

ANALYSIS OF COST REDUCTION TECHNIQUES ADOPTED BY NARAYANA HOSPITALS ACROSS INDIA TO REDUCE THE FINANCIAL BURDEN ON PATIENTS

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ABSTRACT

In India majority of the population lives in rural areas who cannot afford quality healthcare services, especially in private hospitals. Thus, healthcare in India is not accessible & affordable to a majority of the population. Narayana Hrudayalaya group of hospitals have adopted many innovative strategies to bring down the cost of healthcare services while maintaining the quality. Methodology: A manual searching was done in various online databases & those articles were included which was related to Narayana hospitals cost management. Conclusion: Narayana Hospitals were able to reduce the cost of healthcare services across India while increasing its revenue.

KEYWORDS: Narayana Hrudayalaya, Cost reduction, Telemedicine, Insurance, Yeshasvini, Anaysis.

I. INTRODUCTION

In India the healthcare services are provided by the public hospitals, corporate hospitals, private & charity hospitals, private clinics, nursing homes, diagnostic centres, rehabilitation centres. The industry of healthcare is anticipated to reach \$372 billion by the year 2022. The clinic or hospital industry in India accounts for 80% of the overall healthcare advertise. The hospital industry is anticipated to touch \$132 billion by 2023 from \$ 61.8 billion in 2017; developing at a CAGR of 16-17%. The private healing centre divisions (hospitals) comprises of 58% of the hospitals present within the nation, 29% of beds in hospitals & 81% of specialists.^[1]

The cost of affording healthcare services in India is much lower as compared to affording healthcare services globally, but still affording the services is a burden for most of the Indian population. The entry of the private sector has drastically improved the quality & infrastructure of healthcare services. The factors for critical success of healthcare industry in India are the use of latest medical technologies & information technology, both of which are cost intensive as well as essential for the continuous delivery of quality healthcare services in India. According to the study by the Union Ministry of Statistics & Programme Implementation, the cost of hospitalization in private hospital for any ailment is 6 times higher than the expenses occurred in a government facility.

There are three terms which needs to be differentiated & understood for analyzing the adoption of cost cutting strategies in any organization. The cost containment process is a vital administration work that makes a difference to keep the costs down to only fundamental & necessary expenses in order to fulfil financial targets. According to Dr M.M. Singh, AFMS: -

Cost Containment: which is a process of not exceeding the decided and targeted organizational cost for a period.

Cost Avoidance: which is a process of reducing the increase in supplier price and ancillary charges through the use of various different techniques such as negotiations & value analysis.

“Cost reduction: A reduction in the costs incurred by an organization which has tangible results; i.e., a reduction in outside spend and/or the availability of funds that can be used for purposes other than originally intended” as stated by Dr. M.M. Singh.

Express Healthcare published an article which provides a strong view on containing cost, which is given below: -

1. Economies of scale.
2. Cost advantage through having considerably lower expenses on materials.
3. Smart building designs.
4. Proper handling of Annual Maintenance Contracts.

Prof M Mariappan who is the Chairperson of Centre for Hospital Management in TISS said, “there are certain common practices in which hospitals can ensure their revenue cycles maintained properly. Hospitals must improve the operational efficiency, patient satisfaction, application of cost reduction and cost control technique and quality improvement. Make sure that every patient shall appreciate your service and carry great experience while leaving the hospital. They should be your ambassador. Work with community closely, understand their requirement and modify the services as per their need. Work with corporate clients, insurance and TPS and ensure that there is no accumulation of accounts receivables. Practice best methods of management of resources including utilisation of HR, materials, energy services and other sources. Regularly monitor the cost and revenue by implementing performance and quality indicators. Try to collaborate with like-minded organisations towards learning, sharing services and exchanging ideas. It is important to note that the hospital should be best patient-centred care centre rather than highly advanced technical centre.” [2]

The requirement for the decrement of cost is developing while huge number of organizations battles the contests with each other. Companies can control their costs by systematically classifying and recognizing product costs. An organized strategy for bringing down the cost will result in refinement of the cost and gives specialists with the trade-offs included in accomplishing these decreases, as stated by (Pandit, 2014). Numerous ways can be adopted to scale down cost of health services. As published in Journal of Health management 2014 by Anil Pandit:

1. Employers can contribute by giving an acceptable style and hospital arrangement that can cut back overhead prices in future (Pandit, 2014).
2. Individual departments in the hospital can split cost, in the form of adequate use of employees by eliminating surplus to requirements and by training them as versatile healthcare staffs (Pandit, 2014).
3. “Flexible spending accounts which are being currently practiced: for example, spending in the form of budget allocated for lab services for haematology, biochemistry and histopathology tests which depends upon the workload; and also flexible spending, in the form of apportioning budget towards consumables for X-ray, ultrasonography, MRI and CT-Scan” as stated by (Stanton, 2002). [3]

Dr. M.M. Singh states, “one of the foremost normally used tools is cost shifting — transferring some proportion of plan costs to the employees who use the services — which can cut back the direct costs to the employer. Cost shifting does not directly reduce total costs of insurance, although it can influence participants’ behaviour in ways that will reduce costs. The foremost immediate way for managers or employers to achieve reductions of direct cost is through cautious design of health-care plans. This includes several options that run the gamut from minor changes to major renovations. Including some guiding principles will make any health-care plan more efficient and effective.” [4]

“NH was built up in Bangalore in the year 2001 by Dr. Devi Shetty. The hospital started as a 225-bed hospital basically providing cardiac care. This 225-bed hospital developed into a chain of 57 facilities with 5600 operational beds by the end of 2015. NH stood apart in the Indian healthcare market by providing quality healthcare to the masses at an affordable cost. In 2015, it had a standalone operational income of INR 13,075 million with a benefit of INR 289 million, treating patients from 25 nations. Shetty had plans to establish facilities with 30,000 beds by 2020. He pioneered several innovations to bring down the cost of treatment and the way in which the treatments were funded. The challenge for Shetty was to ensure that the avenues and the investors he chose for further funding were in alignment with his priorities, growth plans, and expectation of returns. In September 2015, Shetty announced his intention to go in for a public issue and there were doubts raised whether the pressure of shareholder expectations would

distract Shetty from his social goals” as stated by (Muralidhara, 2016). In 2012, Shetty had stated, “We are eccentric people. We are in the business because we want to help the underprivileged and the cost of healthcare to come down. For that, I need the freedom.” [5]

According to G.V. Muralidhara in oikos case writing competition in 2016, “Devi Shetty, Founder Chairman of Narayana Hrudayalaya, announced his deliberate intentions to go in for a public issue in September 2015. The announcement attracted widespread interest in the media. Questions were raised about the reasons for the public issue since Shetty had been running his hospital chain successfully for fifteen years, achieving his social mission of providing treatment to any patient who walked into the hospital irrespective of his/her ability to pay for the treatment. There was concern that the pressure of shareholder expectations and quarterly results would distract Shetty from his social goals. Shetty, who had pioneered several innovations to bring down the cost of treatment and the way in which the treatments were funded, had plans to establish facilities with 30,000 beds by 2020. Shetty had several firsts to his credit including operating on a 9-day-old baby.³ By 2015, he had performed more than 4,000 paediatric heart surgeries.⁴ He received several awards for his work in providing affordable healthcare. These included the Padma Bhushan — the third highest civilian award given by the Government of India — in 2012, Indian of the Year by CNN-IBN in 2010, the Social Entrepreneurship Award by CII in 2005, and the Ernst & Young Entrepreneur of the Year Award in 2003. It remained to be seen whether Shetty would be able to continue his social mission of providing quality healthcare at an affordable cost to everyone who needed treatment even after NH became a public listed company, subject to the pressures of the stock market and shareholders.”

II. METHODOLOGY

a) Literature Collection Process

In this secondary research I have gone through various articles & writings published on International Journal of Medicine and Public Health, Express healthcare, Journal of Health Management, RFHHA (Research Foundation of Hospital & Healthcare Administration), oikos international, Forbes India, The Wall Street Journal, Economic Times, Efficacy of Healthcare Information System in Improving Patients' Care: A Case of Narayana Hrudayalaya. A manual searching of the reference lists of selected articles of cost reduction techniques was performed. Published studies that were highly cited in this field. The manual searching was conducted in the Google Scholar database as well as in the ResearchGate database.

b) Inclusion Criteria

A manual searching of the reference lists of selected articles of cost reduction techniques was performed. Published studies that were highly cited in this field. All resources which were available within the time frame of the search since 2009, were included. All resources published in English language were included.

c) Exclusion Criteria

Resources that did not fulfil the above inclusion criteria were excluded. Studies related to any other organization except Narayana Hospitals were excluded.

III. DISCUSSION

In the Indian healthcare industry, there are different strategies & techniques which are used by different hospitals across India to cut down the operating cost & hence lower down the financial burden on both patients and the organization itself. To know the cost of different hospital services and procedure, the process of cost exercise is undertaken so that the management can cut down the total cost of a hospital. This provides the estimate cost of running a hospital along with certain profit margin, as stated by (Sakharkar, 2009). The estimation of the average cost of open-heart surgery in India is \$2000 & \$100,000 in US based research hospitals, which in turn attract many patients from abroad countries to India thus contributing to the increase in medical tourism. [6] This study based on secondary research analyses various cost cutting strategies adopted by Narayana Hrudayalaya Super speciality Hospital across India which will be discussed below.

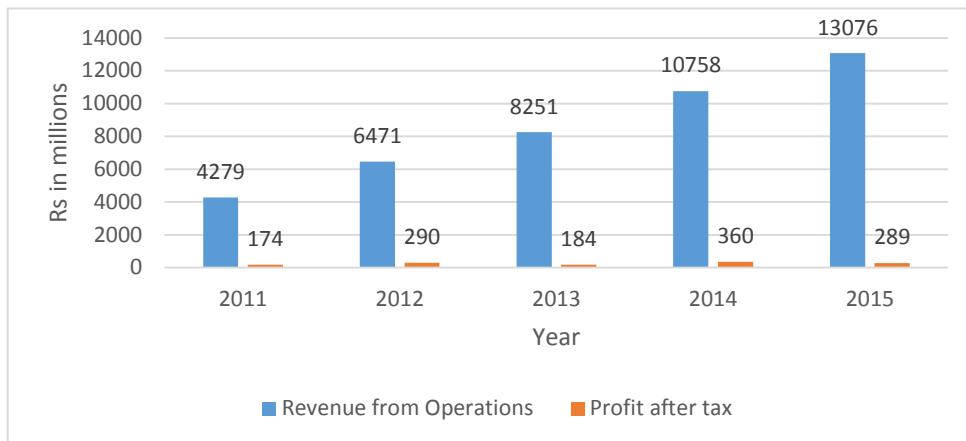


Figure:1 Revenue from operations & Profit After Tax

According to (Muralidhara, 2016), Narayana Hospitals was able to provide quality healthcare services at an affordable rate to most of the population. As it can be seen from Figure 1, NH had a standalone operational income of Rs. 13,075 million with a benefit of Rs. 289 million. Dr Shetty achieved this increasing revenue through implementing cost reduction strategies which are discussed below: -

1. Economies of scale: Dr. Shetty said that “This was based on the premise that with a large scale of operation, input costs could be challenged”.^[7]

Volume & centralized procurement contribute to the economies of scale. In an interview (Shetty, The unstoppable Indians, 2009) stated that there were around thirty cardiac patients operated each day at the main campus of Narayana Hrudayalaya in Bangalore which is far more than any hospital across the country^[8]. From Figure 2, it can be seen that volume of in patients & out patients increased significantly.

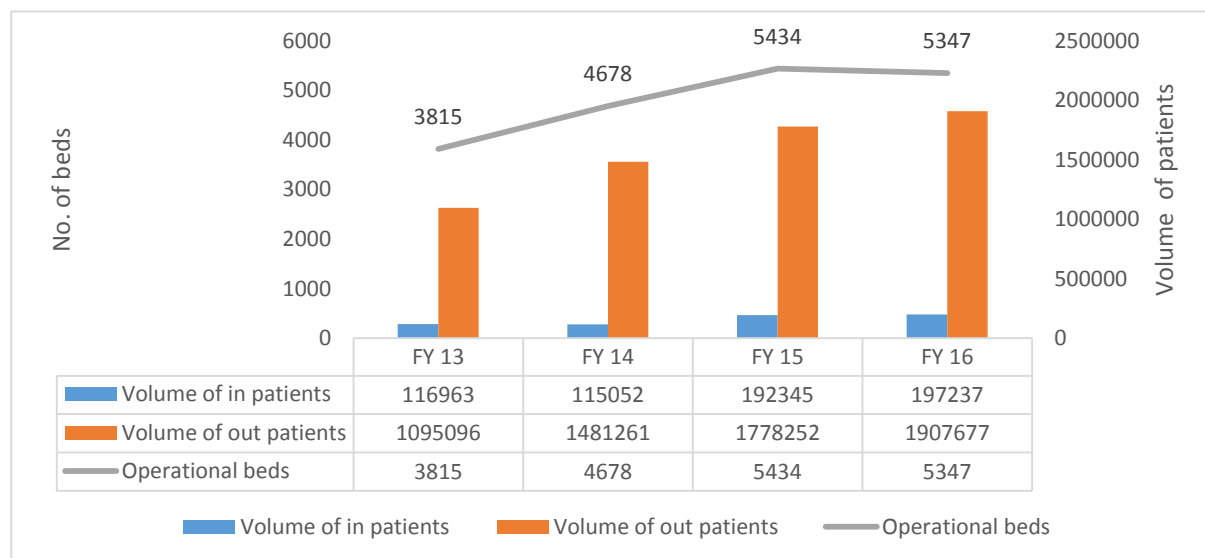


Figure:2 Number of patients & Bed volume

Due to this Dr. Devi Prasad Shetty was able to deal with many medical equipment manufacturers and also consumables suppliers, and so he was able cut out the middlemen & source consumables directly from manufacturers as stated by (Muralidhara, 2016). The head of GE Co.’s healthcare business in India, V. Raja said, “Dr. Shetty drives a difficult deal and achieve some savings because he is such a big client.”^[9]

(Muralidhara, 2016) stated that due to Dr. Shetty’s bargaining skills, he bought reagents and consumables at lower prices than before which in turn made the cost of performing lab tests significantly lower than the labs in other hospitals.

Former Vice Chairman, MD and group CEO of NH, Dr. A Raghuvanshi stated in an interview that, NH has a policy to standardize the products that the hospital keeps in its shelves and almost 95% of the inventory is standardized across all the hospitals^[10]. On an average around 30 CT scans were performed per machine per day, while in other hospitals across the country the average for the same is just 7 per machine, as stated in a publication by (Rohini Mohan, 2015)^[11]. According to (Muralidhara, 2016), Dr. Shetty succeeded in convincing the equipment manufacturers to place their equipment in the hospital for usage without having the hospital to pay any capital cost. The source of earning for the manufacturer became the trade of the reagents needed for the tests.

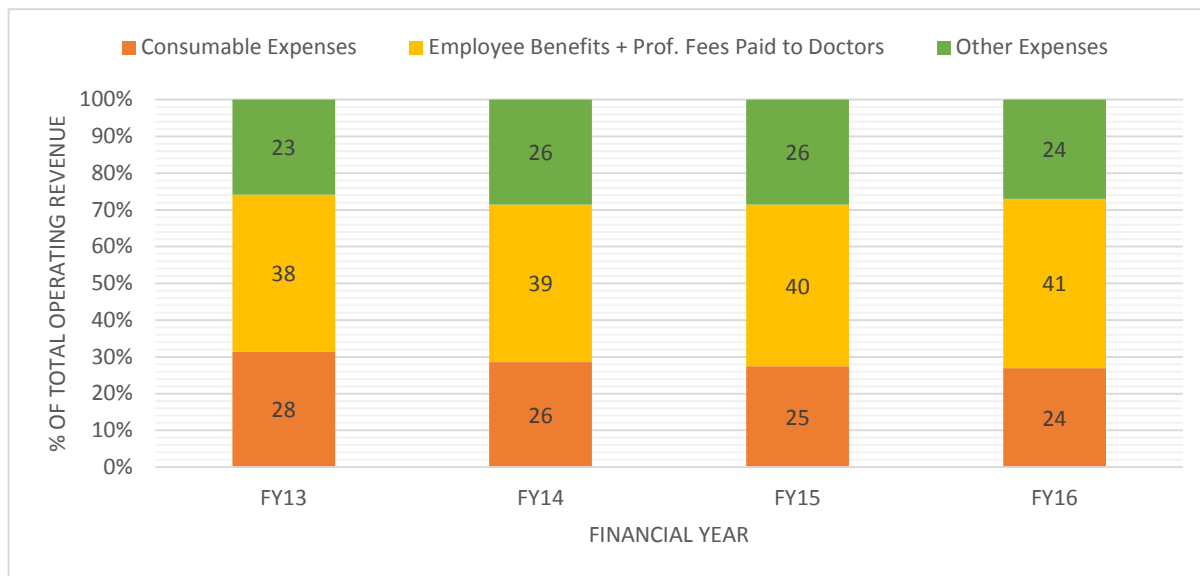


Figure:3 Cost structure

According to the Figure:3 , the consumable expenses reduced to 24% in 2016 from 28% in 2013. The trend for employee benefits + professional fees paid to doctors was 38% in 2013, 39% in 2014, 40% in 2015 & 41% in 2016. This shows that there was an increase in 1% each year for employee benefits & professional fees paid to doctors.

2. Utilization Efficiency: According to Dr. Shetty, “the infrastructure was used 12 to 14 hours a day”^[12] (Shetty, Dr Shetty and his business with a heart, 2009) said in an interview that to increase the productivity and efficiency, he specialized every doctor in their respective field. Previously every surgeon who performed all types of operations, were now specialized in their respective fields like paediatric surgery or bypass surgery. This made all the surgeons very skilled and experienced in their respective fields.^[13]

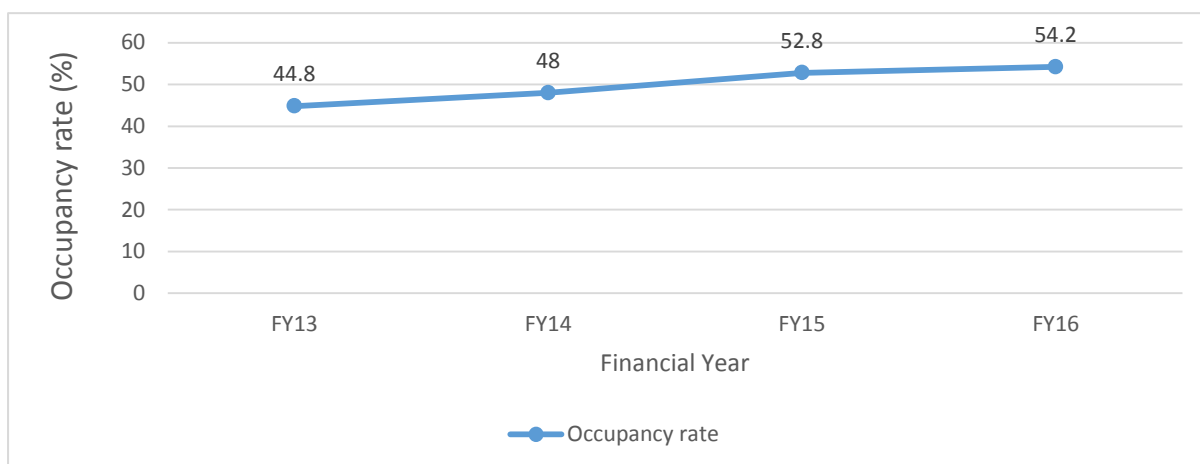


Figure:4 Occupancy rate (%)

According to Figure 4 , the occupancy rate increased from 44.8% to 54.2% which supported the fact to specialize every doctor in their respective areas & increase efficiency so that the large volume of patients can be treated more efficiently. (Muralidhara, 2016) in oikos case writing competition wrote that when compared to other hospitals across the country, Narayana Hospitals performed around twice number of operations per day for six days in a week continuously. Dr. Shetty also recruited people with normal and basic degrees and he trained them to carry out some tasks such as operating ECG machines, reading radiology reports etc. which in turn brought down the manpower cost to much extent.

3. Financing schemes for patients:

The charity received by different sources was not enough for many patients to afford the cost of surgeries. Therefore, to ensure that the hospital could provide treatment to masses, he collaborated with the state government in Karnataka and started a micro-health insurance scheme which will provide the patients cardiac surgery facilities at a nominal premium of Rs 5/- per month, as stated in (yeshasvini karnataka, n.d.). This scheme was known as Yeshasvini Cooperative Farmers Healthcare Scheme. In this scheme around 4 million farmers in Karnataka got enrolled.^[14]

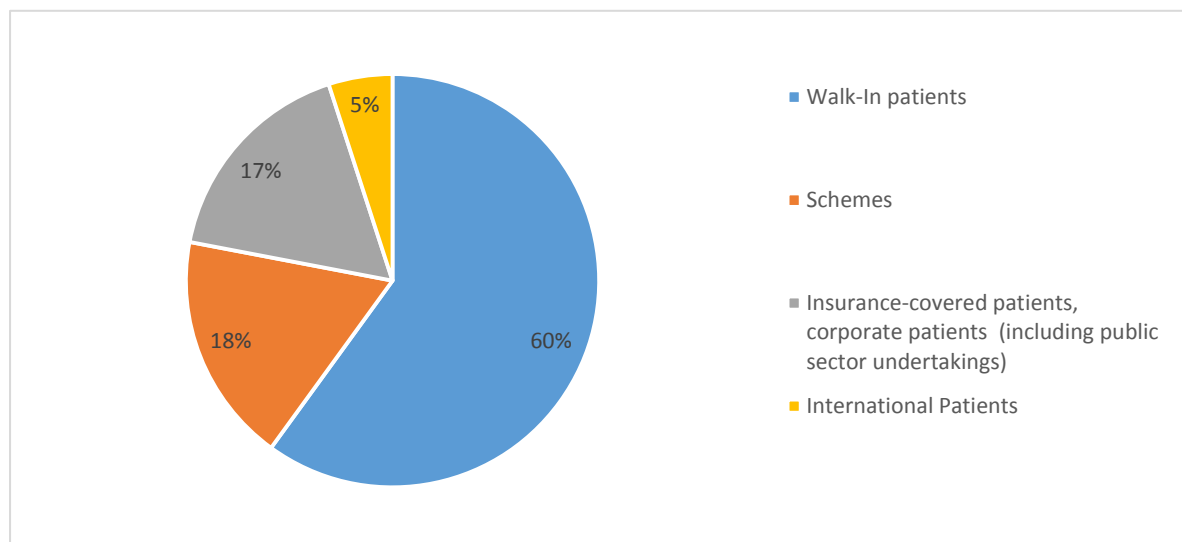


Figure:5 Payee profile by revenue (FY16)

According to Figure 5, around 60% of the patients were walk in patients who could afford the surgeries. They paid the full amount and no concession and discount were provided to them. NH also received large contributions from many of the wealthy patients who underwent surgery at the hospital. For example, around USD 1 million was contributed to the hospital as a note of thanks by a patient from US who underwent surgery, as stated by (Muralidhara, 2016). NH performed around 800 to 900 cardiac surgeries per month of which merchants in commercial street which is a well-known business area in Bangalore sponsored 70 to 80 cardiac operations every month, according to (Muralidhara, 2016). Apart from that around 17% of the patients were insurance covered patients or corporate patients.^[15]

4. Smart use of data

Through information technology, NH was able to promote efficiency & standardization throughout the hospital. All the hospitals across the country is connected by a centralized cloud-based environment which simplifies all the administrative works and helps in monitoring & control of all the tasks. Financial data were reviewed every month with unit heads and the CEO through a profit & loss statement which was generated every day for the executives by the finance department, allowing them to identify & address issues on a daily basis. Narayana Hrudayalaya was in need of an idea that could bring down IT administrative costs. Dr. Shetty installed a private cloud in Narayana's smaller branch in Jamshedpur to observe its performance as a demo. In this cloud network in Jamshedpur around forty users logged in.

After 6 months Dr. Shetty started the development of the cloud network and planned to install in all its branches.

Dr. Shetty communicated his business need to HCL, who provided the hospital with a solution and offered NH blu Enterprise Cloud solution to install in all of its branches, as stated by (Andrea taylor, 2017). In today's date this cloud based system provided by HCL is installed in all of the hospital branches of NH with around 2000 users, according to (Andrea taylor, 2017). HCL provided following services:^[16]

- "blu IaaS (Infrastructure as a Service)- IaaS with Customized configurations and operating environment has been provided by HCL. This scalable and extremely dependable IT infrastructure solutions on Cloud has storage, servers and all-inclusive security stack powered by VMware vCloud®. The installed blu IaaS applications and services are without any capex investment. The platform is scalable, flexible & according to customers' need. Hence it suits the need of an individual enterprise."
- "blu EaaS (Email as a Service): Mailing collaboration platform on cloud model. Close to 10,000 mailbox /collaboration."
- "blu BaaS (Backup as a Service)- for application set on cloud & database server."
- "Cloud Helpdesk- An all time (24X7) voice and email support system."

The hospital was able to cut 15% of its operating expenses through this cloud-based system.^[17]

5. Telemedicine

In order to make the hospital's services accessible to all the people living in rural areas as well as people living abroad, Dr Devi Shetty collaborated with ISRO and the state government to use communication technology.

The project started with the collaboration of Dr. Shetty, ISRO and the state government. There were two hubs included in this project, one of which was in at the main campus in NH Bangalore and the other was located in RTIICS hospital Kolkata. NH had 3 different types of Telemedicine network, according to Dr. Devi Shetty: -

- Coronary Care Unit network was the first network to be installed in which CCU's were installed in government and charity run hospitals present in rural as well as semi-urban areas across the country. To treat cardiac emergencies Dr. Shetty trained and placed doctors in those rural & semi-urban areas.
- After the instalment of CCU network in rural and semi-urban areas, the state government gave a thumbs up to Dr. Shetty and opened its hospital in all thirty-seven districts in Karnataka where NH trained local doctors in cardiac screening. Trained local doctors present in those remote areas did the initial screening and sent the report to cardiologists in NH if further consultation was required. Then a tele consultation appointment was given to the patient with the doctors present at NH through satellite network.
- After the above two steps were successfully launched, NH established a Family Physicians Network of TTECGs (Electro Cardio Grams that were transmitted online) through which all the General Practitioners who worked independently got an ECG device and free software from NH so that they can help poor section of the society.

6. Salaries of doctor

According to the article published by (kaul) in Next Billion, Dr. Shetty payed his surgeons a fixed competitive salary instead of paying them per surgery which is very costly. Dr. Shetty provided senior doctors around \$100,000 to \$250,000 per annum and then motivated them to increase the number of surgeries per day which in turn brought the cost per surgery down^[18]. NH invests strongly in human capital recruitment, retention, and management, which is the reason for high productivity & low attrition of the NH staff, (NH, 2013). As stated by (NH, 2013) many surgeons and physicians were attracted and thus joined NH due to its social mission & attractive incentives as compared to other hospitals.^[19]

7. Partnerships

NH partnered with various private as well as government sector organizations. A generic drug shop was set up by Biocon Foundation who agreed to sell its medicines and drugs around 20% to 30% cheaper, as

stated by (kaul). Partnering with state government NH started insurance schemes such as Yeshasvini, in which the members pay just a nominal fee of only INR 5 per month. This made the services affordable for thousands of low-income groups (kaul). Narayan Hospitals also partnered itself with Texas Instruments which helped to bring down the cost of equipment. The cost of X-Ray plates was brought down from \$82000 to \$300 as stated by (kaul).^[20]

8. PEARLS

In 2011, NH started to design a customer centred complaints process which is known as PEARLS (Patient & Employee Ailment Resolution & Learning System) which is a tool for monitoring & reaching customer complaints to provide continuous improvement. In this PEARLS system employees or patients can file a complaint by dialling a single number for any issues, which will be resolved quickly within 24 hours, as stated by (NH, 2013). The problem is addressed by the service department and informed to the concerned person who filed the complaint. (NH, 2013) also stated that a feedback is taken to determine if the issue has been satisfactorily solved or not. If the issue has not been satisfactorily addressed then the concerned department is asked to look into the matter again until it's been satisfactorily addressed. Around more than twenty-eight thousand issues have been recorded and around ninety-nine percent have been solved since the establishment of the system in 2011, as stated by (NH, 2013).^[21]

IV. RESULTS

Through economies of scale & achieving high efficiency in utilization of medical equipment, Dr. Shetty was able to reduce the ALOS (Average length of Stay) of patients which in turn helped in providing treatment to masses, as shown in Figure 6.

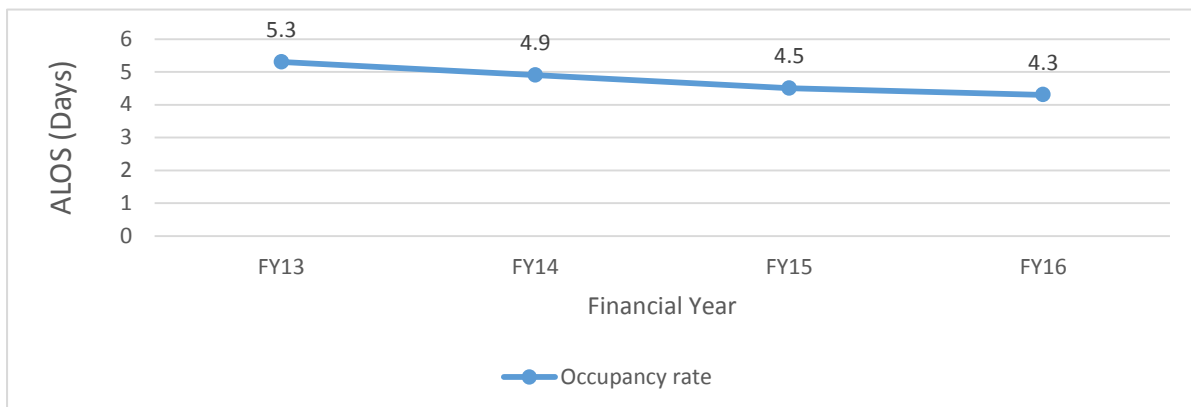


Figure:6 Average length of stay in days

Collectively all the techniques adopted by Narayana hospitals also provided an increase in ARPOB (Average Return per Operational Bed), as shown in Figure 7.

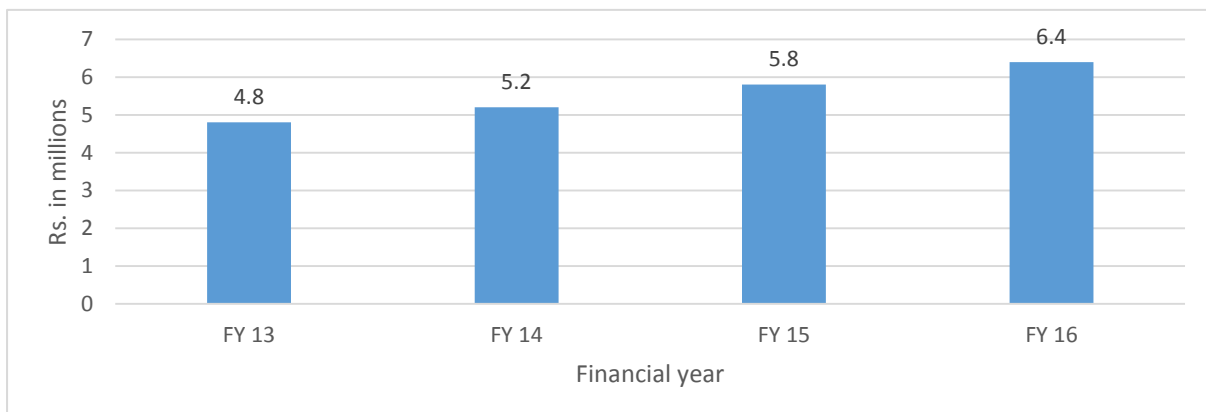


Figure:7 Average Return Per Operational Bed

As a result of all the above techniques adopted by Narayana Hrudayalaya, the hospital was able to success fully increase it EBIDTA (Earnings before Interest Depreciation tax & Amortization) as shown in Figure 8.

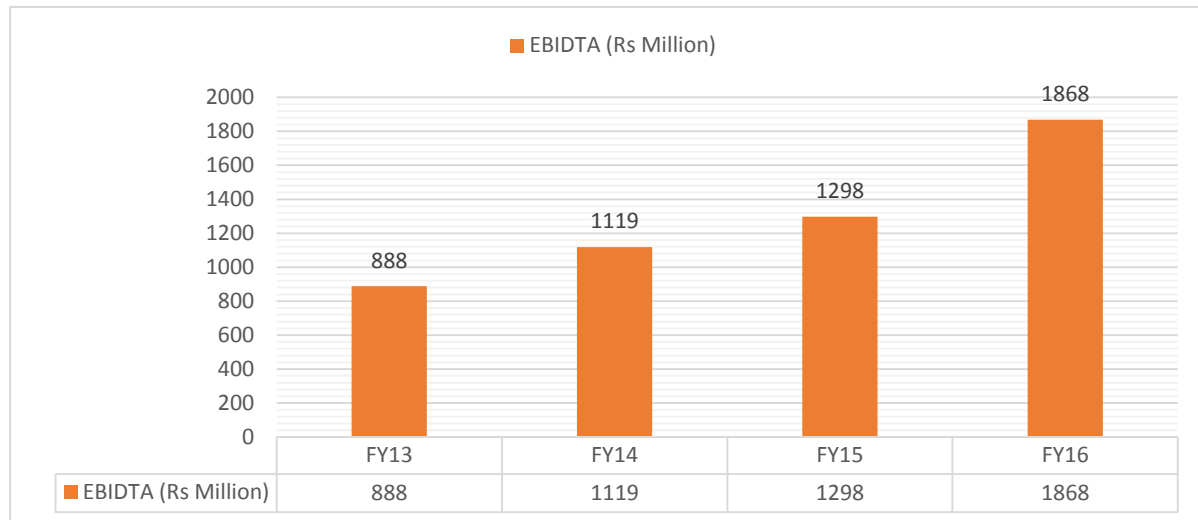


Figure:8 Earnings before Interest Depreciation tax & Amortization (Rs Million)

V. CONCLUSION

It's an essential part of a hospital administration to control the cost & operating expenses. 70% of the Indian population lives in rural area, most of them who cannot afford the quality healthcare services which are costly in private hospitals.

There were certain measures implemented by Narayana Hospitals such as Electronic Medical records to increase quality and for having a clear insurance record of all the patients, achieving economies of scale, centralized procurement, introduction of telemedicine to reach inaccessible areas contributed further in the area of cost reduction. Through introduction of IT, NH saves time & thus the cost. To sum up, the cost management strategies adopted by NH hospitals are listed below:

- Economies of scale – lower prices of equipment, equipment installed free of cost by the manufacturer, lower prices for consumables, better utilization of infrastructure.
- Manpower – specialization leads to higher productivity, right person for the right job, training.
- Process Innovation – assembly line model for surgery, use of Information technology, telemedicine.
- Infrastructure – lower investment per bed through innovative & appropriate design.

ACKNOWLEDGEMENTS

Today's world is full of competition, where there is a race of existence between humankind for success. Those who wants to succeed needs to come forward. Research connects a person's theoretical knowledge & practical experience. This research helped me a lot to learn & grow.

The present secondary research is an effort to throw some light on 'Cost Reduction Techniques adopted by Narayana Super specialty Hospitals across India to reduce the financial burden on the patients. My research would not have been made possible without the guidance, supervision and help of many people.

Firstly, I would like to give credit to the Almighty God, who has always guided me throughout my life. I am feeling obliged in taking the opportunity to sincerely thank and appreciate my mentor Mrs. Sunita Nigam for her support, enthusiasm, motivation & immense knowledge. Her guidance helped me in all the times of this secondary research.

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VI. REFERENCES

- [1] Thayyil, Jayakrishnan; Jeeja, (2013). "Issues of creating a new cadre of doctors for rural India". International Journal of Medicine and Public Health.
- [2] Sanjiv Das, 19 April 2020, blog in Express healthcare, one of the highly challenging aspects of hospital is to manage the revenue cycle.
- [3] Article in Journal of Health Management · December 2014, analysis of cost reduction techniques adopted in hospitals in and around Pune.
- [4] Wwww.rfhha.org, article published by Madhav Madhusudan Singh in 2017.
- [5] https://oikos-international.org/wp-content/uploads/2015/06/2016_SE_inspection-copy_Dr.-Devi-Shetty_case.pdf
- [6] Wwww.commonwealthfund.org/ case study (Nov,2017)/ expanding access to low-cost high-quality tertiary care
- [7] Source- Forbes India: Dr Shetty and his business with a heart, <http://www.ibnlive.com/news/business/forbes-indiatuesday-320015.html>.
- [8] Source- www.ndtv.com/the-unstoppable-indians-dr-devi-shetty-aired-february-2009
- [9] Source- Geeta Anand, 'The Henry Ford of Heart Surgery', The Wall Street Journal, November 25, 2009)
- [10] Source- <http://www.thesmartceo.in/cover-story/narayana-healths-ten-year-plan.html>
- [11] Source- Rohini Mohan, 'Here's Why Devi Shetty Of Narayana Health Is Looking to Hit Dalal Street', Economic Times, September 1, 2015)
- [12] Source- <http://www.dailyrounds.org/blog/balancing-social-good-while-being-for-profit-dr-devi-shettys-narayanahealth-is-going-to-the-stock-market/>
- [13] Source- Forbes India: Dr Shetty and his business with a heart, <http://www.ibnlive.com/news/business/forbes-indiatuesday-320015.html>
- [14] Source- <http://yeshasvini.kar.nic.in/about.htm>
- [15] Source- <http://www.bbc.co.uk/programmes/p00cz9dt>
- [16] Source- Efficacy of Healthcare Information System in Improving Patients' Care: A Case of Narayana Hrudayalaya / 885)
- [17] Source- <https://cio.economictimes.indiatimes.com/news/case-studies/narayana-health-adopts-cloud-cut-opex-by-15/40058612>
- [18] Source- <https://nextbillion.net/learning-from-narayanans-lean-model-to-scale-services/>
- [19] Source- <https://www.innovationsinhealthcare.org/Narayana%20profile%202013.pdf>
- [20] Source- <https://nextbillion.net/learning-from-narayanans-lean-model-to-scale-services/>
- [21] Source- <https://www.innovationsinhealthcare.org/Narayana%20profile%202013.pdf>