver, Colorado.

1. This brief focuses on reforms designed to reduce medical malpractice litigation costs. Other types of reforms are primarily intended to reduce the incidence of medical negligence (e.g., by improving hospital patient safety or giving patients access to reports of hospitals' and doctors' adverse incidents).
2. A "tort" is defined as a wrongful act other than a breach of contract that injures another and for which the law imposes civil liability.

Complementary Strategies the cost savings potential of medical malpractice liability re- forms may be enhanced when offered with complementary cost containment strategies. Examples include patient safety initiatives and global payments to providers, which are the subject of other briefs in this series. Other complementary strategies include providing adequate or enhanced funding for state medical boards to expeditiously investigate complaints about and discipline doctors; developing robust data- collection efforts to track and analyze medical errors and instances of malpractice; and supporting efforts to make clinical best practice guidelines widely available to, and a safe harbor in malpractice cases for, clinicians.

Review:4

Title: Cost-effectiveness Analysis of Health Care Interventions in Meskanena Mareko Wereda, Ethiopia

Authors: Ababi Zergaw, Damen Haile Mariam, Ahmed Ali

Description:

Implementing 22 health care interventions with cost of less than 100 Birr per DALY gained at the health stations level will avert 52% of the BOD in the area. On the other hand implementing 17 interventions at the hospital and 18 interventions at the health center level will avert only about 22 to 34% of the BOD.

Objectives: To analyze and evaluate the cost-effectiveness of health care interventions in terms of lessening disease burden and improving health status in a rural community.

Methods: The evaluation was conducted in health institutions in Meskana Mareko Wereda and in Shashemene Hospital that were purposively selected. Article subjects were people utilizing these facilities. Data on inputs of interventions were analyzed using the Disease Burden Modeling System and Disability Adjusted Life Years (DALYs) gained was used as a measure of effectiveness of interventions.

Results: Interventions at health stations level were most cost-effective compared to those at health center and the hospital. Generally, community and preventive interventions were found to be more cost-effective in lessening existing burden of disease (BOD) in the local community and in improving the general health status of the populations with cost of less than 5 Birr per DALY gained.

Review:5

Title: Evaluating Costs and its Benefits in Health Care

Description:

Most of the specific findings of this report relate to two major general findings of the OTA

assessment. The first of the general findings is that performing an analysis of costs and benefits has the potential to be very helpful to decision makers, because the process of analysis structures the problem, allows an open consideration of all relevant effects of a decision, and forces the explicit treatment of key assumptions. The second general finding is that CEA/CBA exhibits too many methodological and other limitations to justify relying solely or too heavily on the results of formal CEA/CBA studies in making a decision. Thus, CEA/CBA could be useful for assisting in many decisions, but is probably not appropriate as the sole or prime determinant of a decision.

About the Company

- **Inspired to Be the Best:** Supraja Hospitals was founded by a group of doctors who are committed to provide world-class tertiary care at affordable prices coupled with a patient friendly environment and empathy. As they believe empathy is the most soothing human gesture that is as important as treatment! Supraja Hospitals strive to be a people's hospital offering exceptional value and unconditional transparency.
- **Inspired to Set Standards:** At Supraja Hospitals they believe 'Healthy Living' is every individuals birth right, this motto ever inspires us to serve better...and forms the philosophy behind our vision, mission and core values.

Supraja Hospitals are distinguished from the rest by:

- Health care services catering to the growing middle-income Groups
- World class standards of hygiene and infection Control
- High level of expertise available through highly trained professionals
- Continuous medical and professional education programs for all Staff
- Personalized patient care with professionally trained Staff

- Patient friendly design, that allows easy access to all departments
- Internationally benchmarked standard protocols and 'evidence-based' medical practice
- Cashless In-patient services for patients with insurance and employees of corporate companies

Hospitals

Despite the increased outsourcing (not uncommon in any industry today) of medical records, housekeeping, lab testing, and clinical services (e.g., orthopedics and radiology), hospitals remain the biggest employers in the health-care industry. The huge networks such as HCA and Tenet demand a steady supply of doctors, nurses, administrators, medical technicians, therapists, and other support staff. In areas where competition from HMOs is mounting and cost-cutting is a priority, former staff may move outside the immediate confines of a hospital. However, close and important links remain-particularly for any type of surgery or specialized treatment such as chemotherapy.

Home care

Advances in technology have done much to improve efficiency and reduce costs for both patients and home care staff. Today, home care nurses and aides can administer complex treatments previously available only in hospitals and clinics to the elderly and severely disabled in their own homes. And because almost all hospitals and HMOs now release patients before they are self-sufficient, home care is often the most cost-effective choice. Most jobs in this sector don't require much training (they are closely supervised by RNs, NPs, or physicians)-just deep reserves of patience and kindness.

Care for profit

Most people pursue a career in health care because they want to help people in need. Increasingly, however, the business side of health care has come between patients and providers.

"At my hospital, we're supposed to call the patients 'customers,'" says one insider. "I keep telling my boss this is not Lord Taylor!" or "All I can say is it stinks, and corporate America has no business in the system," says another. Lots of strong emotions emerge in this discussion, and these days are certainly not easy or happy ones in this industry. The higher up the ladder you go, the more bruising and harsh the politics and economics tend to become.

Methodology

Methodology is a way to solve the research problem systematically. It includes the methods required for systematic analysis and logical interpretation of empirical evidence. So, it covers the source of data collection, tools and techniques used for the analysis, interpretation and presentation of data and limitations of the study.

Research Tools

The detailed procedure of calculation adopted by the researcher: Annual Costs of Supraja Hospitals for the financial years 2014-16

Diagrammatic and graphical representation of data:

A picture is a worth of thousand words. Thus created by a picture has much greater impact than any amount of detailed explanation. Statically data can be effectively presented in the form of Graphs and Diagrams. Graphs and Diagrams make complex data simple and easily understandable. They help to compare related and bring out subtle data with amazingly clarity.

Data Collection

There are two types of data collection one is primary data collection and other one is secondary data collection. Here in this study secondary data collection used.

Secondary data

The article collects most of the information from different secondary resources official websites, financial statements, newspapers and by using the statistical tools and different methods also.

- Annual reports of various departments
- Internet
- Magazines and journals

Period of the study

The period of the study is confined to financial years 2014 - 2016

Tools and Techniques used

- **Average cost (unit cost):** Defined as the total cost divided by number of units of output, e.g., cost per admission, cost per patient-day and cost per outpatient visit. Similarly, marginal cost is the additional cost required to produce one more unit of output.
- **Annual cost of department:** The total annual cost of the department after allocation of overhead and intermediate departments using the step-down allocation method.
- **Annual hospital expenditures:** Includes the annual cost of personnel, medications, depreciation of buildings and equipment, and food and utilities.
- **Average length of stay (ALOS):** The mean number of days from admission to discharge for diagnosis and inpatient department.

$$\text{ALOS} = \frac{\text{Annual number of inpatient days}}{\text{Annual number of admissions}}$$
- **Bed turnover rate (T):** The average number of patient admissions per bed during one year.

$$T = \frac{\text{Annual number of admissions}}{\text{Average number of available hospital beds during a year}}$$
- **Capital cost:** The annual cost of resources that have a life expectancy of more than one year, e.g., buildings, equipment and vehicles. Staff training also can be classified as capital cost if the new skills are expected to last for one year or more. The costs of refresher training courses that occur throughout the

year should be classified as recurrent.

- **Cost-effectiveness analysis:** The technique used for identifying which health interventions achieve the greatest level of health impact per unit of investment.
- **Cost per admission = Total annual cost of inpatient department/total annual number of admissions for the department. Direct costs of department:** The costs attributed to each cost center prior to the allocation of the cost centers associated with hospital outputs.
- **Financial cost:** The actual expenditures or outlays made for a specific intervention.

Limitations of the study

- The study is confined to a period of 2014-2015 and 2015-2016 only.
- Being the Hospital was recently established so we can't get the exact capital costs of the hospital.
- Need to improve in the efficiency indicators of the Hospital.
- Another important limitation of the study is the adjustments made for the unit prices for the purpose of rounding off. As a result, a few of the places in the study variations are occurring.

Data Analysis and Interpretation

Capital Costs

Annual Cost for Fixed Assets

The study used the replacement cost of fixed assets during the period of reference time, the period of data collection from 01-04-2014 to 31-03-2015. This categorizing system was designed with the assistance of experts in the field of medical supplies who are familiar with the actual productive lifetime for equipment and furniture in India according to the level of maintenance and used frequency of the fixed assets. The costs of the total fixed assets are shown below:

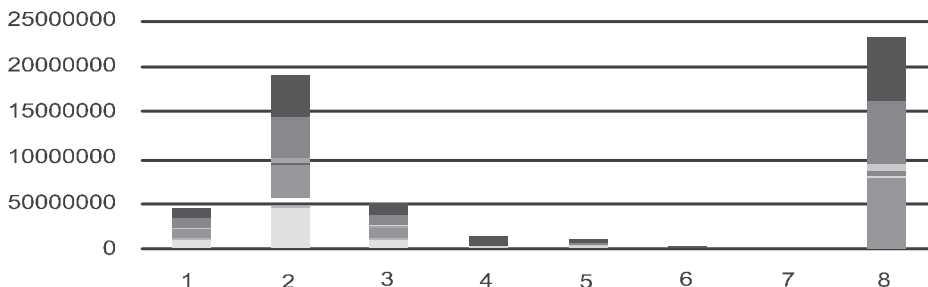
2014-2015

Particulars	Additions during the year	Depreciation	Net Block
lease hold	11080233	56904	11023329
hospital equip	46063025	689368	45373657
electrical equip	11866388	264328	11602060
Computer	1139765	49951	1089814
furniture	2392557	47717	2344840
office equip	797076	15897	781179
Vehicles	413000	12362	400638
Total	73752044	1136527	72615517

2014-2016

1/4/2015	Additions	Gross as at 31-3-2016	Deprecia TION as at 1-4-2015	From the year	Total Deprecia tion as at 31-3-2016	Net Block 31-03-2016	31-03-2015
11080233	397054	11477287	56904	364679	421583	11055704	11023329
46063025	1035000	47098025	689368	3419565	4108933	42989092	45373657
11866388	532020	12398408	264328	1174855	1439183	10959225	11602060
1139765	97250	1237015	49951	398015	447966	789049	1089814
2392557	63440	2455997	47717	235323	283040	2172957	2344840
797076	0	797076	15897	158329	174226	622850	781179
413000	0	413000	12362	49464	61826	351174	400638
Total	2124764	75876808	1136527	5800230	6936757	68940051	72615517

Cost of fixed Assets



Interpretation: Hospital was established in ending of financial year 2012-13, so no fixed are purchased. Fixed assets are purchased in the F.Y.2014-2015 so it comes under additions, the net block of fixed assets in F.Y 2014-15 is 72615517. In 2015 again additions value of 2124764 added. Here they followed **straight line depreciation method** so in the F.Y. 2015-2016 the same depreciation value has carried down. Comparing to the F.Y. 2014-2015 and 2015-2016 the net block value of asset is higher in F.Y.2014-2015 only because of heavy depreciation charged.

Annual Cost of Drugs and Medical Supplies

This category includes drugs and medical supplies provided by the hospital. It does not include prescribed drugs that patients purchase outside of the hospital. Data related to drugs and medical supplies used by the final service departments were collected from the Pharmacy and Store Departments. Cost analysis shows that 16% of annual hospital expenditures were spent on drugs and medical supplies.

Results of the study

This section presents the main findings from the study. To recapitulate, the total annual cost is the sum of the annualized capital costs and recurrent costs. In turn, capital costs and recurrent costs are subdivided into five subcategories. The total annual cost for Supraja Hospital in 2014-2015 and 2015-2016 was 24642881 and 93060753.

Cost by Budget Category

Breakdown of total costs by capital and recurrent costs:

- ♦ Annualized capital costs represented 33.93% percent of total costs. Of these building costs accounted for 6% and equipment and furniture 14%. For the analysis, the cost of land is not taken into consideration.

- ♦ Recurrent costs represent 80 percent of the total cost. Personnel accounted for 51 percent of total cost, followed by drugs and medical supplies at 16 percent and utilities at 13 percent.
- ♦ Physicians account for 45 percent of personnel costs, followed by nurses at 20 percent, and other personnel making up the remaining 35 percent.
- ♦ A large portion of the cost of drugs and medical supplies - 30 percent - is attributable to the renal dialysis department.
- ♦ Only 0.28 percent of the total annual recurrent costs are spent on maintenance.

Department Specific Results

Ear, Nose and Throat Department

Cost Analysis

- ♦ Annual cost of the department; 483485 (5% of total annual expenditures of inpatient departments). Cost per inpatient admission: 1328
- ♦ (Annual cost of the department/ No.of inpatients = 483485/364)
- ♦ Average Cost per month 40,290 (483485/ 12)
- ♦ Average length of stay: 2.85
- ♦ Annual cost per bed: 3233
- ♦ (Annual cost of the department/ No.of beds in hospital)

Efficiency Indicators

- ♦ Annual admissions: 364 (4.37 percent of total annual admissions)
- ♦ Occupancy rate: 29.37
- ♦ Bed Turnover Rate: 3
(Annual number of admissions/Average number of available hospital beds during a year: 364/150)

General Medicine Department

Cost Analysis

- ♦ Annual cost of the department; 28711916 (20% of total annual expenditures of inpatient departments)
- ♦ Cost per inpatient admission: 7667
- ♦ (Annual cost of the department/ No. of in patients = 28711916/3745)
- ♦ Average Cost per month 2392660 (28711916/12)
- ♦ Annual cost per bed: 191412
(Annual cost of the department/ No.of beds in hospital)

- ♦ Average length of stay: 11.06

Efficiency Indicators

- ♦ Annual admissions: 3745(21.27 %of total annual admissions)
- ♦ Occupancy rate: 40%
- ♦ Bed Turnover Rate: 25
(Annual number of admissions/Average number of available hospital beds during a year: 3745/150)

Cardiology:

Cost Analysis

- ♦ Annual cost of the department; 113586 (0.12%% of total annual expenditures of inpatient departments)
- ♦ Cost per inpatient admission: 1321
- ♦ (Annual cost of the department/ No.of in patients =113586/86)
- ♦ Average Cost per month 9466 (113586/12)
- ♦ Annual cost per bed: 757.24
(Annual cost of the department/ No.of beds in hospital)
- ♦ Average length of stay: 2.28

Efficiency Indicators

- ♦ Annual admissions: 86 (0.5%of total annual admissions)
- ♦ Occupancy rate: 10%
- ♦ Bed Turnover Rate: 1
(Annual number of admissions/Average number of available hospital beds during a year: 86/150)

Radiology:

Cost Analysis

- Annual cost of the department; 986697 (1.09% total annual expenditures of inpatient departments)
- Cost per inpatient admission: 1019
- (Annual cost of the department/ No. of in patients =986697/968)
- Average Cost per month 82224.75 (986697/12)
- Annual cost per bed: 6577.98
(Annual cost of the department/ No.of beds in hospital)
- Average length of stay: 5.25

Efficiency Indicators

- Annual admissions: 968 (5.5%of total annual admissions)
- Occupancy rate: 15%
- Bed Turnover Rate: 7
(Annual number of admissions/Average number of available hospital beds during a year: 968/150)

Neurology Surgery:

Cost Analysis

- Annual cost of the department; 1970209 (2.19% total annual expenditures of inpatient departments)

- Cost per inpatient admission: 30310
(Annual cost of the department/ No. of in patients = 1970209/65)
- Average Cost per month: 164184 (1970209/12)
- Annual cost per bed: 13135
(Annual cost of the department/ No. of beds in hospital)
- Average length of stay: 5.70

Efficiency Indicators

- Annual admissions: 65 (0.5% of total annual admissions)
- Occupancy rate: 5%
- Bed Turnover Rate: 0.43
(Annual number of admissions/Average number of available hospital beds during a year: 65/150)

Orthopedics:

Cost Analysis

- Annual cost of the department; 11945097 (13.28% total annual expenditures of inpatient departments)
- Cost per inpatient admission: 6192.37
(Annual cost of the department/ No. of in patients = 11945097/1929)
- Average Cost per month: 995424.75 (11945097/12)
- Annual cost per bed: 79633.98
(Annual cost of the department/ No. of beds in hospital)
- Average length of stay: 12.33

Efficiency Indicators

- Annual admissions: 1929 (11% of total annual admissions)
- Occupancy rate: 35%
- Bed Turnover Rate: 13
(Annual number of admissions/Average number of available hospital beds during a year: 1929/150)

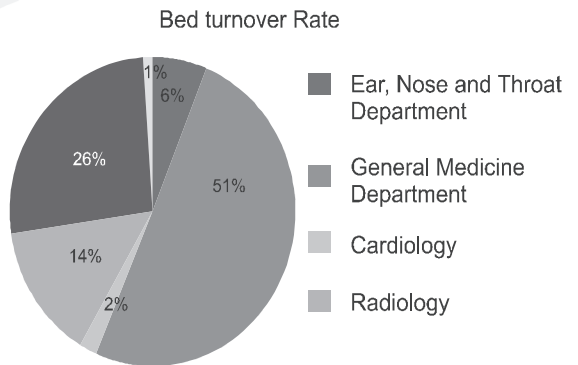
Interpretation:

Comparing to 6 departments in Hospitals out of all these departments the no. of admissions are highest in the General medicines followed by orthopedics department. The hospital is a multi-specialty hospital and filled with 150 beds. So, the bed turnover rate is highest in General Medicine department with 25 and Orthopedics with 13 /the lowest was occupied by Neurology Surgery with 0.43%. The General medicine department occupied highest in all the efficiency indicators of the hospital because the major in patients and the major part of revenue are coming to the hospital from this department only.

Bed Turnover Rate: Bed turnover rate (T): The average number of patient admissions per bed during one year.

(T = Annual number of admissions/Average number of available hospital beds during a year)

Particulars	Bed turnover rate
Ear, Nose and Throat Department	3
General Medicine Department	25
Cardiology	1
Radiology	7
Neurology Surgery	13
Orthopedics	0.43

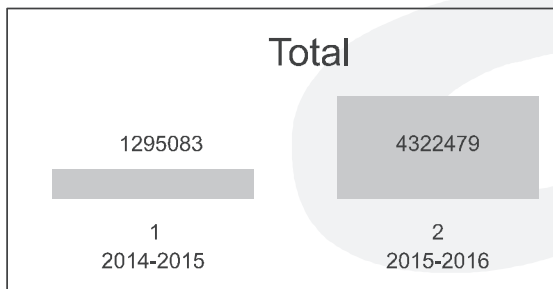


Interpretation: The highest bed turnover rate is of General medicine department with 25 followed by orthopedics with 13 because the admissions of the department are increasing more in the general medicine department.

Financial cost: The actual expenditures or outlays made for a specific intervention.

Result: The annual financial costs of the hospital for the F.Y. 2014-2015 and 2015-2016 is 1295083 and 4322479 the finance costs are again classified in to 2 categories i.e., Interest cost and bank charges and other borrowing cost. The division of finance costs has shown in the following table and graph:

Particulars	2014-2015	2015-2016
Interest cost	1206084	4029607
Bank Charges and other borrowing cost	88999	292872
Total	1295083	4322479



Interpretation: Here in 2013-2015 the finance costs are low compared to the 2015-2016 where the capital costs are higher in 2014-2015 than 2015-2016. In 2014-2015 the bank charges are less i.e., 88,999/- compared to 2015-2016 i.e., 1,206,084/-.

Average cost (unit cost): Defined as the total cost divided by number of units of output, e.g., cost per admission, cost per patient-day and cost per outpatient visit. Similarly, marginal cost is the additional cost required to produce one more unit of output.

Average cost per unit:

$$98860983/104013883 = 0.983 \text{ (2015-2016)}$$

$$25779407/17932055 = 1.4376 \text{ (2014-2015)}$$

Summary of findings

The annual expenditure of hospital is highest in 2015-2016 is of Rs. 9,88,60,983 than the 2014-2015 Rs. 2,57,79,407 because the established in the 2013 January so there is no capital costs at the end of year 2014-2015. The cost-efficiency indicators of the Supraja Hospitals are Bed turnover Rate, Annual admissions and Occupancy rate here the occupancy rate of neurology is very less i.e., 0.43% because the hospital was established recently so the major patients will come for General medicine department only. The Bed turnover rate is highest with 25 in General medicine department so 1st Length of stay of this department is 2nd highest with 11.03% and the highest with 12.33% in Orthopedics department.

The financial costs have been classified in to 2 types they are interest cost and bank charges and other borrowing costs. In 2014-2016 the financial costs of the hospital was increased due to the more financial need of the hospital as it was recently established. The capital costs of the Hospital (All Tangible Fixed assets) is higher in the 2014-2015 than compared to 2015-2016 with 72,615,518/-. Here they followed straight line depreciation /method so the first year carried depreciation was carried same to the next year with the cost of 1136526/-. The average length of stay (ALOS) is an important indicator of the efficiency of hospital resource utilization. Differences in the average length of stay among comparable types of departments imply differences in prevailing treatment practices across the hospital. The Length of stay is highest in General medicine department. To recapitulate, the total annual cost is the sum of the annualized capital costs and recurrent costs. In turn, capital costs and recurrent costs are subdivided into five subcategories. The total annual cost for Supraja Hospital in 2014-2015 and 2015-2016 was 2,46,42,881 and 9,30,60,753. Data related to

drugs and medical supplies used by the final service departments were collected from the Pharmacy and Store Departments. Cost analysis shows that 16% of annual hospital expenditures were spent on drugs and medical supplies.

Recommendations to improve the Cost-efficiency of Supraja Hospital include:

Hospitals perform a range of different functions, including provision of inpatient treatment services within various medical specialties, specialist and general outpatient care, medical and paramedical support services, and other support services such as administration. It is important to know the balance of resources absorbed by different functions. To examine the efficiency with which departments of the hospital carry out their intended functions it would be desirable to have studies which specify cost functions and estimate average costs.

The depreciation cost will be calculated under the straight-line depreciation method so the actual cost of the Fixed Asset would be not shown exactly so it is better to follow the Written Down value method. Increase hospital autonomy and decision-making by the hospital director in budget allocations, staffing, drugs purchases, etc. A performance-based incentive system is one feasible and practical method for rewarding good management practices and performance. Staffing ratios per bed or bed day are not an infallible proxy for quality of service. Training and skill level, supporting technology, team work, and organization of services are all essential complementary co-determinants of quality. In addition, differences in the case mix inside and between departments has an important role. For example, ICU patients need more staff than orthopedics patients. Increases in the budget for drugs and medical supplies. This will increase the total annual cost of the hospital; on the other hand, the availability of drugs will likely increase the quality of care and the utilization rate (number of admissions) and this, in turn, will decrease the total cost per admission.

Treatment protocols for the same cause of admission vary among physicians of the same department. The average length of stay can be reduced by more than 50 percent by changing the standard practice for specific cases of admissions. Maintenance has important implications for the overall technical efficiency of the hospital. Unfortunately, maintenance costs are directed mainly towards repairing hospital equipment and not towards regular and preventive maintenance, for which there are no plans. Reducing the average lengths of stay by increasing the occupancy rate would enable the turnover rate to increase and would extend hospital benefits to a greater number of people to benefit from hospital services. This study investigated the main causes of long average lengths of stay for different diagnoses.

Conclusion

Average costs are customarily used to provide data needed to rate hospital performance. Knowing the average cost only, however, is not sufficient to reach decisive conclusions regarding the sources of hospital efficiency. Ideally, a comparative study of the cost per unit of output for several hospitals would provide useful data on the hospitals that have provided optimal services with the greatest efficiency. Understandably, several minimum conditions, including quality of services provided and the clinical composition of the patients for each hospital, would have to be known to give credibility to such results.

The average length of stay (ALOS) is an important indicator of the efficiency of hospital resource utilization. Differences in the average length of stay among comparable types of departments imply differences in prevailing treatment practices across the hospital. However, without information about case mix and severity, it is difficult to use length of stay as a direct indicator of efficiency. However, stays that are unusually long raise many questions regarding efficiency and prompt a closer look at the possible causes. A performance-based incentive system that incorporates efficiency indicators as those

assessed in this cost analysis, plus additional indicators of quality of care, patient satisfaction, and rewards for the hospitals and managers that achieve outstanding gains is one feasible method for improving management.

Cost analysis (also called economic evaluation, cost allocation, efficiency assessment, cost-benefit analysis, or cost-effectiveness analysis by different authors) is currently a somewhat controversial set of methods in program evaluation. One reason for the controversy is that these terms cover a wide range of methods, but are often used interchangeably. There is continuous increase in the profits of the industry in accordance with the cost and sale proceeds.

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