PRICE PROPOSITION THROUGH COMPETITIVE BENCHMARKING FOR A BANGALORE HOSPITAL

Internship Training
at
Manipla Health Enterprises Pvt. Ltd.

By
Arushi Joshi

Under the guidance of
Dr. Vinod Kumar SV

MBA Hospital & Health Management
2013–15

Institute of Health Management Research
Jaipur
2015

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INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

TO WHOM SO EVER MAY CONCERN

This is to certify that **Arushi Joshi** student of MBA Hospital and Health Management from IIHMR University, Jaipur has undergone internship training at **Manipal Health Enterprises Pvt Ltd.** from 2nd February 2015 to 30th April 2015.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfilment of the course requirements.

I wish her all success in all her future endeavours.

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The certificate is awarded to

Ms. Arushi Joshi

In recognition of having successfully completed her
Internship in the department of

Marketing

And successful completion of her Dissertation Project on

"Price proposition through competitive benchmarking for a Bangalore Hospital."

From 2nd February 2015 to 30th April 2015

at

Manipal Health Enterprises Pvt Ltd.

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.

We wish her all the best for future endeavors.

Dr. Juilee Dhiman
Head – Pricing Strategy

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INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **Price proposition through competitive benchmarking for a Bangalore Hospital** and submitted by **Ms. Arushi Joshi** Enrolment No. IIHMR/PGDHM/2013-15/1424 under the supervision of **Dr. Vinod Kumar SV (Associate Professor, IIHMR University)** for award of MBA Hospital and Health Management of the university carried out during the period from 2nd February 2015 to 30th April 2015 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

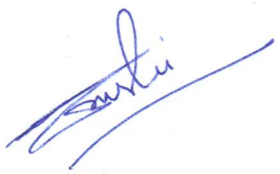

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Table of Contents

List of Figures

List of Tables and Graphs

List of Appendices

List of Symbols and Abbreviations

ALOS – Average Length of Stay

AP – Anteroposterior

CRC – Continuous Retaining Catheter

ECG – Electrocardiogram

EEG – Electroencephalogram

FQHCs - Federally-Qualified Health Centres

GW – General Ward

HMIS – Hospital Management Information System

Hosp 1 – Hospital 1 (Study hospital)

Hosp 2 - Hospital 2 (Competitor)

Hosp 3 - Hospital 3 (Competitor)

ICU – Intensive Care Unit

IP - In-Patient

IT – Information Technology

KSFs – Key Success Factors

OP – Out Patient

Semi spl – Semi-Special

Spl - Special

Introduction

Benchmarking is the process whereby an organization captures specific data related to its costs and performance i.e., the baseline, or current state of the organization under study and then evaluates this cost and performance data against those from some other entity (which constitutes the actual benchmarking). The benchmarking process typically is used externally i.e., to compare an organization with another company or the composite average of a group of companies. But it also can be used internally: Organizations operating in several countries, or with multiple operating units and divisions, can compare cost and performance metrics across those different entities. A top performer often emerges internally whose practices then can be adopted and leveraged across the enterprise. This combination of internal and external benchmarking helps to identify the most important gaps between an organization's current state and where it wants to be, helping to create both a road map and a business case for change. Benchmarking also can generate the rigorous cost and performance baseline necessary to effectively track progress on that road map over time in terms of cost reductions and performance improvements.

Ultimately, benchmarking provides people across the organization with a common business language regarding processes, metrics, and key issues and outcomes, and helps organizations put in place a rigorous and continuous improvement process to bring out higher levels of performance. Importantly, however, numbers alone are not enough. No database of information will churn out a readymade prescription for a company's unique set of circumstances. Thus, the quantitative dimension of benchmarking must be supplemented by a qualitative analysis informed by a deep understanding of leading practices and how they can be applied given the company's industry, strategic goals and constraints.

Similarly, Competitive benchmarking allows companies to measure themselves against competitors in order to sharpen their own strategies and ensure that they stay ahead of the game.

Competitive Benchmarking allows companies to:[1]

- Evaluate the competitive situation
- Assess competitor's strengths and weaknesses
- Formulate the appropriate strategy
- Respond to competitive threats
- Improve strategic thinking and focus on action steps
- Fine-tune strategy to break into new competitive markets

Gathering information on competitors encompasses a variety of activities. Often, organization generates spreadsheets listing each recognized competitor. Each company is then scored or described on common features and benefits of their products. This offers you insight into the distinct advantages each of your competitors promotes.

Much of competitive benchmarking helps organization understands how competitors are setting their prices. Pricing is a vital part of marketing strategy. In some cases, competitors may be able to advertise low prices that a company can't match, meaning the organization should advertise on value instead of low prices. Promotions and discounts can also be a sign of what customers are interested in and how the business should position its own prices.

Competitive positioning strategy/ competitive benchmarking is affected by a variety of factors that are related to the motivations and requirements of the consumers in the target market, as well as the offerings and positioning strategies of competitors. The

resulting positioning statement does not have to be lengthy or pretentious, as long as it points out exactly how your product or service will be perceived by customers as different, and better, than what is offered by your competitors. There are few questions whose answer might reveal sources of competitive advantage such as technology, branding, innovative product sales techniques, more entrepreneurial management, and superior customer relationship management strategies. Questions like;[2]

- Cost leadership: Can you be a low cost producer and provide equivalent or better services in the marketplace for less?
- Differentiation: How can you distinguish your product in the marketplace?
- Innovation: Is there opportunity to create a new way of doing business, perhaps one that changes the nature of the industry?
- Growth: Are there opportunities to expand services, sell into new markets? Introduce new services?
- Alliance: Can current or prospective production, promotion, and distribution be improved through partnerships with hospitals, primary care clinics, FQHCs, and others?
- Time: Can your hospital eliminate wait times? Offer on-time access to services? Use time in other ways that your competitors are not doing?

Literature Review

Benchmarking is a process of comparison between the performances characteristics of separate, often competing organizations intended to enable each participant to improve its own performance in the marketplace. Its objectives are to obtain a clearer understanding of competitors and of customers' requirements. Benchmarking will also enable innovations (either of process or product) to spread more rapidly through an industry and across industries where appropriate.[3] The benchmarking theory is built upon performance comparison, gap identification and changes in the management

process. By reviewing the benchmarking literature, it seems obvious that benchmarking:[4]

- Helps organizations to understand where they have strengths and weaknesses depending upon changes in supply, demand and market conditions
- Allows organizations to realize what level(s) of performance is really possible by looking at others, and how much improvement can be achieved
- Helps organizations to improve their competitive advantage by stimulating continuous improvement in order to maintain world class performance and increase competitive standards
- Helps to better satisfy the customers' needs for quality, cost, product and service by establishing new standards and goals
- Promotes changes and delivers improvements in quality, productivity and efficiency; which in turn bring innovation and competitive advantage
- Is a cost effective and time efficient way of establishing a pool of innovative ideas from which the most applicable practical examples can be utilized
- To be keen on new developments within the related area, and improves the motivation of employees.

Despite these benefits, time constraints, competitive barriers, cost, lack of both management commitment and professional human resources, resistance to change, poor planning and short term expectations are regarded as the main problems affecting successful benchmarking research. A poorly executed benchmarking exercise will result in a waste of financial and human resources, as well as time. Ineffectively executed benchmarking projects may have tarnished an organization's image.[5] Moreover, there is no single 'best practice' because it varies from one person to another and every organization differs in terms of mission, culture, environment and technological tools

available. Thus, there are risks involved in benchmarking others and in adopting new standards into one's own organization. The 'best practice' should be perceived or accepted to be among those practices producing superior outcomes and being judged as good examples within the area. Finally, benchmarking findings may remove the heterogeneity of an industry since standards will themselves become globally standardized and attempts to produce differentiation may fail.[6] Overall, benchmarking first requires senior management commitment, particularly to supporting actions arising from the exploration. Second, it requires staff to be trained and guided in the process to ensure that maximum benefit is obtained. Finally, it requires allocation of part of the relevant employee’s time to enable it to be carried out.

According to the French author Francois Jacobiac, benchmarking is a method of competitive calibration/standardization helpful in economic competition. This statement supposes that the company wants to "become the leader and keep that position." Benchmarking fits into the dynamic of continuous progress and improvement that competitive intelligence advocates.[7]

It is possible, even frequent, to reach this method through quality approach. However, since every type of data and information are vital to benchmarking, we can consider that it is also the logical result of competitive monitoring. In addition, the setting-up of an information system/network is a necessary condition for the settlement of a benchmarking approach, as well as in the matter of competitive intelligence.

In fact, there are limits to a benchmarking approach concerning competitive intelligence. Of course, benchmarking enables a company to obtain a better understanding of its environment, but this "source of information" must not act as a substitute for a global competitive intelligence approach, and more particularly for the development of a competitive analysis. Indeed, benchmarking is not a short-term tool

used for a particular situation, at a specific time, providing information only during a short period of time, on a restricted environment. Benchmarking is only a method for management and as such, it should be considered more as a tactical tool than as a real strategic weapon. In addition, benchmarking does not enable a company to anticipate opportunities and threats coming from its environment. Therefore, it is preferable to combine benchmarking and other techniques of competitive intelligence, such as a competitive analysis that enables the obtaining of the general panorama of the environment.

Types of benchmarking

The benchmarking literature can be mainly separated into two parts: internal and external benchmarking. Competitive, functional and generic benchmarking is classified under external benchmarking.[8] The process is essentially the same for each category. The main difference is what is to be benchmarked and with whom it will be benchmarked. In this project they are generally focusing on competitive benchmarking.

Competitive benchmarking/competitor analysis

Competitive benchmarking refers to a comparison with direct competitors only. This is the most sensitive type of benchmarking activity because it is very difficult to achieve a healthy collaboration and cooperation with direct competitors and reach primary sources of information. It is believed to be more rational for larger organizations than smaller ones, as they have the infrastructure to support quality and continuous improvement. Its benefits include creating a culture that values continuous improvement to achieve excellence, increasing sensitivity to changes in the external environment and sharing the best practices between partners. [9] It may however become difficult to obtain data from competitors and to apply lessons to be learnt from them. A further risk may include the

tendency to focus on the factors that make the competitors distinctive instead of searching for the factors contributing to excellent performance.

The first step in conducting a competitor analysis is to identify your competitors. Begin this process by considering the range of competition in your market space because not all competition is the same, there is different types of competitors your organization will face. Direct competitors are businesses that are offering identical or similar products or services as your business. These are organizations that customers can easily buy from instead of from you, so these companies represent your most intense competition. Additionally, they have some degree of first mover advantage that you will have to confront. Indirect competitors are businesses that are offering products and services that are close substitutes. These competitors are probably targeting your markets with a same or similar value proposition, but delivering a different product. Future competitors are existing companies that are not yet in the marketplace that you intend to occupy, but could move there at any time. One obvious source of future competition is an indirect competitor. As soon as an indirect competitor sees you having success in their area with a different product, they may try to duplicate your offerings and so they become a direct, perhaps formidable, competitor. [10]

Federally-Qualified Health Centers or FQHCs may be a good example of this kind of future competition. Identifying all existing and potential sources of competition is an impossible task, indirect and future competitors can number in the tens, hundreds, or even thousands. Instead, it will have to draw the line somewhere when it comes to identifying major competitors --the ones that are going to have a real impact on the business over time. [11]

Faced with increasing competitive and financial pressures, top performing healthcare organizations rely on benchmarking as a way of driving hospital quality improvement and improving patient satisfaction. Healthcare benchmarking allows organizations to measure and compare processes and performance internally, and against their peers. By dedicating resources to healthcare benchmarking, organizations can better understand where to focus resources in order to make significant gains in performance and the quality of patient care.

The modern health service is being encouraged to ensure uniform provision of high quality health care. Benchmarking pushes the boundaries of best practice ever onwards. Practitioners, aware of developments elsewhere, can develop practice with minimal effort, concentrating resources on new areas for practice development. The potential of benchmarking in the health service has been developed from the quantitative measurement of performance and consideration of processes to the qualitative attainment of best practice around patient experience. The perceived immeasurability and subjectivity of essence of Care and clinical practice benchmark means that these benchmarking approaches are not always accepted or supported by health service organizations as valid benchmarking activity. Further research and applications are needed to ensure that benchmarking in health fulfils its objective, namely to further our understanding of where to focus policy efforts in order to improve the performance of health care systems.

Operational Definition

Benchmarking: Benchmarking is the process of comparing one's business processes and performance metrics to industry bests or best practices from other companies. Dimensions typically measured are quality, time and cost.

Competitive benchmarking: Competitive benchmarking is a type used with direct competitors. Done externally, competitive benchmarking goal is to compare companies in the same markets which have competing products, services, or work processes.

Line items: A unit of information in a document, record, or statement, shown on a separate line of its own. Line often refers to a budget element that is separately identified.

Dummy data: Dummy data is benign information that serves to reserve space where real data is nominally present.

Rationale of study

The primary use of competitive benchmarking is in differentiating value. Essentially, the more the organization can learn about their competitors' products, the more they learn about how they can make their own products different. Customers look for value in a product that no one else can offer. A business can position itself so that it focuses on value; such as features, extra services or customization options that its competitors cannot match. Similarly a hospital can only do this properly if it knows what its competitors can do well and what those competitors have trouble doing.

The major problems that organization is facing and decided to go for benchmarking is; Units are facing challenges due to gaps between initial estimates and final bills. There is no standardized billing system for all the units and hence organization face problem while evaluating the billing system or while imposing the price change for each unit. Through this research organization will be able to set a standardized billing system across all units and estimating that all problems related to billing will be solved or will be easy to solve.

Research question

What are the key components involved in developing Competitive Benchmarking?

Objective of the study

Aim: The aim is to find out the price proposition of hospital in relation to its competitors.

Objective: The objectives of this study are;

1. To develop the tool and steps for telescopic pricing.

2. To compare the hospital prices with the prices of competitors.

3. To evaluate the impact of price change on revenue.

Research methodology

Type of research: The research design of the study is semi-experimental under which field experiment study is conducted. A field experiment applies the scientific method to experimentally examine an intervention in the real world rather than in the laboratory. A tool is developed through custom made technique and is validated through logical algorithm.

Data collection: Data related to prices from other hospitals was collected and benchmarking was done on that basis.

There are different categories of data upon which the work has been done;

- **Prices** – Maximum of four and minimum of two best competitors in the nearest area were considered to collect the price for benchmarking.
- **Line items** – Line items under different group and of different departments were taken to compare the prices with competitors.

- **Volume dump** – Volume dump was the discharge summary details that has been collected from IT department through HMIS system for one month.

Data analysis: An Excel based tool has been developed for all the tariffs, health packages and surgical packages which are used by hospital. Location: Location of study was a Bangalore hospital organization.

Sample size: Sample size is 200 line items under the main 9 groups. Selecting 200 line items was due to large sample size under different groups. So first revenue was calculated and the item from which maximum revenue was generated was considered.

Sampling: The sampling method used was stratified sampling. As the line items were first divided into the category/group it comes from, then the department it belongs to and then high revenue generating line items were taken for benchmarking.

Data information: This study basically shows the benchmarking steps and how the tool has been made to come to final outcome with telescoping. As pricing is very crucial to be discussed, the data shown in the study was being converted to dummy data. A fixed amount was added in all the prices of line items which converted the original data into dummy data. This conversion of data does not impact the final outcome or reason behind the study.

Data compilation, analysis and interpretation

There are several key tools and techniques, covering all aspects of benchmarking. These are grouped into certain phases, as;

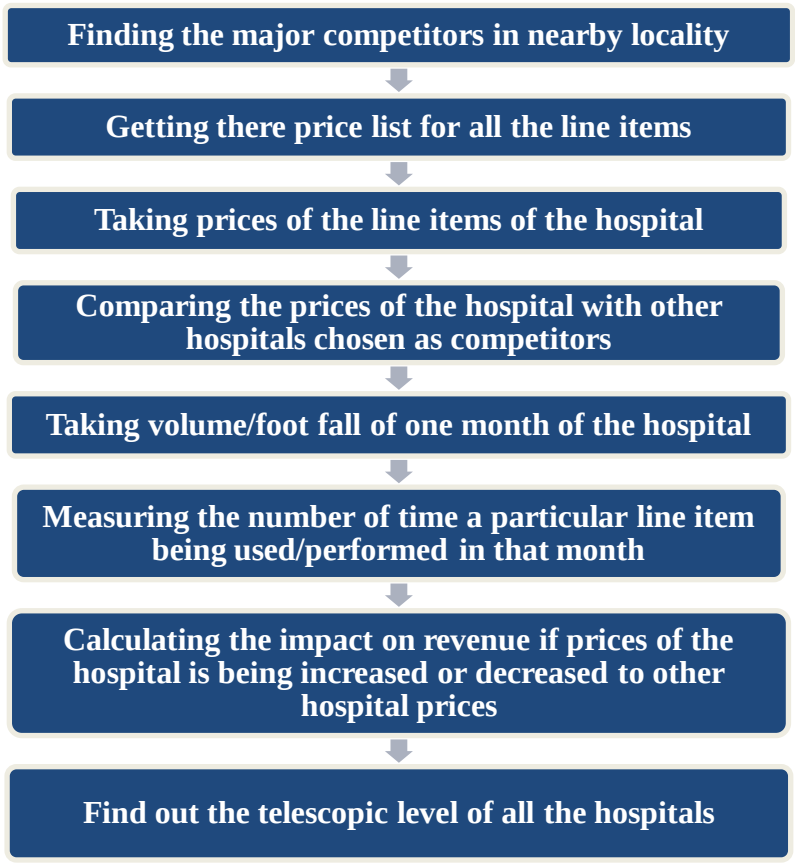


Figure 1 : Steps of competitive benchmarking

There were 8 sheets in the tool that was being prepared for benchmarking. Which include major 6 sheets and 2 rough sheets to calculate revenue.

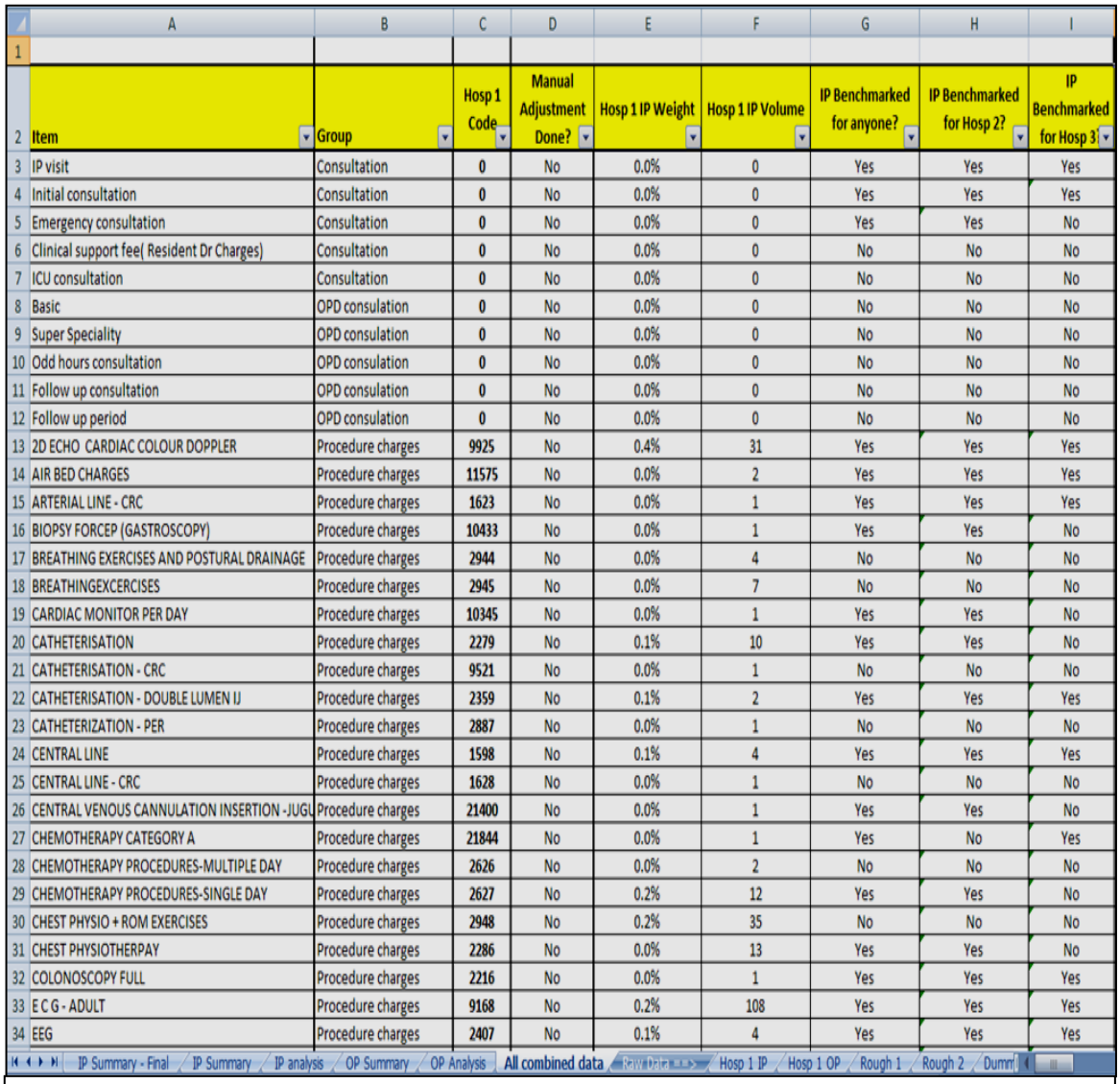
Six sheets include,

- All combine data
- OP analysis
- OP summary (End result)
- IP analysis
- IP summary (End result)
- IP summary – Final (End result)

Rough sheet include,

- Hosp 1 IP
- Hosp 1 OP

All combined data: This sheet was the most important sheet where all the samples of line items were added with the prices of its hospital and the competitors. It further includes different columns which has different headings and play different role. All other sheets are interlinked to this sheet; any changes made in this will lead to further changes. Figure 2, figure 3, and figure 4 are the samples how the sheet looks like,



	A	B	C	D	E	F	G	H	I
1									
2	Item	Group	Hosp 1 Code	Manual Adjustment Done?	Hosp 1 IP Weight	Hosp 1 IP Volume	IP Benchmarked for anyone?	IP Benchmarked for Hosp 2?	IP Benchmarked for Hosp 3
3	IP visit	Consultation	0	No	0.0%	0	Yes	Yes	Yes
4	Initial consultation	Consultation	0	No	0.0%	0	Yes	Yes	Yes
5	Emergency consultation	Consultation	0	No	0.0%	0	Yes	Yes	No
6	Clinical support fee(Resident Dr Charges)	Consultation	0	No	0.0%	0	No	No	No
7	ICU consultation	Consultation	0	No	0.0%	0	No	No	No
8	Basic	OPD consulation	0	No	0.0%	0	No	No	No
9	Super Speciality	OPD consulation	0	No	0.0%	0	No	No	No
10	Odd hours consultation	OPD consulation	0	No	0.0%	0	No	No	No
11	Follow up consultation	OPD consulation	0	No	0.0%	0	No	No	No
12	Follow up period	OPD consulation	0	No	0.0%	0	No	No	No
13	2D ECHO CARDIAC COLOUR DOPPLER	Procedure charges	9925	No	0.4%	31	Yes	Yes	Yes
14	AIR BED CHARGES	Procedure charges	11575	No	0.0%	2	Yes	Yes	Yes
15	ARTERIAL LINE - CRC	Procedure charges	1623	No	0.0%	1	Yes	Yes	Yes
16	BIOPSY FORCEP (GASTROSCOPY)	Procedure charges	10433	No	0.0%	1	Yes	Yes	No
17	BREATHING EXERCISES AND POSTURAL DRAINAGE	Procedure charges	2944	No	0.0%	4	No	No	No
18	BREATHINGEXCERCISES	Procedure charges	2945	No	0.0%	7	No	No	No
19	CARDIAC MONITOR PER DAY	Procedure charges	10345	No	0.0%	1	Yes	Yes	No
20	CATHETERISATION	Procedure charges	2279	No	0.1%	10	Yes	Yes	No
21	CATHETERISATION - CRC	Procedure charges	9521	No	0.0%	1	No	No	No
22	CATHETERISATION - DOUBLE LUMEN IJ	Procedure charges	2359	No	0.1%	2	Yes	Yes	Yes
23	CATHETERIZATION - PER	Procedure charges	2887	No	0.0%	1	No	No	No
24	CENTRAL LINE	Procedure charges	1598	No	0.1%	4	Yes	Yes	Yes
25	CENTRAL LINE - CRC	Procedure charges	1628	No	0.0%	1	No	No	No
26	CENTRAL VENOUS CANNULATION INSERTION -JUGU	Procedure charges	21400	No	0.0%	1	Yes	Yes	No
27	CHEMOTHERAPY CATEGORY A	Procedure charges	21844	No	0.0%	1	Yes	No	Yes
28	CHEMOTHERAPY PROCEDURES-MULTIPLE DAY	Procedure charges	2626	No	0.0%	2	No	No	No
29	CHEMOTHERAPY PROCEDURES-SINGLE DAY	Procedure charges	2627	No	0.2%	12	Yes	Yes	No
30	CHEST PHYSIO + ROM EXERCISES	Procedure charges	2948	No	0.2%	35	No	No	No
31	CHEST PHYSIOTHERPAY	Procedure charges	2286	No	0.0%	13	Yes	Yes	No
32	COLONOSCOPY FULL	Procedure charges	2216	No	0.0%	1	Yes	Yes	Yes
33	E C G - ADULT	Procedure charges	9168	No	0.2%	108	Yes	Yes	Yes
34	EEG	Procedure charges	2407	No	0.1%	4	Yes	Yes	Yes

IP Summary - Final | IP Summary | IP analysis | OP Summary | OP Analysis | All combined data | Hosp 1 IP | Hosp 1 OP | Rough 1 | Rough 2 | Dumm

Figure 2. Benchmarking (All combined data part 1)

Columns in figure 2 includes,

Items – These were the line items that were taken as sample for benchmarking. The total of 200 items was there under different groups.

Group - The group was the category of line items, all the 200 line items were covered under 6 major groups;

- Consultation
- OPD Consultation
- Procedure
- Packages
- Investigations (Laboratory & Radiology)
- Surgery

Hosp 1 code – This was the code of different line items, the reason behind taking this was only to view the correct prices under correct heading. For example; For arm x-ray, there were different names and ways like, X-ray arm / humerus AP & lateral (L), X-ray arm / humerus AP & lateral (R), X-ray arm / humerus AP & lateral with elbow (L), X-ray arm / humerus AP & lateral with elbow (R), X-ray arm / humerus AP & lateral with shoulder (L), X-ray arm / humerus AP (L), X-ray arm / humerus AP (R), X-ray arm / humerus AP with elbow (L), X-ray arm / humerus AP with elbow (R) etc. To know the exact prices for each procedure without any mistake the codes are given.

Manual adjustment – Manual adjustment refers to the line items which were calculated by directly putting formula in the sheet and items which were calculated separately and put in the sheet. Items those were calculated by formula are recorded in manual adjustment as 'No' and for the item that was calculated separately were recorded in manual adjustment as 'Yes'.

Hosp 1 IP weight – This was the percentage of revenue share of the line item. It was calculated on different sheet name 'Hosp 1 IP' and the data was collected for this

through hospital volume/foot fall dump, which is called as discharge summary. The revenue was calculated by the formula,

'Revenue generated by the item in that month / Total revenue generated by all items in that month X 100'

Then, from the separate sheet in which revenue for each line item was calculated, 'vlook up' formula was applied and exact revenue was traced against each line item.

Discharge summary – Discharge summary include all the information about a patient. It includes, ALOS, Date and time of admission and discharge, Bed type, Consultant name and department, Items consumed (pharmacy, consumables, dietary), Procedure/surgery undergone, price charged for each line item and total bill amount. This information is generated in HMIS by front office and hence taken from there. From this the total revenue and volume/foot-fall of a hospital was calculated month wise.

Hosp 1 IP volume – This was the volume of each line item, i.e how many times that item was used in that particular month. This was also taken from discharge summary and calculated in this sheet through 'vlook up' formula by tracing these line items from the sheet 'Hosp 1 IP'.

IP benchmarked – IP benchmarked states whether the prices of line items taken as sample were available with all the hospitals or not. If the prices are available it will state 'Yes' and if the prices are not available it will state 'No'. It was also separately stated as IP Benchmarked for hosp 2 and IP Benchmarked for Hosp 3.

	A	I	J	K	L	M	N	O	P	Q
1						Hosp 1				
2	Item	IP Benchmarked for Hosp 3	Hosp 1 OP Weight	Hosp 1 OP Volume	OP Benchmarked?	Hosp 1-OP	Hosp 1-GW	Hosp 1-Semi Spl	Hosp 1-ICU	Hosp 1-Spl
3	IP visit	Yes	0.0%	0	No		1075	750	950	850
4	Initial consultation	Yes	0.0%	0	Yes		675	750	950	850
5	Emergency consultation	No	0.0%	0	Yes		900			
6	Clinical support fee(Resident Dr Charges)	No	0.0%	0	No					
7	ICU consultation	No	0.0%	0	No					
8	Basic	No	0.0%	0	Yes	700				
9	Super Speciality	No	0.0%	0	Yes	800				
10	Odd hours consultation	No	0.0%	0	No					
11	Follow up consultation	No	0.0%	0	No					
12	Follow up period	No	0.0%	0	No					
13	2D ECHO CARDIAC COLOUR DOPPLER	Yes	1.0%	75	Yes	1400	1500	1600	1600	1800
14	AIR BED CHARGES	Yes	0.0%	0	Yes		510	520		540
15	ARTERIAL LINE - CRC	Yes	0.0%	0	Yes		2000	2000	2000	2000
16	BIOPSY FORCEP (GASTROSCOPY)	No	0.0%	0	No	1900	2050	2200	2200	2500
17	BREATHING EXERCISES AND POSTURAL DRAINAGE	No	0.0%	0	No	650	675	700	700	750
18	BREATHINGEXCERCISES	No	0.0%	0	No	600	660	720	720	770
19	CARDIAC MONITOR PER DAY	No	0.0%	0	No	1263	1263	1263	1263	1263
20	CATHETERISATION	No	0.0%	6	No	900	1020	1150	1150	1280
21	CATHETERISATION - CRC	No	0.0%	0	No	900	950	1000	1000	1100
22	CATHETERISATION - DOUBLE LUMEN IJ	Yes	0.0%	1	Yes	2400	2600	2800	2800	3200
23	CATHETERIZATION - PER	No	0.0%	0	No	900	1020	1150	1150	1280
24	CENTRAL LINE	Yes	0.0%	0	Yes					
25	CENTRAL LINE - CRC	No	0.0%	0	No	2400	2600	2800	2800	3200
26	CENTRAL VENOUS CANNULATION INSERTION -JUGULAR/SUBCLAVIAN	No	0.0%	2	No	2900	3150	3400	3400	3900
27	CHEMOTHERAPY CATEGORY A	Yes	0.0%	0	Yes	1412				
28	CHEMOTHERAPY PROCEDURES-MULTIPLE DAY	No	0.0%	0	No	1207	1207	1207	1207	1207
29	CHEMOTHERAPY PROCEDURES-SINGLE DAY	No	0.2%	5	No	1900	2050	2200	2200	2500
30	CHEST PHYSIO + ROM EXERCISES	No	0.0%	0	No	750	850	950	950	1040
31	CHEST PHYSIOTHERPAY	No	0.0%	0	No	580	640	710	710	760
32	COLONOSCOPY FULL	Yes	0.1%	7	Yes	3900	4250	4600	4600	5300
33	E C G - ADULT	Yes	0.3%	69	Yes	550	600	660	660	700
34	EEG	Yes	0.5%	16	Yes					

IP Summary - Final | IP Summary | IP analysis | OP Summary | OP Analysis | All combined data | Hosp 1 IP | Hosp 1 OP | Rough 1 | Rough 2 | Dumm

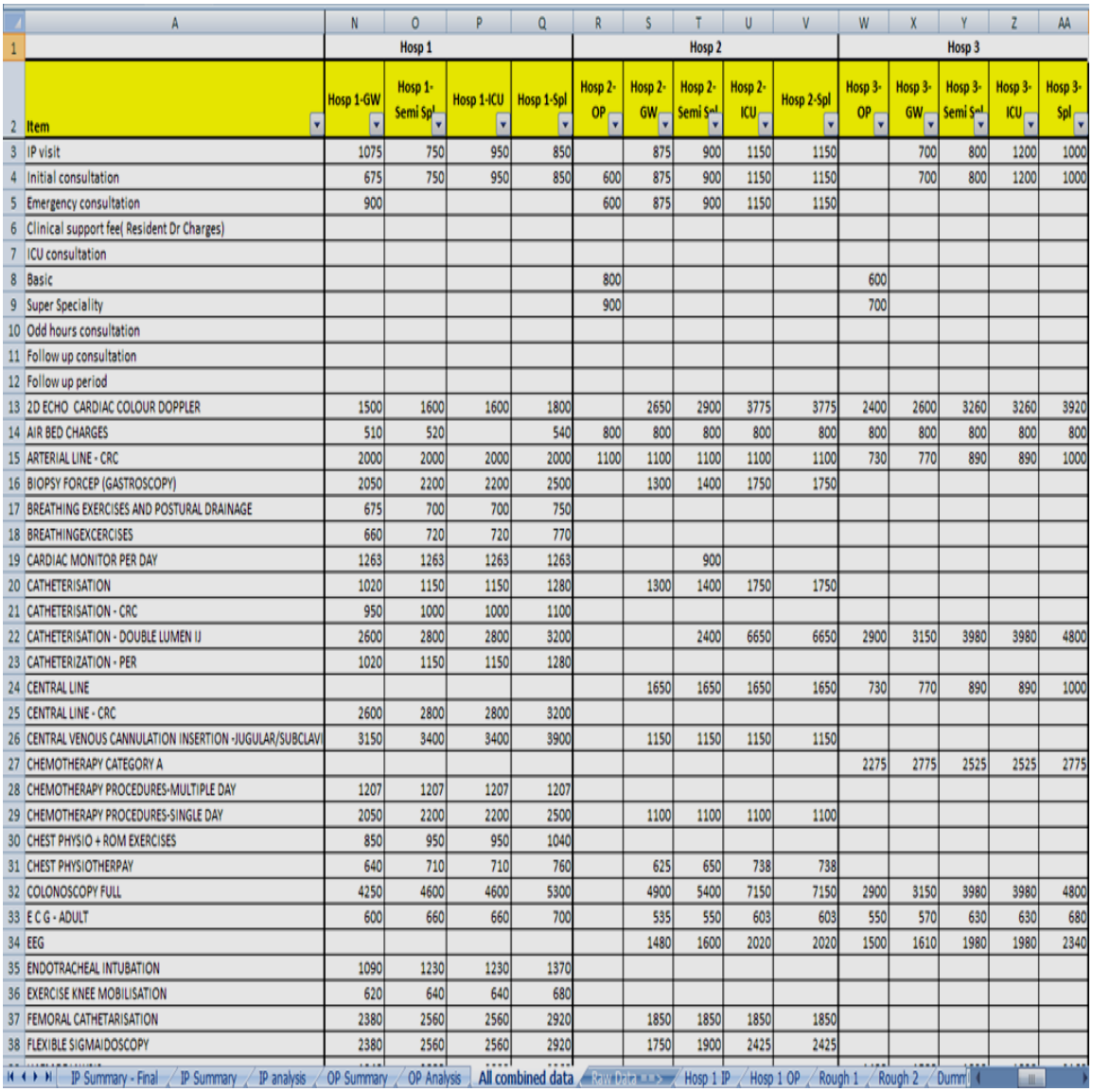
Figure 3. Benchmarking (All combined data part 2)

Columns in figure 3 includes,

Hosp 1 OP weight – This is same as Hosp 1 IP weight was calculated. The only difference is, that was for in-patient and in this the revenue generated by out-patient department can be seen.

Hosp 1 OP volume – This is same as Hosp 1 IP volume. OPD volume for the month was taken instead of IPD volume.

OP benchmarked – OP Benchmarked is to see whether the prices have been marked for all the items under OPD. Some of the tests or procedures are not performed under OPD, hence OPD was taken separately for benchmarking.



	A	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1		Hosp 1				Hosp 2					Hosp 3				
2	Item	Hosp 1-GW	Hosp 1-Semi Spl	Hosp 1-ICU	Hosp 1-Spl	Hosp 2-OP	Hosp 2-GW	Hosp 2-Semi Spl	Hosp 2-ICU	Hosp 2-Spl	Hosp 3-OP	Hosp 3-GW	Hosp 3-Semi Spl	Hosp 3-ICU	Hosp 3-Spl
3	IP visit	1075	750	950	850		875	900	1150	1150		700	800	1200	1000
4	Initial consultation	675	750	950	850	600	875	900	1150	1150		700	800	1200	1000
5	Emergency consultation	900				600	875	900	1150	1150					
6	Clinical support fee(Resident Dr Charges)														
7	ICU consultation														
8	Basic					800					600				
9	Super Speciality					900					700				
10	Odd hours consultation														
11	Follow up consultation														
12	Follow up period														
13	2D ECHO CARDIAC COLOUR DOPPLER	1500	1600	1600	1800		2650	2900	3775	3775	2400	2600	3260	3260	3920
14	AIR BED CHARGES	510	520		540	800	800	800	800	800	800	800	800	800	800
15	ARTERIAL LINE - CRC	2000	2000	2000	2000	1100	1100	1100	1100	1100	730	770	890	890	1000
16	BIOPSY FORCEP (GASTROSCOPY)	2050	2200	2200	2500		1300	1400	1750	1750					
17	BREATHING EXERCISES AND POSTURAL DRAINAGE	675	700	700	750										
18	BREATHINGEXCERCISES	660	720	720	770										
19	CARDIAC MONITOR PER DAY	1263	1263	1263	1263			900							
20	CATHETERISATION	1020	1150	1150	1280		1300	1400	1750	1750					
21	CATHETERISATION - CRC	950	1000	1000	1100										
22	CATHETERISATION - DOUBLE LUMEN IJ	2600	2800	2800	3200			2400	6650	6650	2900	3150	3980	3980	4800
23	CATHETERIZATION - PER	1020	1150	1150	1280										
24	CENTRAL LINE						1650	1650	1650	1650	730	770	890	890	1000
25	CENTRAL LINE - CRC	2600	2800	2800	3200										
26	CENTRAL VENOUS CANNULATION INSERTION -JUGULAR/SUBCLAVI	3150	3400	3400	3900		1150	1150	1150	1150					
27	CHEMOTHERAPY CATEGORY A										2275	2775	2525	2525	2775
28	CHEMOTHERAPY PROCEDURES-MULTIPLE DAY	1207	1207	1207	1207										
29	CHEMOTHERAPY PROCEDURES-SINGLE DAY	2050	2200	2200	2500		1100	1100	1100	1100					
30	CHEST PHYSIO + ROM EXERCISES	850	950	950	1040										
31	CHEST PHYSIOTHERPAY	640	710	710	760		625	650	738	738					
32	COLONOSCOPY FULL	4250	4600	4600	5300		4900	5400	7150	7150	2900	3150	3980	3980	4800
33	E C G - ADULT	600	660	660	700		535	550	603	603	550	570	630	630	680
34	EEG						1480	1600	2020	2020	1500	1610	1980	1980	2340
35	ENDOTRACHEAL INTUBATION	1090	1230	1230	1370										
36	EXERCISE KNEE MOBILISATION	620	640	640	680										
37	FEMORAL CATHETARISATION	2380	2560	2560	2920		1850	1850	1850	1850					
38	FLEXIBLE SIGMAIDOSCOPY	2380	2560	2560	2920		1750	1900	2425	2425					

IP Summary - Final | IP Summary | IP analysis | OP Summary | OP Analysis | All combined data | Hosp 1 IP | Hosp 1 OP | Rough 1 | Rough 2 | Dumm

Figure 4. Benchmarking (All combined data part 3)

Columns in figure 4 includes,

Hosp 1, Hosp 2 and Hosp 3 – These are the prices of all the wards that the hospital have and other hospital prices as hosp 2, hosp 3, hosp 4 etc. Depends on the number of competitors that have been taken. The wards are dived as;

- OP- Out-patient
- GW- General ward
- Semi spl- Semi-Special ward
- ICU- Intense care Unit
- Spl- Special

	A	AB	AC	AD	AE	AF	AG	AH	AI	AJ
1			Hosp 2 vs Hosp 1				Hosp 3 vs Hosp 1			
2	Item		GW	TWIN	ICU	SINGLE	GW	TWIN	ICU	SINGLE
3	IP visit		-19%	20%	21%	35%	0%	-20%	-11%	4%
4	Initial consultation		30%	20%	21%	35%	0%	-20%	-11%	4%
5	Emergency consultation		-3%	0%	0%	0%	0%	0%	0%	0%
6	Clinical support fee(Resident Dr Charges)		0%	0%	0%	0%	0%	0%	0%	0%
7	ICU consultation		0%	0%	0%	0%	0%	0%	0%	0%
8	Basic		0%	0%	0%	0%	-25%	0%	0%	0%
9	Super Speciality		0%	0%	0%	0%	-22%	0%	0%	0%
10	Odd hours consultation		0%	0%	0%	0%	0%	0%	0%	0%
11	Follow up consultation		0%	0%	0%	0%	0%	0%	0%	0%
12	Follow up period		0%	0%	0%	0%	0%	0%	0%	0%
13	2D ECHO CARDIAC COLOUR DOPPLER		77%	81%	136%	110%	0%	-2%	12%	-14%
14	AIR BED CHARGES		57%	54%	0%	48%	0%	0%	0%	0%
15	ARTERIAL LINE - CRC		-45%	-45%	-45%	-45%	-34%	-30%	-19%	-19%
16	BIOPSY FORCEP (GASTROSCOPY)		-37%	-36%	-20%	-30%	0%	0%	0%	0%
17	BREATHING EXERCISES AND POSTURAL DRAINAGE		0%	0%	0%	0%	0%	0%	0%	0%
18	BREATHINGEXCERCISES		0%	0%	0%	0%	0%	0%	0%	0%
19	CARDIAC MONITOR PER DAY		0%	-29%	0%	0%	0%	0%	0%	0%
20	CATHETERISATION		27%	22%	52%	37%	0%	0%	0%	0%
21	CATHETERISATION - CRC		0%	0%	0%	0%	0%	0%	0%	0%
22	CATHETERISATION - DOUBLE LUMEN IJ		0%	-14%	138%	108%	0%	0%	66%	-40%
23	CATHETERIZATION - PER		0%	0%	0%	0%	0%	0%	0%	0%
24	CENTRAL LINE		0%	0%	0%	0%	0%	-53%	-46%	-46%
25	CENTRAL LINE - CRC		0%	0%	0%	0%	0%	0%	0%	0%
26	CENTRAL VENOUS CANNULATION INSERTION -JUGULAR/SUBCLAVI		-63%	-66%	-66%	-71%	0%	0%	0%	0%
27	CHEMOTHERAPY CATEGORY A		0%	0%	0%	0%	0%	0%	0%	0%
28	CHEMOTHERAPY PROCEDURES-MULTIPLE DAY		0%	0%	0%	0%	0%	0%	0%	0%
29	CHEMOTHERAPY PROCEDURES-SINGLE DAY		-46%	-50%	-50%	-56%	0%	0%	0%	0%
30	CHEST PHYSIO + ROM EXERCISES		0%	0%	0%	0%	0%	0%	0%	0%
31	CHEST PHYSIOTHERPAY		-2%	-8%	4%	-3%	0%	0%	0%	0%
32	COLONOSCOPY FULL		15%	17%	55%	35%	0%	-36%	-26%	-44%
33	E C G - ADULT		-11%	-17%	-9%	-14%	0%	7%	15%	4%
34	EEG		0%	0%	0%	0%	0%	9%	24%	-2%
35	ENDOTRACHEAL INTUBATION		0%	0%	0%	0%	0%	0%	0%	0%
36	EXERCISE KNEE MOBILISATION		0%	0%	0%	0%	0%	0%	0%	0%
37	FEMORAL CATHETARISATION		-22%	-28%	-28%	-37%	0%	0%	0%	0%
38	FLEXIBLE SIGMAIDOSCOPY		-26%	-26%	-5%	-17%	0%	0%	0%	0%

IP Summary - Final | IP Summary | IP analysis | OP Summary | OP Analysis | All combined data | Raw Data | Hosp 1 IP | Hosp 1 OP | Rough 1 | Rough 2 | Du

Figure 5. Benchmarking (All combined data part 4)

Columns in figure 5 includes,

Hosp 2 vs Hosp 1 and Hosp 3 vs Hosp 1 – This was basically done to see the percentage difference between the hospital vs its competitor's price. It gives a rough estimate of how much ahead or behind the hospital prices are.

The formula used here to calculate percent price difference was,

'Current price i.e, Competitors price / Previous price i.e, the hospital price – 1 X 100'

OP analysis: Once the benchmarking was done on the basis of that benchmarking the next sheet of OP analysis was prepared. The OP analysis basically includes the price and volume data. On the basis of benchmarking 'vlook up' formula was applied and it will trace all the OP items. As this sheet was all formula driven, the sheet will automatically multiply and calculate Price X volume, taking data from previous sheet of 'All combined data'.

	A	B	C	D	E	F
1					Price*Volume	
2	Item name	Group	Hosp 1 OP Weight	Hosp 1 OP Volume	Hosp 1-OP	Hosp 3-OP
3	IP visit	Consultation	0.0%	0	0	0
4	Initial consultation	Consultation	0.0%	0	0	0
5	Emergency consultation	Consultation	0.0%	0	0	0
6	Clinical support fee(Resident Dr Charges)	Consultation	0.0%	0	0	0
7	ICU consultation	Consultation	0.0%	0	0	0
8	Basic	OPD consulation	0.0%	0	0	0
9	Super Speciality	OPD consulation	0.0%	0	0	0
10	Odd hours consultation	OPD consulation	0.0%	0	0	0
11	Follow up consultation	OPD consulation	0.0%	0	0	0
12	Follow up period	OPD consulation	0.0%	0	0	0
13	2D ECHO CARDIAC COLOUR DOPPLER	Procedure	1.0%	75	105000	157500000
14	AIR BED CHARGES	Procedure	0.0%	0	0	0
15	ARTERIAL LINE - CRC	Procedure	0.0%	0	0	0
16	BIOPSY FORCEP (GASTROSCOPY)	Procedure	0.0%	0	0	0
17	BREATHING EXERCISES AND POSTURAL DRAINAGE	Procedure	0.0%	0	0	0
18	BREATHINGEXCERCISES	Procedure	0.0%	0	0	0
19	CARDIAC MONITOR PER DAY	Procedure	0.0%	0	0	0
20	CATHETERISATION	Procedure	0.0%	6	5400	5508000
21	CATHETERISATION - CRC	Procedure	0.0%	0	0	0
22	CATHETERISATION - DOUBLE LUMEN IJ	Procedure	0.0%	1	2400	6240000
23	CATHETERIZATION - PER	Procedure	0.0%	0	0	0
24	CENTRAL LINE	Procedure	0.0%	0	0	0
25	CENTRAL LINE - CRC	Procedure	0.0%	0	0	0
26	CENTRAL VENOUS CANNULATION INSERTION -JUGULAR/S	Procedure	0.0%	2	5800	18270000
27	CHEMOTHERAPY CATEGORY A	Procedure	0.0%	0	0	0
28	CHEMOTHERAPY PROCEDURES-MULTIPLE DAY	Procedure	0.0%	0	0	0
29	CHEMOTHERAPY PROCEDURES-SINGLE DAY	Procedure	0.2%	5	9500	19475000
30	CHEST PHYSIO + ROM EXERCISES	Procedure	0.0%	0	0	0
31	CHEST PHYSIOTHERPAY	Procedure	0.0%	0	0	0
32	COLONOSCOPY FULL	Procedure	0.1%	7	27300	116025000
33	E C G - ADULT	Procedure	0.3%	69	37950	22770000
34	EEG	Procedure	0.5%	16	0	0
35	ENDOTRACHEAL INTUBATION	Procedure	0.0%	0	0	0
36	EXERCISE KNEE MOBILISATION	Procedure	0.2%	20	18000	11160000

IP Summary - Final | IP Summary | IP analysis | OP Summary | **OP Analysis** | All combined data | Raw Data ==> | Hosp 1 IP | Hosp

Figure 6. OP Analysis

IP analysis: The IP analysis was also very important part of benchmarking as it covers all the groups under it.

Here, in figure 7. apart from all the columns 'IP Benchmarked for hosp' also helps in measuring the percent of revenue generated by items which are able to benchmark. By applying filter the items which are marked as 'Yes' for benchmark can be chosen and hence it can give total percent of revenue generated by items that were being benchmarked against the total revenue of that group.

	A	B	C	D	E	F
1						
2	Item name	Group	Hosp 1 IP Weight	Hosp 1 IP Volume	IP Benchmarked for Hosp 2?	IP Benchmarked for Hosp 3?
3	IP visit	Consultation	0.0%	0	Yes	Yes
4	Initial consultation	Consultation	0.0%	0	Yes	Yes
5	Emergency consultation	Consultation	0.0%	0	Yes	No
6	Clinical support fee(Resident Dr Charges)	Consultation	0.0%	0	No	No
7	ICU consultation	Consultation	0.0%	0	No	No
8	Basic	OPD consulation	0.0%	0	No	No
9	Super Speciality	OPD consulation	0.0%	0	No	No
10	Odd hours consultation	OPD consulation	0.0%	0	No	No
11	Follow up consultation	OPD consulation	0.0%	0	No	No
12	Follow up period	OPD consulation	0.0%	0	No	No
13	2D ECHO CARDIAC COLOUR DOPPLER	Procedure charges	0.4%	31	Yes	Yes
14	AIR BED CHARGES	Procedure charges	0.0%	2	Yes	Yes
15	ARTERIAL LINE - CRC	Procedure charges	0.0%	1	Yes	Yes
16	BIOPSY FORCEP (GASTROSCOPY)	Procedure charges	0.0%	1	Yes	No
17	BREATHING EXERCISES AND POSTURAL DRAINAGE	Procedure charges	0.0%	4	No	No
18	BREATHINGEXCERCISES	Procedure charges	0.0%	7	No	No
19	CARDIAC MONITOR PER DAY	Procedure charges	0.0%	1	Yes	No
20	CATHETERISATION	Procedure charges	0.1%	10	Yes	No
21	CATHETERISATION - CRC	Procedure charges	0.0%	1	No	No
22	CATHETERISATION - DOUBLE LUMEN IJ	Procedure charges	0.1%	2	Yes	Yes
23	CATHETERIZATION - PER	Procedure charges	0.0%	1	No	No
24	CENTRAL LINE	Procedure charges	0.1%	4	Yes	Yes
25	CENTRAL LINE - CRC	Procedure charges	0.0%	1	No	No
26	CENTRAL VENOUS CANNULATION INSERTION -JUGU	Procedure charges	0.0%	1	Yes	No
27	CHEMOTHERAPY CATEGORY A	Procedure charges	0.0%	1	No	Yes
28	CHEMOTHERAPY PROCEDURES-MULTIPLE DAY	Procedure charges	0.0%	2	No	No
29	CHEMOTHERAPY PROCEDURES-SINGLE DAY	Procedure charges	0.2%	12	Yes	No
30	CHEST PHYSIO + ROM EXERCISES	Procedure charges	0.2%	35	No	No
31	CHEST PHYSIOTHERPAY	Procedure charges	0.0%	13	Yes	No
32	COLONOSCOPY FULL	Procedure charges	0.0%	1	Yes	Yes
33	E C G - ADULT	Procedure charges	0.2%	108	Yes	Yes
34	EEG	Procedure charges	0.1%	4	Yes	Yes

IP Summary - Final | IP Summary | IP analysis | OP Summary | OP Analysis | All combined data | Raw Data ==> | Hosp 1 IP | Hosp 1 OP

Figure 7. IP Analysis (Part 1)

In figure 7, the 'Price X Volume' is calculated in the same way as it was calculated on OP analysis. This sheet was also formula driven and as soon as 'vlook up' is applied in the columns it itself calculate the price X volume. On the basis of this it can give final outcome/result for IP.

	A	G	H	I	J	K	L	M	N	O	P	Q	R
1		Hosp 1 - Price *Volume				Hosp 2 - Price * Volume				Hosp 3 - Price * Volume			
2	Item name	Hosp 1-GW	Hosp 1-Semi Spl	Hosp 1-ICU	Hosp 1-Spl	Hosp 2-GW	Hosp 2-Semi S	Hosp 2-ICU	Hosp 2-Spl	Hosp 3-GW	Hosp 3-Semi S	Hosp 3-ICU	Hosp 3-Spl
35	ENDOTRACHEAL INTUBATION	3270	3690	3690	4110	0	0	0	0	0	0	0	0
36	EXERCISE KNEE MOBILISATION	1860	1920	1920	2040	0	0	0	0	0	0	0	0
37	FEMORAL CATHETARISATION	2380	2560	2560	2920	1850	1850	1850	1850	0	0	0	0
38	FLEXIBLE SIGMAIDOSCOPY	9520	10240	10240	11680	7000	7600	9700	9700	0	0	0	0
39	HAEMODIALYSIS	29100	31200	31200	35400	0	0	0	0	22500	27450	27450	32400
40	HEMODIALYSIS - NEW DIALYZER KIT	15070	17160	17160	19250	31900	31900	31900	31900	22550	28050	28050	33440
41	IMRT	0	0	0	0	0	0	0	0	0	0	0	0
42	LUMBAR PUNCTURE - PED	1060	1120	1120	1240	850	900	1075	1075	1060	1260	1260	1460
43	Nebulisation	160720	160720	160720	160720	164000	164000	164000	164000	157440	167280	167280	173840
44	NEURO REHABILITATION	11220	12240	12240	13090	11390	11900	13685	13685	0	0	0	0
45	OBSTETRIC ANALGESIA	7893	8642	0	10141	1822	1980	2533	2533	0	0	0	0
46	OXYGEN CHARGES	4600	4600	4600	4600	9600	9600	9600	9600	4000	4000	4000	4000
47	PHOTOTHERAPY - A	9536	10112	10112	11264	4720	5600	6440	6440	10720	13040	13040	15280
48	PHOTOTHERAPY CHARGES PER DAY - PED	10320	11040	11040	12480	0	0	0	0	0	0	0	0
49	PHYSIOTHERAPY CHARGES	600	660	660	700	0	0	0	0	0	0	0	0
50	RESUSCIATION - BABY CARE - LSCS	20300	8344	0	9268	0	0	0	0	0	0	0	0
51	RYLES TUBE CHANGE (RYLES TUBE)	4320	4320	4320	4320	15360	16800	17400	17400	0	0	0	0
52	SPOT GLUCOSE CHECK	437280	464610	464610	482830	400840	400840	400840	400840	0	0	0	0
53	UPPER GI ENDOSCOPY - (OGD)	19920	21440	21440	24480	27200	27200	27200	27200	0	0	0	0
54	VACCINE CHARGES	2031	2106	2106	2259	0	1350	0	1350	0	0	0	0
55	VENTILATION CHARGES (MINIMUM)	2270	2440	2440	2780	1750	1750	1750	1750	1150	1150	1150	1150
56	WHEEL CHAIR MOBILISATION	565	580	580	610	0	0	0	0	0	0	0	0
57	Rooms Charges	0	0	0	0	0	0	0	0	0	0	0	0
58	Nursing charges	886400	941800	941800	1052600	0	0	0	0	0	0	0	0
59	No of capacity beds	0	0	0	0	0	0	0	0	0	0	0	0
60	Blood Gas Analysis With Electrolytes	186300	217080	217080	217080	0	0	0	0	0	0	0	0
61	Complete Blood Counts (Automated)	164560	181500	0	188760	159962	166980	191664	191664	162140	183920	183920	203280
62	Renal Profile	71250	76950	0	85500	58197	62130	75924	75924	0	0	0	0
63	Electrolytes (Na; K & Cl)	96525	100100	0	107250	116402	122980	146003	146003	118690	137280	137280	155870
64	Liver Function Test	63700	70000	0	75600	71470	76300	93240	93240	84700	102200	102200	119000
65	Blood Culture and Sensitivity	37740	40700	0	44400	38443	41070	50283	50283	49950	53650	65490	66600
66	PACKED RED CELLS	34080	34080	34080	34080	30000	30000	30000	30000	0	0	0	0
67	BLOOD TRANSFUSION CHARGES(PER UNIT)	4280	4840	4840	5400	0	0	0	0	0	0	0	0

IP Summary - Final | IP Summary | IP analysis | OP Summary | OP Analysis | All combined data | Hosp 1 IP | Hosp 1 OP | Rough 1 | Rough 2 | Dumm

Figure 8. IP Analysis (Part 2)

This is basically the data compilation part of benchmarking. The final outcome on this analysis basis will be marked for benchmarking in OP and IP summary.

Outcome/Result

The outcome of this study comes as;

Table 1. OP Summary

	% Revenue total	% Revenue match	Hosp 1	Hosp 3	Hosp 2
Investigation	21.90%	15.9%	100	185	
Procedure charges	33.2%	9.0%	100	87	
Consultation	16.4%	16.4%	100	71	129
Total	**55.1%**	**24.9%**	**100**	**126**	

The table 1 states that out of 21.9% of revenue in investigation, the mark up revenue was 15.9%. In procedure charges the mark up was 9% out of 33.2%. Consultation charges were equally marked that was because it has been manually adjusted by calculating it separately not by putting formula on the sheet.

Further, Benchmarking Hosp 1 as 100, it says, Hosp 3 is 185 out of 100, above Hosp 1 investigation and 87 out of 100, above Hosp 1 procedure charges. There was no data benchmarked for Hosp 2 OP hence the column is blank. For consultation, as it was calculated manually it says, if Hosp 1 OP consultation is 100 Hosp 2 is 129 and Hosp 3 is 71 out of 100 Hosp 1 consultation.

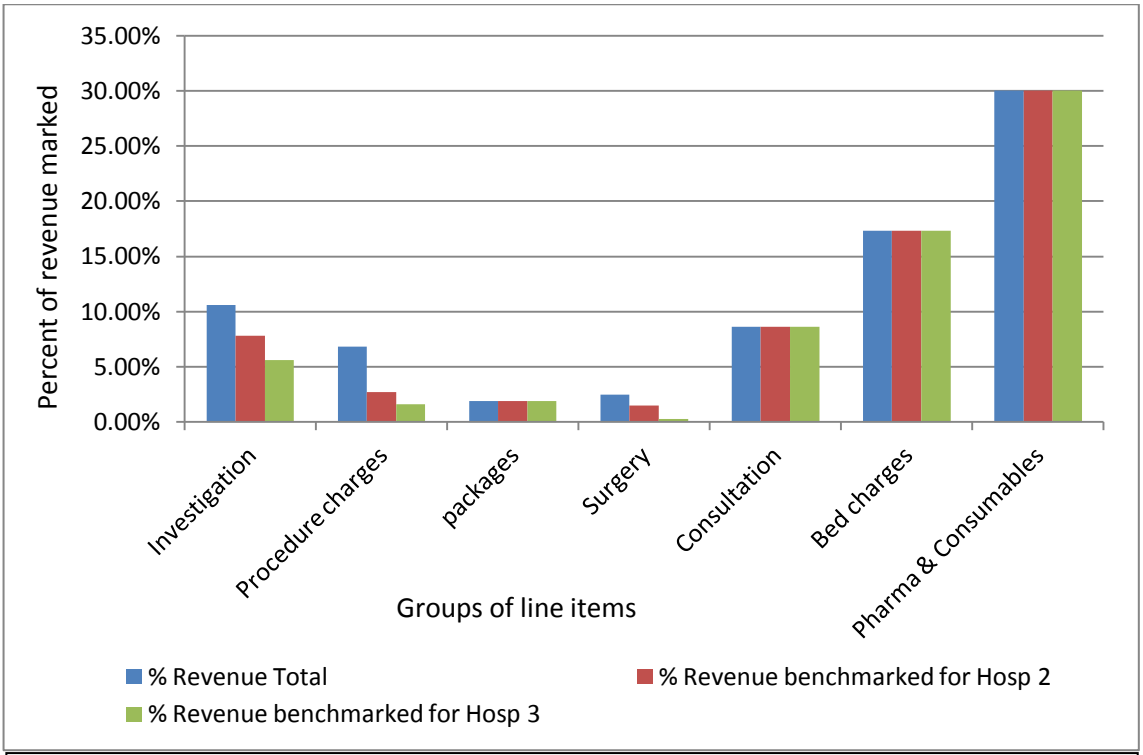


Figure 1. IP Summary (Revenue benchmarked)

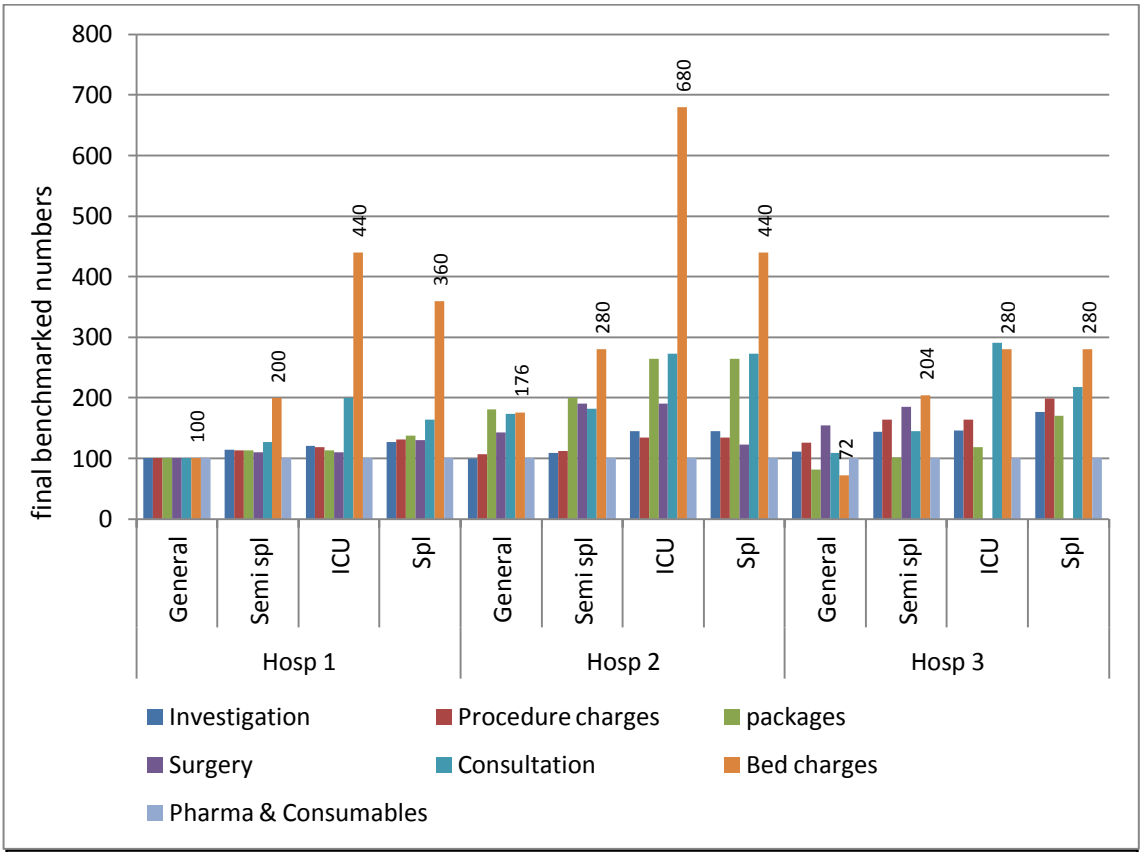


Figure 2. IP Summary (Room wise benchmarking)

In Figure 1, let's take investigation and bed charges to explain,

In investigation out of 10.6% of total revenue the mark up percent was 7.80% for Hosp 2 and 5.6% for hosp 3. Further in figure 2 it says if it marks Hosp 1 general bed as 100 than semi special of Hosp 1 is 114 higher than general ward. ICU is 121 higher than 100 of general ward and so on.

For bed charges, the revenue was equally marked because it has been manually adjusted by calculating it separately not by putting formula on the sheet.

Table 3. IP Summary – final result

IP

	General	Semi spl	ICU	Spl
Hosp 1	100	128	192	171
Hosp 3	96	135	170	166
Hosp 2	128	154	262	207
Hosp 1 at Premium	General	Semi spl	ICU	Spl
Hosp 1 premium over Hosp 3	4%	-5%	13%	3%
Hosp 1 premium over Hosp 2	-22%	-17%	-27%	-17%
Telescopic levels	General	Semi spl	ICU	Spl
Hosp 1	100	128	192	171
Hosp 3	100	140	177	173
Hosp 2	100	121	205	161

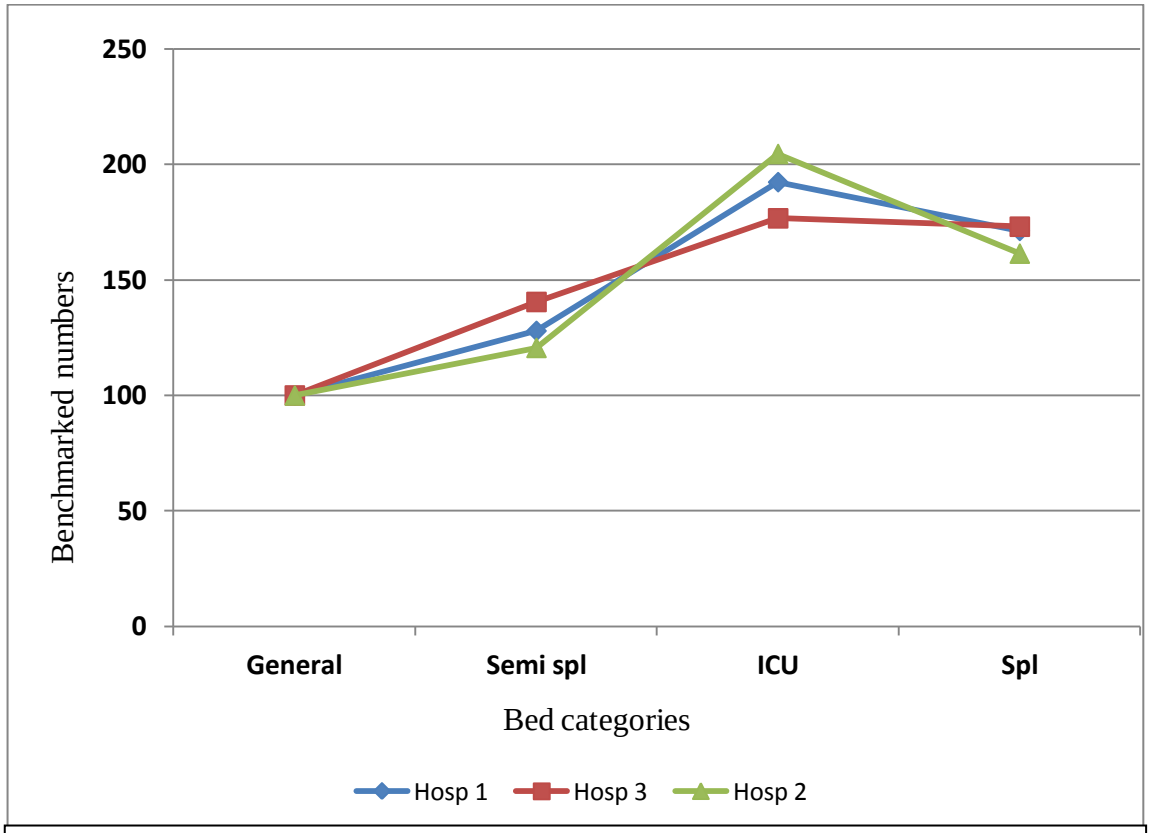
Table 3 was the final and most important outcome of the study. Through this the analysis can be made about where it stands up in the market as compared to other competitors in pricing. Everything in this sheet was being calculated by applying formula and it was also interlinked with previous sheet.

The first table in table 3 shows the outcome of table 2. This was calculated in last row as over all IP analysis.

Second table shows how much Hospital 1 was at premium over Hosp 2 and Hosp 3. If it compare Hosp 1 over Hosp 3 it can say Hosp 1 is 4% above Hosp 3 in general bed, 5% below in Semi-Special, 13% above in ICU and 3% above in Special.

Similarly, if it compare Hosp 1 over Hosp 2 it says Hosp 2 is 22% below Hosp 3 in general bed, 17% below in Semi-Special, 27% below in ICU and 17% below in Special.

From this it is clearly visible that From Hosp 2, Hosp 1 is very below in all room categories and from Hosp 3, Hosp 1 is above in all the categories except Semi-special.



Graph 3. Comparison between all bed categories keeping general bed as 100

Graph 3, shows that if it keeps general bed of all the hospitals taken, as 100 where the other bed categories lie, which hospital is above and below each other.

From this it can be seen, hosp 1 lie in-between both the hospitals and comparing from both it can increase the price of semi-special by few percent.

Recommendations

- It is recommended to include an expert with medical background, preferably a medical doctor in the team which undertakes the pricing process.
- A proper pricing plan needs to be prepared by the Hospitals.
- Coordination among various departments and units needs to be ensured when the process is undertaken.

Limitation of the study

During the study there were some limitations that were faced at various levels, some of the major limitations were;

- **Collection of data from the competitors** – Pricing includes very crucial step, hence competitors generally do not willingly share their information. In such cases it needs to build up some external sources to collect the data. Same thing was faced in the study.

- **Data confidentiality** – Not just competitors but when one works on such important projects it need to maintain some data confidentiality due to which accurate results that came up can't be shared.

Findings

The use and role of this tool is; once it is prepared the major work is done on the first sheet of benchmarking (figure 2, figure 3 and figure 4). Rest everything else is then calculated by formulae that is being put up in the entire sheet. And it can directly give telescopic price and the level where the hospital stands as compared to competitors.

Competitive benchmarking that is being done in the project isn't just about comparing benchmarking numbers, it's a process to target problem areas, identify solutions and implement changes that improve results. It goes beyond numbers and looks at processes, resources and systems. Going beyond benchmarking and evaluating the operations is critical to the success. It tells whether the operations are as efficient and effective as possible and identifies things that can be done so that it can serve the core needs of the organization and customers better.

Bibliography

1. Cindy Barnes; Helen Blake; David Pinder, Creating & delivering your value proposition: managing customer experience for profit, Kogan Page Publishers, Retrieved 21 September 2011.

2. Arik R.; Johnson is Managing Director of the Competitive Intelligence (CI) outsourcing & support bureau Aurora WDC, Article: 10 february 2015.

3. Beckford, J. 1998. Quality: A Critical Introduction, Routledge, Florence, KY, USA, 256-63.

4. Camp, R; Zairi, 1992; Smith et al., 1993; Rogers et al., 1995. Global Cases in Benchmarking, Best Practices from Organisations Around the World, American Society for Quality Control Quality Press, Quality Resources, Milwaukee, New York.

5. Elmuti, D. and Kathawala, Y. 1997. An overview of benchmarking process: a tool for continuous improvement and competitive advantage, Benchmarking for Quality Management and Technology, 4(4), 229 43.

6. Cox, A. and Thompson, I. 1998. On the appropriateness of benchmarking, Journal of General Management, 23(3), 1 20.

7. Gilad; Ben, The Future of Competitive Intelligence: Contest for the Profession's Soul, Competitive Intelligence Magazine, 2008.

8. Zairi, M. 1992. The art of benchmarking: using customer feedback toestablish a performance gap, Total Quality Management, 3(2), 177 88.

9. Vaziri, K. 1992. Using competitive benchmarking to set goals, Quality Progress, October, 81 5.

10. Rogers, D., Daugherty, P. and Stank, T. 1995. Benchmarking programs: opportunities for enhancing performance, Journal of Business Logistics, 10(2), 43 63.

11. Smith, G., Ritter, D. and Tuggle, W. 1993. Benchmarking: the fundamental questions, Marketing Management, 2(3), 43 8.

Appendix

1) Hosp 1 IP data

	B	C	D	E	F
1	Items	Service name	Sum of Quanti	Sum of ItemPatie	Revenue
38	ACAMPROL 333 MG tablet	Pharmacy	22	183.26	0.0%
39	ACITROM 1 MG tablet	Pharmacy	4	18.28	0.0%
40	ACT HR CATRIDGES - PACK OF 50 X 2 # 402-03 - METRONIC	Consumables	2	312	0.0%
41	ACTH	Investigation	1	2100	0.0%
42	ACTIHEP capsule	Pharmacy	41	610.9	0.0%
43	Activated Partial Thromboplastin Time(APTT)(Automated / Clotting Assay)	Investigation	5	1380	0.0%
44	ADCOB-FM tablet	Pharmacy	0	7.6	0.0%
45	Admission charges	Admission charges	192	9130	0.1%
46	ADRENALINE TARTRATE 1 MG/1 ML ampoule solution for injection; Adren of Medi	Pharmacy	0	799	0.0%
47	ADRENALINE TARTRATE 1 MG/1 ML ampoule solution for injection; Vasocon of Ne	Pharmacy	43	791.2	0.0%
48	ADRIM 10 MG/5 ML VIAL solution for infusion; 2 mg/mL	Pharmacy	4	799.24	0.0%
49	ADRIM 50 MG/25 ML VIAL solution for infusion; 2 mg/mL	Pharmacy	2	1668.28	0.0%
50	AFB Culture Automated (MGIT/MB -Bact)	Investigation	1	864	0.0%
51	AFB Smear/ Z.N.Stain	Investigation	4	460	0.0%
52	AFB smear/Z.N. Stain - Sputum	Investigation	7	693	0.0%
53	AIR BED CHARGES	OP/IP Procedure	2	240	0.0%
54	AIRWAY GUEDEL SIZE-1 - ROMSONS	Consumables	0	90	0.0%
55	AIRWAY GUEDEL SIZE-3 - ROMSONS	Consumables	0	540	0.0%
56	AIRWAY NASOPHARYNGEAL 8.5 # GS-2034 - ROMSONS	Consumables	1	205	0.0%
57	AKT-4 KIT (4)	Pharmacy	4	53.2	0.0%
58	ALBUMEN CARE Mango Flavour oral powder 200 GM TIN	Consumables	1	599	0.0%
59	Albumin /Globulin (A/G) Ratio	Investigation	3	429	0.0%
60	ALBUREL 20% w/v solution for infusion 100 ML; 20 g/100mL	Pharmacy	8	32740.64	0.4%
61	ALDACTONE 25 MG tablet	Pharmacy	0	12.95	0.0%
62	ALDACTONE 50 MG tablet	Pharmacy	0	0	0.0%
63	ALLEGRA 180 MG tablet	Pharmacy	2	28.3	0.0%
64	ALLERCET COLD tablet	Pharmacy	10	47	0.0%
65	ALPHA D3 0.25 MCG Capsule	Pharmacy	16	131.84	0.0%
66	ALPHADEX 200 MCG/2 ML ampoule solution for injection; 100 mcg/mL	Pharmacy	1	549	0.0%
67	ALPHADOL 0.25 MCG Capsule	Pharmacy	28	229.6	0.0%
68	ALPHA-RED 4000 IU/0.4 ML PFS solution for injection	Pharmacy	4	6400	0.1%
69	ALPRAX 0.25 MG tablet	Pharmacy	8	8.56	0.0%
70	ALPRAX 0.5 MG tablet	Pharmacy	17	35.87	0.0%
71	ALUPENT 10 MG tablet	Pharmacy	13	51.61	0.0%
72	AMBISTRYN-S 0.75 GM/VIAL powder for injection	Pharmacy	1	8.83	0.0%

IP Summary - Final / IP Summary / IP analysis / OP Summary / OP Analysis / All combined data / Hosp 1 IP / Hosp 1 OP / Rough 1 / Rough 2 / Dumm

Figure 1. Hosp 1 IP data, revenue calculation

2) Hosp 1 OP data

	A	B	C	D	E	F
1	Item ID	Items	Service name	Sum of Quanti	Sum of ItemPatient	Revenue
3	45	GRANICIP 3 MG/3 ML VIAL solution for injection; 1 mg/mL	Pharmacy	4	240	0.0%
4	660	NS 0.9% w/v 100 ML PVC Bottle solution for infusion; Axa Parenterals	Pharmacy	4	74.8	0.0%
5	663	Misc Servicing Charges	Misc Servicing Charges	2	1270	0.0%
6	666	RL 500 ML PVC Bottle solution for infusion; AXA	Pharmacy	3	174.75	0.0%
7	674	Blood Grouping and Rh Typing	Investigation	10	800	0.0%
8	677	Coombs Test Indirect (ICT Or IAT)	Investigation	4	1120	0.0%
9	687	ACTH	Investigation	2	0	0.0%
10	694	Alkaline Phosphatase (ALP)	Investigation	8	1120	0.0%
11		SP-CLAV 1.2 GM/VIAL powder for injection	Pharmacy	1	132	0.0%
12	696	Alpha Feto ProteinAFP)	Investigation	3	293	0.0%
13	697	Alpha Hydroxy Progesterone (17-OH progesterone)-Serum	Investigation	1	0	0.0%
14	704	Anti Mullerian Hormone(AMH)	Investigation	19	2400	0.1%
15	710	Ascitic Fluid - ADA	Investigation	1	300	0.0%
16	712	Ascitic Fluid - Amylase	Investigation	1	315	0.0%
17	730	BETA HCG	Investigation	14	800	0.0%
18	733	Bilirubin -Total	Investigation	11	660	0.0%
19	735	Bilirubin Total And Direct	Investigation	14	1480	0.0%
20	740	Blood Gas Analysis With Electrolytes	Investigation	1	780	0.0%
21	753	Calcium - Total	Investigation	25	1940	0.1%
22	754	Cancer Antigen - 125 (CA-125)	Investigation	2	1050	0.0%
23	756	Cancer Antigen - 19-9 (CA-19-9)	Investigation	2	616	0.0%
24	758	Carcino Embryonic Antigen (CEA)	Investigation	4	1140	0.0%
25	763	Cholesterol - HDL	Investigation	1	140	0.0%
26	764	Cholesterol - Total	Investigation	4	400	0.0%
27	776	Cortisol -Serum Random	Investigation	5	0	0.0%
28	779	Creatine PHosphokinase (CPK)	Investigation	4	300	0.0%
29	784	Creatinine- Serum	Investigation	145	12713	0.4%
30	800	DHEA-Sulphate	Investigation	2	750	0.0%
31	818	PANTAC 40 MG/VIAL Lyophilized powder for injection	Pharmacy	9	481.5	0.0%
32	833	Electrolytes (Na; K & Cl)	Investigation	36	5000	0.1%
33	836	Estradiol (E2)	Investigation	78	675	0.0%
34	839	Ferritin	Investigation	11	6400	0.2%
35	845	Free T3	Investigation	13	1080	0.0%
36	846	Free T4 (Thyroxin-Free)	Investigation	42	4950	0.1%
37	849	Follicle Stimulating Hormone (FSH)	Investigation	23	0	0.0%

IP Summary - Final | IP Summary | IP analysis | OP Summary | OP Analysis | All combined data | Hosp 1 IP | Hosp 1 OP | Rough 1 | Rough 2 | Dumm

Figure 2. Hosp 1 OP data, revenue calculation