Dissertation at Sharda Hospital, Greater Noida

Costing of Cardiology CABG in Medical College Setup

By

Roopal Chandrakar
PG/12/75
PGDHM
2012- 2014

International Institute of Health Management Research, New Delhi

Dissertation

At
Sharda Hospital, Greater Noida

Study Title
Costing of cardiology Services(CABG) at Medical college setting

By
Roopal Chandrakar

Under the Guidance of
Prof. Vanishree MR

Post Graduate Diploma in Hospital and Health Management
2012- 2014

International Institute of Health Management Research, New Delhi

Imperia Health Private Limited Onsite project Sharda Hospital

The certificate is awarded to

Name -Roopal Chandrakar

In recognition of having successfully completed her Internship in the department of Operations/ Quality

Title- Costing of CABG in Medical College Setup

And has successfully completed her Project on

Costing of CABG in Medical College Setup

Date-From 3rd February to 3rd May

Organization- Imperia Health Pvt. Ltd

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

We wish him/her all the best for future endeavors

Training & Development

Dr L K Sharma
Addl CMS Sharda Hospital
13 May 14

Zonal Head-Human Resources

13/05/2014

B-84, Defence Colony, New Delhi 110 024, INDIA
t : +91 11 4075 5900 w : imperiahealth.com

Certificate of Approval

The following dissertation titled **"COSTING OF CABG IN MEDICAL COLLEGE SETUP"** at **"IMPERIA HEALTH PRIVATE LTD"** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
① Dr. S.R. CHAUHAN	6.5.14
② Dr A.K. KHOKHAR	
③ Dr. B.S. Singh	B S Singh

Certificate from Dissertation Advisory Committee

This is to certify that **Ms. Roopal Chandrakar,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He/ She is submitting this dissertation titled **"COSTING OF CABG IN MEDICAL COLLEGE SETUP"** at **"Imperia Health Private Limited: Onsite project Sharda Hospital"** in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Institute Mentor Name,

13/05/2014

Designation; Assistant Professor

Organization : IIHMR, New Delhi

Dr. Sajal Sen

MBBS, MHA (AIIMS) MMS (Osmania)

Chief Operating Officer

Imperia Health Pvt. Ltd.

(An IPE GLOBAL venture)

B-84, Defence Colony, New Delhi 110 024, INDIA
t : +91 11 4075 5900 w : imperiahealth.com

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled ..Costing of Cardiology Services (CABG) in a Medical College Settings, at Sharda Medical College & Hospital and submitted by (Name) ..Roopal Chandralaar ..... Enrollment No. ..PG/12/75 under the supervision of ..Dr. Vanishree MR.....

For award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 3/02/14..... To 03/05/14.....

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.

Roopal
08/05/14
Signature

imperia health Pvt. Ltd.
AN IPE GLOBAL VENTURE

FEEDBACK FORM

Name of the Student: Roopal Chandrakar

Dissertation Organization: Imperia Health Private Limited

Area of Dissertation: Quality & Operations

Attendance: from 3rd of February to 3rd of May

Objectives achieved: The student was successfully put into the operations and functions of Sharda Hospital. A complete overview of the organizational set of a hospital was gained. The student actively participated in various actions and activities related to the improvement of the hospital facility and processes.

The student got a substantial exposure to the NABH Gap Analysis conducted in the hospital for accreditation.

Deliverables: The Student had successfully taken up quality improvement activities and other documentation related activities for the functional improvement of the hospital. Her contribution is useful for the organization.

Strengths: Roopal has a strong domain knowledge of the hospital sector especially hospital operations. She has demonstrated good analytical skills in carrying out the costing analysis of the identified procedure. A sincere worker and a good team person.

Suggestions for Improvement: Roopal requires to show initiative and doggedness in her work. She has a propensity to be easily disheartened.

Signature of the Officer-in-Charge/ Organization Mentor (Dissertation)

Date: 6th May 2014 **Place: New Delhi**

B-84, Defence Colony, New Delhi 110 024, INDIA
t : +91 11 4075 5900 w : imperiahealth.com

TO WHOMSOEVER MAY CONCERN

This is to certify that _____Roopal Chandrakar_____ student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at Imperia Health Pvt. Ltd

from 3rd February to 3rd May

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

The Internship is in fulfillment of the course requirements. I

wish him all success in all his future endeavors.

Dr. A.K. Agarwal

Dean, Academics and Student Affairs

IIHMR, New Delhi

Name of mentor

IIHMR, New Delhi

Executive summary

Cost of healthcare is growing due to application of newer technology, equipments and drugs in providing the state of art treatment to the patient. Costing is the necessary part that gives information about cost reduction possibilities without affecting the quality of services.

Introduction- Costing of CABG is mainly divided into Material cost, cost of manpower and Infrastructure cost. Material cost includes direct and indirect cost, direct cost are all drugs and consumables that are directly consumed by patient during surgery or in hospitalization and indirect cost includes cost of oxygen, ventilator, anaesthesia, syringe pump etc. Second major category is the cost of manpower which is obtained by calculating their monthly salaries by individually calculating salaries of all personnel which are involved either in surgery or in the care of patient during hospitalization. And the third category is the cost of infrastructure which is obtained by calculating the cost of OT, ICU and cost of ward. And miscellaneous cost includes the cost of CSSD, linen laundry, and the cost of administration.

Objective-
General objective- To identify the cost of providing comprehensive cardiology services in a medical college setup, which can be used for competitive service pricing strategy

Specific objective- To understand the structure & function of comprehensive cardiology services in a hospital.

-To identify different types of cost centre in a hospital.

-To identify the different types of cost in hospital

-To apply the activity based costing for determining the cost of common cardiology procedure.

Problem statement- Private healthcare is always varied about the cost of providing healthcare so it is essential that everyone must aware about the cost of providing healthcare so that resources can be used efficiently without wastage.

Methodology- study design- observational study design
Study technique- Activity based costing
Study method- Direct observation
Analytical estimation
Process & workflow study
Interaction with caregivers
Study setting- Sharda Medical College & Hospital

Key findings- Material cost- 88468

Cost of manpower-29,729

Cost of infrastructure-22934

ACKNOWLEDGEMENT

I take this opportunity to express my profound gratitude and deep regard to my guide and external mentor **Dr. Sajal Sen** (COO, Imperia Health Pvt. Ltd), for his exemplary guidance, monitoring and constant encouragement throughout the course of Dissertation. I would also like to express my gratitude to **Dr Devina Bajpayee** (Associate vice president, Imperia Health Pvt. Ltd) **Dr. Lalit Kumar Sharma** (AMS, Sharda Hospital) for their guidance

I also take this opportunity to express deep sense of gratitude to my Director **Dr. L.P. Singh** and Dean **Dr. A.K. Aggrawal** and to my Internal mentor **Prof. Vanishree M R** (Assistant professor, IIHMR, New Delhi) for correcting and offering suggestion for the improvement of my project

And **Mr. Omprakash Kumar** (Onsite Billing consultant, Imperia health Pvt. Ltd), and **Mr. Anal David** (Onsite HR consultant, Imperia Health Pvt.Ltd.) for giving valuable information and offering suggestion

I am obliged to the staff member of BME, Gas manifold, and ICU for the valuable information provided by them in their respective field. I am grateful for their cooperation during the period of my assignment.

LIST OF TABLES AND FIGURES

LIST OF FIGURES

LIST OF GRAPH

LIST OF TABLES

LIST OF ABBREVIATION

- CABG- Coronary artery bypass graft
- ABC- Activity base costing
- OPD- Out patient department
- ICU- Intensive care unit
- HR- Human resource
- OT- Operation theatre
- Lab- Laboratory
- MR- Medical record
- HK- House keeping
- CSSD- Central sterile supply unit
- IV- Intra venous
- CNG- Compressed natural gas
- PTCA- Percutaneous transluminal coronary angioplasty
- CGHS- Central government health scheme

1.HOSPITAL PROFILE

Sharda hospital is 640 bedded multi specialty Hospital, which offers medical care to patient at affordable costs and equipped with all modern facility and equipment. This hospital provide modern and comprehensive care to all section of society, this hospital involve in training of medical student research activity and extends services to rural area. This hospital also established a PANCHKARMA center.

Vision:

To be a recognized healthcare organization that cares for lives through technological excellence and humane touch by valued staff.

Mission Statement

To establish a state of the art hospital of global standards that strives for continual improvement in its services, promotes excellence in medical education and research and is valued by its employees and the community it serves

Core Values

Commitment

Accountability

Recognition

Integrity

Nurturing

Growth

Learning

Innovation

Voraciousness

Ethics

Social responsibility

Corporate Vision and Strategies

- To realize its mission, the Hospital Authority has developed the following Corporate Vision:

"We are committed to provide world class ethical and quality healthcare services with clinical excellence at competitive cost."

- The Authority aims to achieve this corporate vision by adopting the following five Corporate Strategies:
- Developing Outcome-focused Healthcare to maximize health benefits and meet community expectations
- Creating Seamless Healthcare by restructuring and reorganizing medical services in collaboration with other providers and careers in the community
- Involving the Community as Partners in Health in the decision-making and caring process
- Cultivating Organization Transformation and Development through a multi-disciplinary team approach to holistic patient care and continuous quality improvement
- Promoting Corporate Infrastructure Development and Innovation to support service improvement

Services provided by the Hospital

Cardiology
Neurology
Gastroenterology
Orthopaedics
Obstetrics and gynaecology
Medicine
ENT
Ophthalmology
Paediatrics
Radiology
Laboratory
Oncology
Plastic surgery
Urology
Dermatology
Dentistry
Physiotherapy

1. INTRODUCTION

High cost of health care is causing increasing concern to the public, government and health care professional. Coronary artery disease and its surgical treatment is enormous health care burden. Health care cost continues to grow rapidly, straining budgets and raising questions about whether consumers are getting good value for the money spent. There has never been a more pressing need for conceptually sound and empirically accurate estimates of healthcare cost, for a variety of application. The development of valid, reliable, feasible, and comparable measures of health care cost has proved to be challenging, substantial variation exists across studies in data and methods, even for cost studies with seemingly a similar intent.

Health care institution operates in the condition of high volatility environment. The present change of trend is leading to an increase of competitiveness of the health care industry, an increase of healthcare needs, as well as rise of expectation of patients and payers.

Situation on global market, which is changing dynamically, the field of medical services included, makes manager to be forced to constantly seek new and effective methods and management tool. Basic knowledge of management should be provided by cost information. It is important to apply such as costing model, which would help to provide useful information about the type and amount of used resources and reduction possibilities.

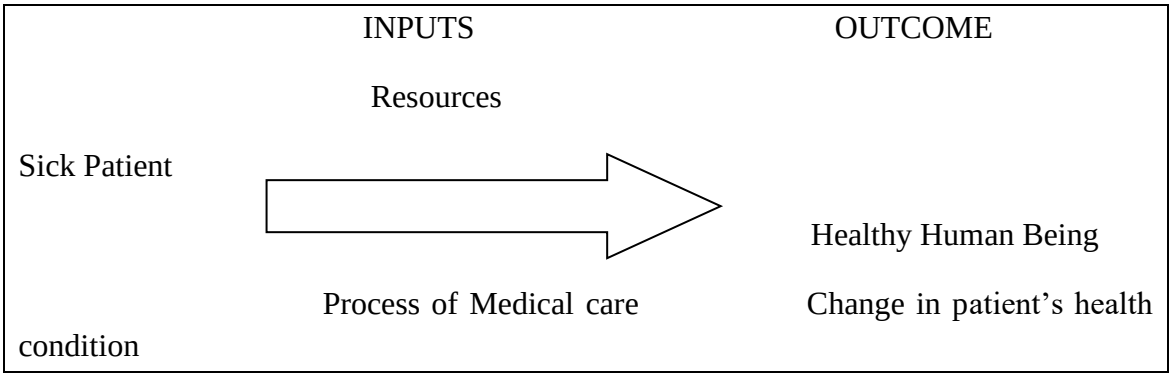


Figure 2.1 PRODUCTION OF HEALTH CARE

2.1 MEANING OF COSTING

System of calculating the cost is called costing. The cost may be actual or estimated, at every stage of production, there is need to calculate the cost of raw material, labour cost, direct and indirect cost, to allocate different expenses under a system and this system is called costing.

There are three main element of costing i.e.

- Material cost
- Labour cost
- Expenses

And the main type of costing is

- **Direct and Indirect cost**- Those cost which can be allocated directly to cost unit or cost centre is **direct cost** and those cost which cannot be charged or conveniently allocated but are apportioned to or absorbed by the unit cost is **indirect cost** also called as burden.
- **Fixed, variable and semi variable cost- Fixed cost** are the cost that remain fixed and do not change with the change in the volume of output. **Variable cost** varies in direct proportion with the volume of production/output. **Semi fixed** cost they do change with respect to changes in the output but not proportionately.
- **Controllable and uncontrollable cost- Controllable cost** is the cost which manager can control and reduce to an extent. All direct and variable cost is controllable cost. **Uncontrollable cost** is those cost which the manager can not reduce. All fixed cost is uncontrollable cost.
- **Marginal cost-** Additional cost that would be incurred for production of an extra unit of output. They reveal the relationship between the cost and the volume of production.
- **Opportunity cost-** Monitory gains that have been missed or lost by choosing an alternative instead of its next best alternative.
- **Sunk cost-** These are the cost incurred in the past and have no effect on the future decision making.
- **Production cost/conversion cost-**
  Production cost- Cost of production and packing of raw material.
  Conversion cost- Cost of converting the raw material into the finished product.

2.2 COMPONENT OF COSTING

There are four main component of costing of sale of the product:-

1. **Prime cost**- It is aggregate of all direct costs incurred in the labour material and the other expenses that are directly consumed in the production process and become part of ultimate finished product.
2. **Work cost**- Prime cost + overheads(indirect labour, indirect material, indirect expenses)
3. **Cost of production**-work cost + administrative overheads incurred for the entire hospital (expenses incurred on administrative staff, transport telephone, electricity, water, taxes for the whole hospital.)
4. **Cost of sale**- cost of production + selling and distribution expenses

Selling price= Cost of sales+ Net profit

2.3 COST CENTER

An identifiable departments or area within the hospital, which has been an accounting number in the hospital accounting system for the purpose of accumulating expenses

From the administrative point of view the cost centre may be based on the nature of the work:

CLINICAL/ PATIENT CARE – wards, ICU, labour room, NICU, nursery, OT

ANCILLARY SERVICES – Pathology, Radiology, Pharmacy, Physiotherapy, Blood bank,

SUPPORT SERVICES – Dietary, linen, laundry, house keeping

ADMINISTRATIVE SUPPORT CENTRE – HR, finance, security, maintenance

For the purpose of cost finding the cost centre may be classified, broadly as:

- **Revenue earning &**
- **Non revenue earning centre**

Table 2.1 List of the entire cost centre in the hospital

REVENUE PRODUCING COST CENTRE	NON REVENUE PRODUCING COST CENTRE
1.Clinical- OPD, casualty, wards, OT, Dental, Physiotherapy, Dialysis, Cath lab	4. Administration- HR, Accounts, Front desk, Transport, Security, Horticulture, Engineering services
2.Ancillary- Pharmacy, Lab, Radiology, Blood Bank	MR, CSSD, Laundry, Hk, Mortuary, Gas and Vacuum supply
3. Support- Dietary	

FULL COST FOR EACH INPUT CONSUMED

- Direct cost
- Indirect cost
- Administrative overheads

DIRECT COST

- Direct labour
- Direct material
- Direct expenses

DIRECT LABOUR

It would include all the staff directly involved in that service E.g., for calculation of cost/day /bed in the ward the input would include the doctors, nurses, and HK staff.

The cost will include:

Their salaries+ all benefits/ fringe benefits, +cost of paid leave +expenditure on conferences attended or free accommodation, free uniform, meals provided, everything –over the period under study.

The cost share per unit of product is calculated on the basis of the time consumed per unit of product

Direct Materials:

This will include all the materials (Drugs, syringes, IV fluids, bandages, and toiletries, even the cost of donated items used directly by or on the patients over the period under study.

Direct Expenses:

Cost of Items like diet, drugs and investigations which were consumed by/prescribed for individual patients

INDIRECT COST

- **Indirect Labour :** Clerical staff, messengers
- **Indirect Materials** : Stationery, toiletries, cleaning Material, detergents, disinfectants
- **Indirect Expenses :** Linen and laundry services, Repair and maintenance, Depreciation of buildings Depreciation of equipment, News papers, periodicals etc.

ADMINISTRATIVE OVERHEADS:

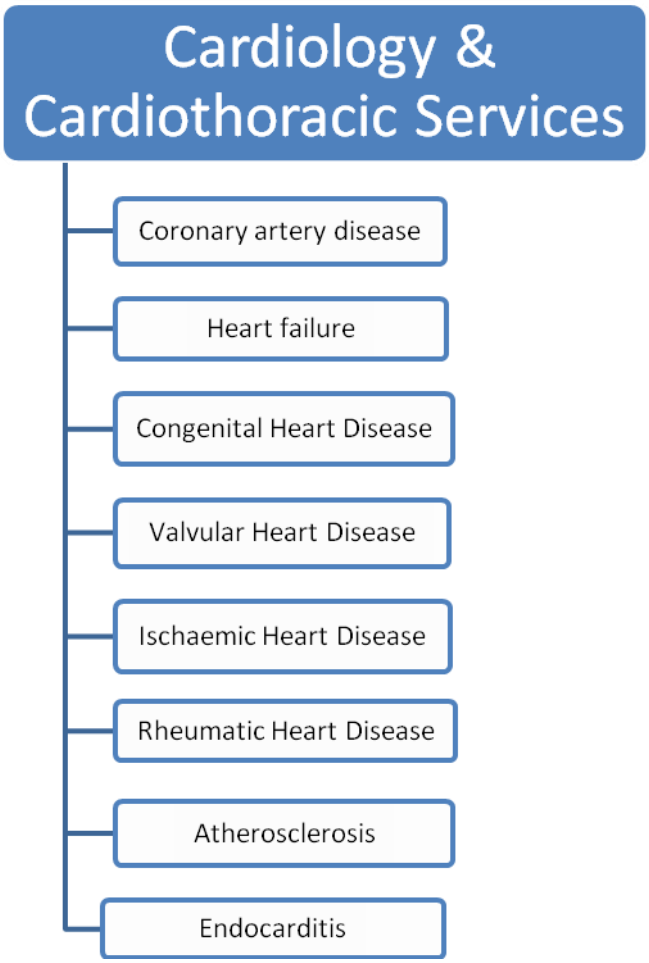
- Cost of administrative staff in the hospital including security.
- Engineering services
- Horticulture
- Cost of electricity, water, air conditioning
- Cost of transportation
- Cost of telephone ……etc.
- Cost of Cable TV
- CNG/LPG supply

2.4 CARDIOLOGY & CARDIOTHORACIC SERVICES

For the presence study the researcher has consider cardiology and cardiothoracic service department at sharda medical college.

Cardiology is the medical speciality that dealing with disorder of heart. The field includes medical diagnosis and treatment of various heart diseases. **Cardiothoracic surgery** involved the surgical treatment of diseases affecting organ inside the thorax generally treatment of condition of heart and lungs.

Figure 2.2 Cardiology & cardiothoracic surgery



2.5 DEFINITION OF COMMON CARDIOTHORACIC SURGERY

CORONARY ARTERY BYPASS GRAFT (CABG) - coronary bypass: open-heart surgery in which the rib cage is opened and a section of a blood vessel is grafted from the aorta to the coronary artery to bypass the blocked section of the coronary artery and improve the blood supply to the heart

During coronary bypass surgery, breastbone is divided in half to expose heart. Heart is then connected to a heart-lung machine which completely takes over the function of heart and lungs, permitting the surgeon to temporarily stop heart. With the heart still, the surgeon then bypasses the blocked coronary arteries with vein taken from leg or arteries taken your chest or arm. Heart is then allowed to resume beating, it is disconnected from the heart-lung machine, and breastbone is closed with wires. The operation usually takes from three to five hours. In some cases, the surgeon can perform this operation while your heart is still beating. This is called "off-pump" coronary bypass surgery.

ANGIOPLASTY- Angioplasty is a technique that's done during a cardiac catheterization. So it's very similar as a diagnostic catheterization, where catheters, or tubes, are placed up the main blood vessel to the heart; an x-ray dye is injected to look at the arteries around the heart.

And during that procedure, the physician would then put a small, a very, very small little wire, about the size of three hairs. And he wiggles that down through the opening, through the artery, through the blocked area, and then on top of that little wire goes a balloon catheter these days, often with a stent or wire mesh that's embedded on top of that balloon. It goes into the blockage, the balloon is inflated and it pushes aside the blockage of the hardening in the arteries. So now the opening, instead of being narrowed is back to a normal size opening allowing normal blood to go to the heart muscle.

PACEMAKER- A **pacemaker** (or **artificial pacemaker**) is a medical device that uses electrical impulses, delivered by electrodes contracting the heart muscles, to regulate the beating of the heart. The primary purpose of a pacemaker is to maintain an adequate heart rate either because the heart's natural pacemaker is not fast enough or there is a block in the heart’s electrical conduction system. Modern pacemakers are externally programmable and allow the cardiologist to select the optimum pacing modes for individual patients. Some combine a pacemaker and defibrillator in a single implantable device. Others have multiple electrodes stimulating differing positions within the heart to improve synchronisation of the lower chambers (ventricles) of the heart

2.6 PROBLEM STATEMENT

The current health care environment is one in which providers, administrators and health care workers have to make difficult allocation decisions.There is a need of good accounting system so that cost can be allocated accurately.

Private healthcare providers always varied about the cost of providing healthcare. In such an environment it is essential that everyone be aware about cost of providing healthcare, resources available, how resources can be used and what the costs of available are and where the reduction possibilities are. So wastage of resources can be reduced to great extent and these resources can be used efficiently and effectively to any other department of hospital where the demand exist. In this way cost of providing healthcare can be reduced to great extent just by doing reduction on extra amount of unused items.

The goal of study is to provide the accurate cost for cardiology services i.e. CABG. This study aims to estimate the costing for providing complete cost of services pertaining to comprehensive cardiology and cardiothoracic services.

2.7 RATIONALE OF THE STUDY

The Health care market is changing dynamically, this field make manager to seek new and effective methods and management tools. Basic knowledge of management should be provided by cost information. It is important to apply such a costing model, which would help to provide useful information about the type and amount of used resources and reduction possibilities.

The study which has undertaken is regarding the costing of cardiology services in Sharda Medical College and Hospital. The reason behind chosen this study is that it will be beneficial for the hospital by knowing the costing of cardiology services as this is the new service for hospital and going to start within a few months so the managers and health care providers can know where are the reduction possibilities and how efficiently resources can be used.

3. OBJECTIVES

3.1 GENERAL OBJECTIVE

To identify the cost of providing comprehensive cardiology services(Per surgery) in a medical college setup, which can be used for competitive service pricing strategy.

3.2 SPECIFIC OBJECTIVE

To understand the structure & function of comprehensive cardiology services in a hospital.

To identify different types of cost centre in a hospital.

To identify the various cost element involve in the one surgery of CABG

To check the feasibility of applying ABC for determining the cost of common cardiology procedure i.e. CABG

4. REVIEW OF LITERATURE

There have been very few studies found in the literature about the costing of health care, I found some of the studies related with costing which are as follows:

1. **Hans Krueger, Jose L. Goncalves, Frances M. Caruth, and Robert I. Hayden.** Jan 1992.

Objective: The objective of the study was to calculate the cost of coronary artery bypass grafting and to compare it with the cost determined it with the cost determined in the two previous Canadian studies

Design: Retrospective cross analysis study

Setting: a tertiary care referral hospital.

Subject of study were fifty patients who had undergone successful triple and quadruple CABG between January 3 and 30, 1089.

Result: The main result found that the cost of CABG per patient varied from $ 10,982 to $33,676. The cost tended to increase with age and number of vessels grafted. Compared with the patients in the two previous Canadian studies their patients were older , had more vessels grafted and cost more to treat, even after the total hospital costs were adjusted for inflation.

Older population has more diseased vessels; these changes have had a significant impact on the cost of CABG.

2 Dorota Kuchta and **Sabina Zabek** , 2011

The main objective of the study was to present a proposal of a model accounting for the cost of a selected primary care clinic and analysis of serving process cost of patient by using the activity based costing method.

The concept of activity based costing is based on the assumption that the direct cause of the cost action. Implementation of these action results in consumption of resources, which are a quantitative reflection of the cost.

In most of them two stage model of cost accounting is used. In the first stage of accounting an indirect cost according to the ABC methods, costs are assigned to activities using the resource cost driver. In the second stage, the costs of individual activities are accounted for cost objects using the activity cost driver.

After allocating the costs to activities, the unit costs were calculated. Unit cost has been appointed on the basis of the number of patients who benefit from activity. The activity cost object was the number of patients- within one month.

3 **W. J. Keon, S. C. Menzies** and **C. M. Lay,** 1985

The main objective of the study was to determine the overall episode cost and cost variability for patients undergoing CABG.

Methodology

Cost for services provided for CABG patients were determined through the use of accepted disease costing methodology. The first step in determining costs was to design a cost centre matrix that integrated six arbitrary stages of the patients hospital stay into admission, preoperative, ward, operating room, recovery room (surgical intensive care), post operative ward and discharge. The hospital charts of 50 randomly selected CABG patients were reviewed in detail to determine the actual cost for patient's admission for catheterization and/or separate admission for surgical procedure.

Result found was cost of CABG varied with increase in age and number of vessels involved. Older population has more diseased vessels that increases the overall cost of CABG.

4. **Andry Lamy, Xiaoyin Wang** and **Rossane Kent** and the title of the study was .Jun 2006

The main objective of the study was

To assess in-hospital and one-year direct medical costs of off-pump CABG versus on-pump CABG in the context of the Canadian health care system

From March 2001 to December 2002, 1657 consecutive patients enrolled in the Canadian Off-Pump CABG Registry were compared with 1693 consecutive on-pump patients from Hamilton Health Sciences CABG database. At one year, patients of both groups were followed by telephone interview

It was found that The cost of initial hospitalization for off-pump CABG was significantly less than on-pump CABG ($11,744 versus $13,720) Although follow-up costs were similar between the groups, the one-year total cost per patient for off-pump CABG remained significantly less than on-pump CABG ($12,063 versus $14,141)

5. **Yashpal Sharma**, **R. K. Sharma** and **P. C. Chaubey** ,October- December 2002

The objective of the study was to provide accurate information of cost of patient care in Tertiary care hospital.

Material and method

This study was done four phase in **Phase I** review of published literature was carried out to understand the methodologies of costing in hospitals of India and Abroad, In **Phase II** a prospective study of 6 months duration was carried out to find out the cost of material supplies by hospital and procured by patient admitted in 15 beds in two wards, these patients are followed from admission to discharge. In **Phase III** expenditure on nursing staff , hospital attendant, sanitary attendant and other employee of hospital principle of activity sampling technique of work measurement and calculated. A pilot study was carried out for three shifts in each ward to establish a general pattern of time utilization. In **Phase IV** the capital cost on account of building and equipment fixed assets, air conditioning, and equipment maintenance per annum and variable expenditure on water and electricity was calculated and hospital overhead cost was also calculated.

Result

It was found that expenditure on inpatient care in one ward came out to be Rs. 1048 per patient/per day and in other ward it was Rs 932.71 per patient/day .the cost of patient care in tertiary care hospital on an average found to be 1000/ per patient per day which was compared with countries like USA, where the cost of inpatient care in average community hospital was Rs. 41,600 per patient/day.

5. RESEARCH METHODOLOGY

Research Design-Study was done in Sharda Medical College and Hospital, **type of the study** is descriptive and **study design** was observational i.e. cross sectional as the study was done in a period of time and all data was collected in the specific point of time.

Study technique: Activity based costing

ABC is the method of costing which divides all element of cost according to the activity involved in the procedure. Activity based costing provides a more accurate method of product or service costing, leading to more appropriate pricing decision. And gives more accurate information about the cost from where they come. So this allows manager to eliminate or reduce the wastage. So ultimately enhances the organisation performance.

As the cardiology department of hospital is the newly set department so by this ABC methods managers can know about the accurate information of each element of cost and can decide about the pricing of providing bypass surgery so this method can helps in a good pricing decision for CABG.

Study method: following study method was adopted

- Direct observation
- Analytical estimation (involvement of 2-3 method)
- Process study and workflow
- Interaction with caregivers
- Capital cost as per available literature & from experts.

Setting: Sharda medical college and Multispecialty Hospital

Primary Data- Primary data that is the list of drugs and consumables, cost of infrastructure, manpower cost was collected by interaction with experts and health care providers and interactions with other staff members.

Secondary data- Secondary data was collected by observation, workflow study and by literature available.

Data analysis-Data was analysed by making an excel sheet of overall cost element that is the cost of material, manpower and infrastructure by simply listing the various cost element that are involved in the surgery with their type and quantity required and by their calculation cost of one surgery of CABG is obtained.

This study was conducted with the method of activity based costing. ABC is the technique that determines the actual cost associated i.e. identification and allocation of cost with each procedure. ABC is the managerial as well as financial tool which helps in

identifying cost of each items involved in a procedure. This is also known as Item Based Costing.

5.1 ACTIVITY BASED COSTING

Activity based costing provides a more accurate method of product or service costing, leading to more appropriate pricing decision. And gives more accurate information about the cost from where they come. So this allows manager to eliminate or reduce the wastage. So ultimately enhances the organisation performance.

Activity based costing assigns manufacturing costs to product in a more logical manner than the traditional approach of simply allocating cost to the number of hours spent to produce that particular product, or in a surgery number of hours spent to do that particular surgery. Other method is the volume based costing which generally causes miscounting of volume and by this method it is difficult to allocate indirect cost. Activity based costing first assign costs to the activity that is the real cause of expenditure. Activity based costing recognises the each and every portion from where the cost are coming like cost of all element required for doing one surgery of CABG which includes material, manpower, cost of OT , OT set up cost and utility cost.

There are three major steps are involved in ABC costing.

1. Identify the outcome- which is generally the product or service.
2. Identify the activities that are involved in the production of that particular service.
3. Allocate costs to activities.
    - This is generally divided into direct and indirect cost. Direct costs are all those cost that is directly involved in the surgery of patient e.g. all drugs and consumables, investigation cost.

    - Indirect costs are all those costs which is indirectly associated with surgery e.g. maintenance cost, utility services cost.

    - And the costs which are fixed and remain unchanged whatever the output e.g. staff salaries.

All cost elements required for the surgery is divided into fixed cost and variable cost. Variable cost is the material and manpower cost and fixed cost is the administration and infrastructure cost.

5.2 METHOD ADOPTED FOR ABC

1. Identification of common cardiology procedure i.e. the bypass surgery and angioplasty which is the most common alternative of CABG

2. Cost of consumables used in the CABG and PTCA, the details of different consumables used in the surgery were ascertained by expert (surgeon) with the help of professional linkup of seniors. Material are divided into two different categories i.e. the direct cost and indirect cost. **Direct costs** are all those cost which are directly consumed by patient during and after the surgery and it involves investigation cost and the cost of drugs and consumables.
   And **indirect costs** involve all those cost which are indirectly consumed by the patient which includes miscellaneous cost of ventilator machine cost, oxygen, anaesthesia, syringe pump cost.

Table 5.1 Calculation of cost of ventilator

Cost element	**Cost**
Cost of machine	8,00,000
Lower level staff for maintenance	15,000(salary)/ 30 (Month)/ 8 working hrs = 62.5 Rs.
Anaesthetic for handling of machine	2,00,000 (salary)/ 30 days/ 8 working hrs = 833Rs.
Depreciation 10%	80,000 / 365 = 219Rs.
Maintenance cost	80,000 / 365 = 219Rs.
Total	**RS.1334/ day**

Cost element of ventilator includes the cost of machine which is 8 lakh Rs. and its depreciation charged upto 10% so the depreciation per day came out Rs. 219, same their maintenance cost is annually 10% so per day it came as 219 Rs. handling of this machine is only allowed to anaesthetics which takes Rs. 2 lakh monthly salary so for one day it is calculated by monthly days divided by working hours and same calculated for lower level staff for the maintenance so total cost of ventilator came as Rs. 1334/day.

Table 5.2 Cost of oxygen calculation

Cost element	**Cost**
Cost of 1 cylinder D type	12,000
Capacity	413 L

1L / hrs for two days	48 L
No. of patient / cylinder	8
Total	**Rs. 1500/ day**

Activity involved in costing for oxygen is the cost of D type which is the large type of cylinder and its capacity is 413L/ cylinder, as the patients stays in two days in oxygen following surgery so total requirement is 48L at the rate of 1 L/ hrs as cylinder of this capacity can be used on 8 patients so the in this way total cost of oxygen came out to be Rs, 1500/day.

Table 5.3 Cost of anaesthesia is calculated by following

Cost element	**Cost**
Anaesthetics cost	2,00,000 (monthly salary)/ 30Days/ 8 working hrs =833
Cost of 1 cylinder gas	12000
For one patient	600
Total	**Rs.1433/ surgery**

Cost element of anaesthesia includes the cost of gas cylinder 12000 for one patient it cost approximately 600 Rs and cost of anaesthetics is obtained by dividing their monthly salary to the total no. of working hours per day, so in this way total cost came out Rs. 1433 /day.

Table 5.4 Cost of syringe pump calculation

Cost element	**Cost**
Cost of machine	40,000Rs
10% depreciation	4000/365(days) = 11Rs
10% maintenance	4000/ 365 (days)= 11Rs
Lower staff for maintenance	Already included in ventilator
Total	**22Rs**
8 machine / Patient	22*8 = 175 Rs

Total	**Rs.175/day**

Cost of syringe pump is calculated by including cost of machine which is 40000 per day depreciation is Rs.11 and maintenance Rs. 11 per day so total cost came out Rs.22 . As there are 8 machine are used in one patient following surgery so 22 is multiplied by 8 so it came out Rs. 175/day.

3. Cost of manpower calculated by making the complete list of manpower from surgeon to housekeeping staff which are involved from surgery of patient to the complete care of patient before, during and after the surgery.

Table 4.5 Cost of manpower calculation

Manpower	**Cost**
Cardiac surgeon	4,00,000 salary/ 30 days = 13,333
Anaesthetics	2,00,000 salary / 30 days = 6,666
Perfusionist	20,000 salary/ 30 days = 666
OT tech	16000 salary/ 30 days = 533 533* 4 quantity = 2132
Resident duty doctor	60,000 salary / 30 days= 2000 2000* 2 quantity = 4000
Staff nurse	12000 salary / 30 days = 400 400* 3quantity = 1200
Physiotherapist	15000 salary/ 30 days =500 500* 2= 1000
GDA	6000 salary/ 30 days=200

	200*2quantity= 400
Housekeeping	5000 salary/ 30 days= 166 166*2quantity= 332
Total	**Rs.29729/day**

4. Infrastructure cost is calculated by individually calculating the cost of OT, cost of ICU and cost of ward

Table 5.6 Cost of OT calculation

Cost element	**Cost**
Modular OT	50,00,000
Depreciation 10%	5,00,000/ 365 days = 1369
Annual maintenance	5,00,000 /365 days = 1369
Scrub nurse	18000/30 days = 600
Air conditioning/ electricity	60rs / hr / unit = 60 * 8 hrs= 480
Water	50L quantity 50* 8rs/ L= 400
Total/Day	**Rs.4219/day**

Table 5.7 Cost of ICU calculation

Capital cost	**75,00,000**
Depreciation 10%	7,50,000/ 365 =2054
AMC 10%	7,50,000 / 365 = 2054
ICU in charge	25000 salary/ 30 days= 833
ICU nurse	15000 salary/ 30 days = 500

AC/ electricity	60rs/ hr = 60*24 hrs=1440
Water	50 rs. / day= 50
	Total 6932 *2days ICU stay =13866
Total	**Rs.13866 for 2 days**

Table 5.8 Cost of ward calculation

Infrastructure cost	10,00,000
Depreciation 10%	1,00,000/ 365= 274
AMC 10%	1,00,000 / 365= 274
Electricity	1 unit / day ,60 rs / day= 60
Water	500L/ day, 50 rs/ day= 50
	Total 658* 6 days ward stay
Total	**Rs.3948 for 6 days**

5. Utility costs are included in the miscellaneous cost. Includes the cost of linen laundry, CSSD, administration. These charges are also the indirect cost.

6. FINDINGS

Total cost of one surgery of CABG is divided into Material cost, cost of manpower, cost and infrastructure cost.

6.1 COST OF MATERIAL

Material cost is divided into direct cost and indirect cost, direct cost includes all those cost which are charged directly to patient i.e. the investigation charges and the charges for drugs and consumables.

And indirect cost includes cost of ventilator, oxygen, anaesthesia and equipment cost which are not directly charged to the patient.

Table 5.1 represents the cost of material showing the total cost of investigations, drugs & consumables, miscellaneous cost.

Table 6.1 Material cost

Material cost	
1. Direct cost	
Investigation charges	19394
Drugs and consumables	64549
1. Indirect cost	
Ventilator machine	1334
Syringe pump	175
Cost of anaesthesia	1433
Cost of Nebulisation	83
Cost of oxygen	1500
Total	**88468/ surgery**

6.2 COST OF MANPOWER

Cost of manpower includes all those personnel which are involved either in surgery or in the care of patient after surgery, which includes surgeon, anaesthetic, per fusionist, OT technician, resident doctor, nursing staff, and physiotherapist and housekeeping staff.

This was calculated by using their monthly salaries. Their monthly salaries are divided by 30 as there are 30 days in a month by using this, the manpower cost of one surgery can be calculated

Table 6.2 represent the monthly salaries of personnel involved in surgeries or in care of patient

Table6. 2 salaries of personnel per month

Manpower	Salaries
Cardiac surgeon	4,00,000
Anaesthetic	2,00,000
OT technician	16,000
Perfusionist	20,000
Resident duty doctor	60,000
Nursing staff	12,000
Physiotherapist	15,000
GDA	6000
Housekeeping	5000
Total	**7,34,000**

Table 6.3 represent the total cost of manpower involved in one surgery of CABG

Table 6.3 cost of manpower

Manpower	**Quantity**	**Cost per day**	**Total**
Cardiac surgeon	1	13333	13333
Anaesthetic	1	6666	6666
Perfusionist	1	666	666
OT technician	4	533	2132
Resident duty doctor	2	2000	4000

Nursing staff	3	800	1200
Physiotherapist	2	500	1000
GDA	2	200	400
Housekeeping	2	166	332
Total			**29,729/day**

6.3 COST OF INFRASTUCTURE

Cost of infrastructure includes cost of OT, ICU and ward cost. Table 5.4, 5.5, 5.6 represents the cost of OT, ICU and ward.

Table 6.4 cost of OT

COST OF OT		Cost	Total
Modular OT		50,00,000	—
Depreciation of equipment10%		5,00,000	1369.863
Maintenance (AMC)10%		5,00,000	1369.863
Scrub nurse		18,000	600
Air conditioning/ electricity		60rs/ hr /Unit	480
Water		50 L	400
TOTAL			**4219.73**

Table 6.5 cost of ICU

COST OF ICU 6 Bedded		Cost	Total
Infrastructure cost		75,00,000	
Depreciation 10%		7,50,000	2054.795
Maintenance 10%		7,50,000	2054.795
ICU In charge		25,000	833.3333
ICU Nurse		15,000	500
AC/Electricity		60rs/hr	1440
Water		50rs/day	50
			6932.922

TOTAL			**13866**

Table 6.6 cost of ward

COST OF WARD 10 Bedded		**Cost**	**Total**
Infrastructure cost		10,00,000	
Depreciation 10%		1,00,000	273.9726
Maintenance 10%		1,00,000	273.9726
Electricity	1 unit/day	60rs/day	60
Water	500L/Day	50rs/day	50
			657.9452
TOTAL			**3948**

Table 6.7 represents the total cost of infrastructure

COST OF INFRASTUCTURE			**COST**
OT cost			4220
ICU cost			13866
Cost of ward			3948
Miscellaneous			900
TOTAL			**22934**

7 RESULT

Total cost involve in one surgery is calculated by adding all cost that is the material cost, cost of manpower, and infrastructure cost. Table 7 represents the cost constituting the total cost of one surgery of CABG. Consumables include cost of material which is both direct and indirect cost. Non consumables include cost of manpower.

Table 7.1 Total cost of one surgery of CABG

COST OF ONE SURGERY OF CABG			**COST(Rs.)**
Consumables			88468
Non consumables			29729
Infrastructure			22934

Total			**141131**

Based on the activity based apportionment of consumables, manpower and capital, the cost has worked out to be Rs.1,41,131.

Total cost of one surgery of CABG estimated to be Rs.1,41,131. This cost includes only those surgeries in which only one vessel will be grafted and not for the multiple vessel grafting.

8 DISCUSSION

Activity based costing helps managers to understand the cost involve in surgery and decide on the pricing of surgery and understand the profitability of products and therefore it is powerful tool in decision making. However it has many limitation e.g.

- Identification of different activity of a procedure and cost estimation is difficult and expensive.
- ABC method requires many calculations to determine the costs of products and services and these calculations could be complex, time consuming and costly.
- As the no. of activity in a procedure is large there could be calculation errors. In such a scenario, ABC may be misleading.
- Maintenance of ABC is very difficult after implementation.

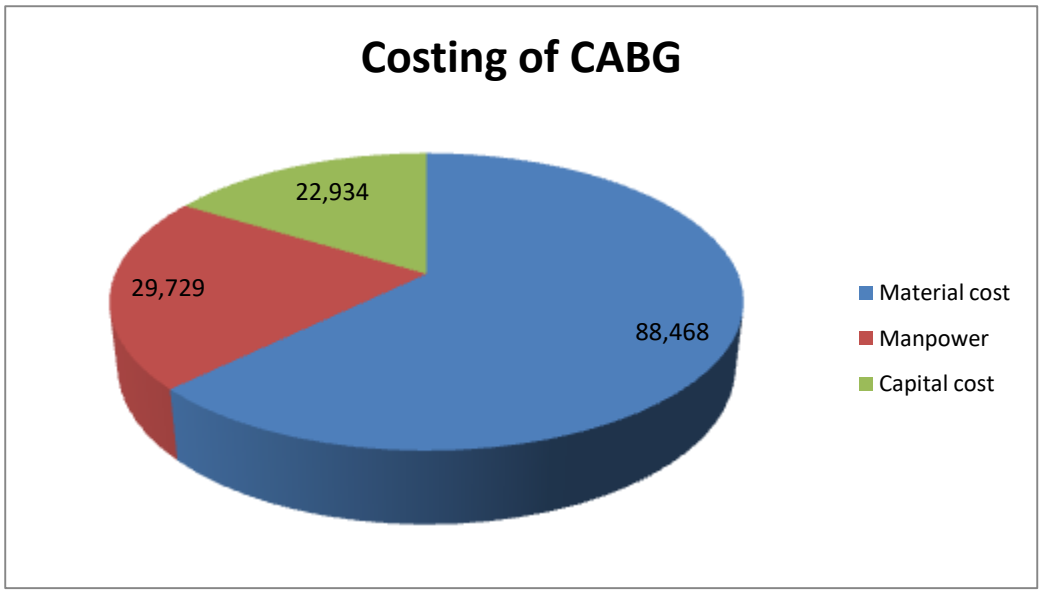
However besides these entire if the ABC is implemented with care and caution it could be beneficial and productive for organization.

In the absence of costing department and cardiology setup staff is not aware about the cost of different hospital services and department. The list of drugs and consumables used in the surgery of CABG is obtained by the help of cardiac surgeon of some other organisation. And the cost of drugs and consumables comes out to be cheaper as compared to the other private hospital.

Sharda hospital is the teaching hospital and teaching hospital has the higher unit cost of procedure performed.

Following figure shows the cost constituted in the one surgery of CABG. It was found that major portion of cost are involved in material cost approximately 60% which includes drugs, consumables and investigation cost, following the cost of manpower approximately 22% and capital cost i.e. 18%.

Graph 8.1 shows the cost constituting the one surgery of CABG



As this is clear from this technique of costing that major portion of cost is constituted by the material cost so to reduce the wastage and for proper utilization of available resources a proper managerial accounting system and cost awareness programme among the staff of hospital must be initiated that will be beneficial to allocate this cost to some other department of hospital which needed.

Also the cost of manpower can be reduced by doing the more surgery .15 surgery in a month is the rough assumption because the cardiology department of this hospital is the new setup, as the department become well established the number of surgery in a month would be increase.

9 RECOMMENDATION

1. By this costing of CABG, hospital can get benefit by treating CGHS patients. As the pricing for treating CGHS patient for CABG is approximately 2,00,000 so by this costing method benefit of approximately 60,000 can be obtained by every surgery of these patients so ultimately this will add on the revenue generation for the hospital.

2. There should be a separate costing department for all department of hospital to know the actual cost incurred in that particular department. So there is the need

of cost awareness programmes for the hospital employee so that every staff member can contribute to the reducing the cost of overall procedure.

3. The package rate for surgery of CABG should be less during the initial establishment of department to attract more and more patient. As the number of surgery will increases the total cost can be easily recovered and further it can contribute for profit.

4. To reduce the cost, hospital stay of patient should be reduce to 8 days depending upon the condition of patients, which include 1 day preoperative in ward, 2 days in ICU following surgery and 5 days in post operative ward.

5. Study shows that major portion of cost is constituted by material cost that is approximately 60% of the total cost , by this activity based costing method benefit can be apply to reduce the variable cost of overall surgery. In variable cost, cost varies in direct proportion with the volume of production/ output. So the cost of material which is drugs and consumables can be controlled but we cannot change the fixed cost like administration cost or cost of salaries that are provided to staff of hospital. By controlling the cost of material we can reduce the cost of overall procedure upto 20,000. As the various material involved in the surgery is just a rough assumption that these material and quantity could be use in one patient, in fact the real quantity and the type of drug required could be less than mentioned.

10 LIMITATION

1. Dedicated costing department in hospital is not present so it was found difficult to allocate cost to different cost center.

2. Sample manpower is analytical rather than number of surgery

3. Cost of consumables can vary 10-15% margin.

4. Cardiology department of hospital is not established in the hospital so it is found difficult to allocate cost of various material cost that are involved in the surgery.

5. Comparative cost analysis has not been worked out.

11. CONCLUSION

Hospitals and health care institution facing the condition of increased competition, rising health care needs and expectations of patients. This forced to seek for new management technique and method. Study shows that there is need to develop costing department in the hospital to initiate cost awareness and initiate measure to reduce costs by adopting the cost accounting system and management technique.

At present there is lack of awareness among the hospital staff regarding the cost involved in care of patient so by proper costing of these services awareness programme can be initiated to reduce wastage and to make optimum usage of resource available.

There should be close monitoring for efficacy, productivity, and cost effectiveness to reduce the wastage and proper utilization of resources.

One of the most important factor that involved in the costing of CABG is also the age factor of patient and the no of vessels that to be operated. Because the cost of surgery will increase as two or three vessels are involve.

REFERENCES

1.Joseph lips comb PhD, K Robin Yabroff, phD, Martin L. Brown, phD, William Lawrence ,MD: Health care costing, data methods, current applications , 2009, S1

2.Dorota Kuchta, Sabina Zabek : Activity Based costing for health care institutions, Institute of organization and management, Wroclaw university of technology, Poland, 8th ICESAL 2011, 300

3.Accounting education, what is costing, September 14,2012, http//www.svtuition.org, accessed 18 February, 2012

4.Hans Krueger, Jose L. Frances, Robert: Coronary artery bypass grafting: How much does it cost? CAN MED ASSOC J 1992,146 (2)

5.Dorota Kuchta, Sabina Zabek : Activity Based costing for health care institution, Institute of organization and management, Wroclaw university of technology, Poland, 8th ICESAL 2011, 302

6.W.J. Keon, S.C Menzies & C.M. Lay : The costing of coronary artery bypass surgery, 1985, pp 292-298, page 1

7.Andre Lamy, Xioayin Wang, Rossane kent: A cost comparison of off pump CABG versus on pump CABG at one year, Can J Cardiol. Jun 2006; 22(8): 699–704.

8.Yashpal sharma, R.K sharma, P.C. Chaubey : costing of inpatient services at a superspeciality hospital in India, vol. 4 No. 4 October- December 2002

9.www.imperahealth.org

12 ANNEXURE

Annexure 1

Material cost (Direct cost)		Qty	Cost	Total
Investigations Charges				
Blood Bank Investigations				
Blood grouing with reverse grouping		1	500	500
Viral marker rapid (HIV, HCV,HBSAG)		1	2000	2000
Haematology				
BT		1	90	90
CT		1	90	90
Haemogram(CBC with ESR)		1	450	450
CBC		1	400	400
Coagulogram (PT and APTT)		1	800	800
TLC		1	150	150
Chemical Pathology				
CK MB, serum		1	380	380
Glucose random Plasma		1	100	100
CK Total, serum		1	250	250
Potassium serum		6	100	600
Kidney function test		1	500	500
Sodium Serum		6	180	1080
Creatinine serum		2	150	300
Urea serum		2	150	300
Clinical Pathology				
Urine routine examination		1	120	120
Thyroid function test, serum		1	490	490
Microbiology				
culture, Aerobic swab		1	750	750
Non Invasive Cardiology				
Doppler-carotid Doppler		1	1400	1400
ECG		7	140	980
ECHO screening		1	450	450
X-RAY				
AP/PA view		7	150	1050
OTHER				
ABG		6	714	4284
ACT		4	200	800
Alpha Bed Regular		4	150	600
Glucose random (Glucometer)		6	80	480
Total				**19394**

Annexure 2

Drugs and Consumables				
Budecort 0.5 mg Respules		15	23.4	351
Duoline respules		15	5.78	86.7
Monocef 1 gm inj.		7	24.25	169.75
Magneon 2 ml inj		4	8.93	35.72
Mistabron 3ml inj		5	120.6	603
Neovac 10 mg inj		4	131.25	525
NS 100 ml		6	11	66
NS 500ml		3	16.54	49.62
NS 100 ml plastic bottle		6	12.07	72.42
NS 500ml Glass		2	22.7	45.4
NS 500ml Freeflex Pouch		10	90	900
NS (N/2)0.45% 500 ml		4	36.75	147
PAN D CAP		10	63	63
Perfalgan 100 ml		3	269	807
PMO line 200 CM M/F		4	106	424
Potasium chloride 100 ml inj		2	31.5	63
Ringer lactate 500 ml		6	39.8	238.8
Adrenor inj		7	152	1064
Cort-S inj		2	23.1	46.2
Deriphyllin inj		1	3.12	3.12
Domin 5 ml inj		1	10.5	10.5
Forane 100 ml		1	1110	1110
Hamostat 20 ml inj		1	115	115
Heparin 25000 IV inj		3	200	600
Lox 2% 30 Gm jelly		1	36.75	36.75
Lox 2% 30 ml inj		1	23.1	23.1
Loxicard 2% 50 ml inj		1	39.59	39.59
Mezolam 5ml inj		1	23.1	23.1
Neutrahep 5ml inj		6	42.8	256.8
Neutroplus 5 ml inj		1	52.5	52.5
rocunium 5ml inj		3	332	996
sodium bicarbonate 25 ml inj		30	8.3	249
vasocon inj		7	13.34	93.38
Paparin inj		1	11.2	11.2
Lasix inj		1	2.51	2.51
Perinorm inj		2	3.37	6.74
Profol 50 ml inj		1	412	412
justin 3 ml inj		2	11.8	23.6
Aciloc inj		1	3	3
Calcium gluconate inj		1	3.15	3.15
Nitroplus 5 ml inj		1	17.85	17.85

Thiosol 500 mg inj		1	32	32
Glanpan 40 mg inj		1	32	32
Magenta 2 ml inj		1	6.7	6.7
Cardace 5 mg tab		10	150.54	150.54
Flavedon MR tab		5	72.93	72.93
Metolar 50 mg tab		5	37.68	37.68
Storvas 80 mg		10	200	200
Sorbitrate 5 mg tab		6	30	30
Deplatt A 75 mg tab		10	22.27	22.27
Lacilactone 50mg tab		10	2.5	25
Combiflam tab		15	11.6	11.6
Ecosprin 75 mg tab		14	3.32	3.32
Acitrom 2mg tab		5	86.23	6.23
Celin tab		10	16.2	16.2
Mecobol tab		10	4.9	49
Lasix 40mg tab		5	5.51	5.51
Cardivas 3.125 mg tab		10	27.33	27.33
Disposable syringe 2ml		40	3	120
Disposable syringe 5ml		30	4	120
Disposable syringe 10 ml		15	5	75
Disposable syringe 20 ml		2	10	20
Disposable syringe 50ml		5	22	110
Disposable syringe insulin 1 ml 40 IU		6	4	24
Nebuliser kit aeromist adult		1	198	198
T-Bact 5 gm oint		4	72.3	289.2
Tegaderm 1623 (3M)		1	72	72
Tegaderm 1633 (3M)		6	72	432
Tegaderm 1635 (3M)		3	150	450
Tegaderm 1626 (3M)		5	300	1500
Venflon no. 16		2	10.5	21
Venflon no. 20		1	6.83	6.83
Alcohol swab		10	1.25	12.5
ECG electrode adult (3M)		10	8.26	8.26
Gloves disposable no. 7		7	12.08	84.56
Gloves disposable no. 6.5		20	12.08	241.6
Gloves disposable no. 6		10	12.08	120.8
Gloves disposable no. 7.5		10	12.08	120.8
Gloves non sterile MED		12	12.08	144.96
IV set		5	10.01	50.05
Oxy set adult		1	23.1	23.1
Oygen mask adult		1	27.49	27.49
Suction catheter no.10		1	12	12
Suction catheter no. 6		1	13	12
Suction catheter no. 14		10	15	150
Vaccu suction set		2	82.47	164.94
3 way stop cock		5	6.83	34.15

Act cartridge		4	235	940
Air way no. 00		1	51	51
blood set		2	14.06	28.12
Catheter mount		1	242	242
Cautry plate adult		2	550	1100
Central venous catheter set		1	2200	2200
Cotton zig zag		1	18.9	18.9
ET ube no. 5 plain		1	18.9	18.9
Introflex introducer set 8.5 F		1	2000	2000
Jugular view drap sheet		2	50	100
Pressure monitoring kit Double PX2X2		1	2600	2600
Ryles tube no. 16		1	35	35
Surgical blade no. 11		5	1.8	9
Surgical blade no 22		1	1.89	1.89
Surgical blade no 15		2	1.89	3.78
Surgical blade no. 20		4	1.89	7.56
Suture mersilk 2.0 NW5036		3	131	393
Suture mersilk 2.0 NW55331		8	100	800
Swan ganz 7.5		1	4850	4850
Vein o line 200 cm		1	124	124
Voluven 500ml pouch		4	490	1960
Needle disposable no. 16* 1.5 "		4	2	8
Needle disposable no. 18*1/2		2	1	2
Needle disposable no. 21		2	1	2
Needle disposable no 23		2	1	2
15 degree side port		1	80	80
Betadine 15 gm oint		1	52.38	52.38
Cautry tip cleaner		1	80	80
cautry Pencil -0039		1	800	800
Chest tube no. 32		4	160	640
Crape bandage 6 inch		1	280	280
Foley catheter 2 way no. 14		2	100	200
Suture centsteel CM649G		1	1700	1700
Suture o flexon 2589-63		2	950	1900
Suture prolene 2-0 8853H		1	1000	1000
Suture surgipro 6-0 VP 706X		2	450	900
Suture surgipro 7-0 VO 72X		2	470	940
Suture Surgipro 8-0 VP 738X		1	960	960
Suture sutupak 2-0 SW213		1	35	35
Sutur sutupak 3 SW217		1	50	50
Suture sutupak 4-0 SW211		2	40	80
Suture vicryl plus 2-0 VCP945H		3	500	1500
Suture vicryl plus 3-0 VCP936H		2	780	1560
Suture ethilon 2-0 NW3336		3	130	390
Suture surgipro 3-0 VP 522X		1	350	350
Suture Ticron 2-0 3324- 56		1	4800	4800

Egaderm with PAD 3591		1	280	280
Urometer		1	56.7	56.7
Microspan 40(5D) 500 ml inj		1	390	390
Fefol Cap		20	42.93	85.86
Perfalgan 100 ml		3	280	840
Darolac sachet		8	5.09	40.72
Distilled water 10ml		5	5	25
Neosporin powder		1	37.87	37.87
Dispensing Cup		1	35	35
Lactifiber 90 GM PWD		1	150	150
Half gown		1	50	50
Blue sheet		3	50	150
Heart lung pack BHL-TB1/4-12		2	500	1000
Horizon ligating clip		1	980	980
Ioban 6640 (3M)		1	630	630
Ioban 6650 (3M)		1	800	800
Surgical hand brush chlorhexidine iodine		2	140	280
Surgicel 2*3 IN(1953) J/J		1	1080	1080
Celin chewable tab		10	16.2	16.2
Cremaffin plus syrup		1	87.7	87.7
Clearview blower mister DLP 22120		1	2800	2800
Romodrain water seal bag		2	60	120
Blood unit		3	1200	3600
Total				**64549.6**

Annexure 3

Miscellaneous cost (Indirect Cost)		**cost**	**Total**
VENTILATOR MACHINE			
Cost of machine	1 machine	8,00,000	—
Lower level staff for maintenance of ventilator	Monthly	15,000	62.5
10% depreciation	Yearly	80,000	219.1781
Anesthetics for handling of machine	Monthly	2,00,000	833.3333
Maintenance cost 10%	Yearly	80,000	219.1781
Total			**1334.19**
SYRINGE PUMP		cost	Total
cost of machine		40,000	—
10% depreciation		4000	10.9589
10% maintenance		4000	10.9589
Lower staff for care of ventilator	monthly	15000	—
Total			21.91781
	Qnty	cost	

	8	21.91781	
Total			**175.342**
COST OF ANAESTHESIA		**COST**	**Total**
Anesthetics	monthly	2,00,000	833.3333
Cost of Gas cylinder	1 cylinder	12,000	600
Total			**1433.33**
COST OF OXYGEN			
cost of cylinder		12,000	
capacity D type		413L	
1 liter /hr for two day		48L	
Patient/ Cylinder		8	
for 1 patient		1500	
Total			**1500**
COST OF NEBULIZATION			
cost of machine		2500	
Total patient		30	
Total			**83.3333**

Annexure 4

COST OF MATERIAL			**COST**
Investigation cost			19394
Drugs and Consumables			64549
Ventilator Cost			1334
Syringe pump cost			175
Cost of Anaesthesia			1433
Cost of Nebulisation			83
Cost of Oxygen			1500
Total			**88468**

Annexure 5

Cost Of manpower (Fixed Cost)					
		Qty	Cost/ sallary	cost / Day	TOTAL
Cardiac Surgeon		1	4,00,000	13333.33	13,33

Anaesthetic		1	2,00,000	6666.667	6,66
Perfusionist		1	20,000	666.6667	66
OT tech(surgeon assist)		4	16,000	533.3333	213
Resident duty doctor		2	60,000	2000	400
Staff Nurse		3	12,000	400	120
Physiotherapist		2	15,000	500	100
GDA		2	6,000	200	40
Cleaner		2	5,000	166.6667	33
TOTAL					**29,72**

Annexure 6

COST OF INFRASTUCTURE (Indirect cost)			
COST OF OT		**Cost**	**Total**
Modular OT		50,00,000	—
Depreciation of equipment10%		5,00,000	1369.863
Maintenance (AMC)10%		5,00,000	1369.863
Scrub nurse		18,000	600
Air conditioning/ elecricity		60rs/ hr /Unit	480
Water		50 L	400
TOTAL			**4219.73**
COST OF ICU 6 Bedded		**Cost**	**Total**
Infrastucture cost		75,00,000	
Depreciation 10%		7,50,000	2054.795
Maintenance 10%		7,50,000	2054.795
ICU Incharge		25,000	833.3333
ICU Nurse		15,000	500
AC/Elecricity		60rs/hr	1440
Water		50rs/day	50
			6932.922
TOTAL			**13866**
COST OF WARD 10 Bedded		**Cost**	**Total**
Infrastucture cost		10,00,000	
Depreciation 10%		1,00,000	273.9726
Maintenance 10%		1,00,000	273.9726
Electricity	1 unit/day	60rs/day	60
Water	500L/Day	50rs/day	50
			657.9452

TOTAL			**3948**
MISCELLANEOUS COST		Cost	Total
CSSD		200	200
Linen/Laundry		200	200
Administration		500	500
TOTAL			**900**
COST OF INFRASTUCTURE			**COST**
OT cost			4220
ICU cost			13866
Cost of ward			3948
Miscellaneous			900
TOTAL			**22934**

Annexure 7

COST OF ONE SURGERY OF CABG			**COST**
Material cost			88468
Cost of manpower			29729
Infrastucture cost			22734
Total			**140931**

Annexure 8

OT Setup Cost	Qty	Cost(lacs)	Total
Modular OT		25	25
Ceiling mounted light	1	15	15
Anaesthesia machine with ventilator	1	9	9
Defibrillator/Monitor/Recorder & external pacer	1	2.5	2.5
Cautery Machine with dual channel	1	5	5
Sternal saw	1	4.5	4.5
Patient warming blanket	1	1	1
Muti parameter monitor	1	5	5
Slave monitor	1	1	1
Heart lung machine	1	40	40
Pacemaker	1	2	2
Syringe Infusion pump	1	0.4	0.4
Flash sterlizer	1	4.5	4.5
Suction machine	1	0.15	0.15
Total			**115.05**

INTERNSHIP REPORT

INTRODUCTION

Sharda hospital is 640 bedded multi specialty Hospital, which offers medical care to patient at affordable costs and equipped with all modern facility and equipment. This hospital provide modern and comprehensive care to all section of society, this hospital involve in training of medical student research activity and extends services to rural area. This hospital also established a PANCHKARMA center.

Vision:

To be a recognized healthcare organization that cares for lives through technological excellence and humane touch by valued staff.

Mission Statement

To establish a state of the art hospital of global standards that strives for continual improvement in its services, promotes excellence in medical education and research and is valued by its employees and the community it serves

Core Values

Commitment

Accountability

Recognition

Integrity

Nurturing

Growth

Learning

Innovation

Voraciousness

Ethics

Social responsibility

Corporate Vision and Strategies

- To realize its mission, the Hospital Authority has developed the following Corporate Vision:

"We are committed to provide world class ethical and quality healthcare services with clinical excellence at competitive cost."

- The Authority aims to achieve this corporate vision by adopting the following five Corporate Strategies:
- Developing Outcome-focused Healthcare to maximize health benefits and meet community expectations
- Creating Seamless Healthcare by restructuring and reorganizing medical services in collaboration with other providers and careers in the community
- Involving the Community as Partners in Health in the decision-making and caring process
- Cultivating Organization Transformation and Development through a multi-disciplinary team approach to holistic patient care and continuous quality improvement
- Promoting Corporate Infrastructure Development and Innovation to support service improvement

SERVICES PROVIDED BY THE HOSPITAL

Cardiology

- Non-invasive cardiac lab where exercise/pharmacological stress test is conducted.
- State-of-art color Doppler echocardiography & stress echo conducted on digitized machine.
- Holter monitoring and 24 hours ambulatory BP monitoring.

Nephrology

- Work-up for kidney disease,
- High BP and kidney transplantation
- State-of-the- art dialysis centre
- Round-the- clock emergency haemodialysis in the ICU
- Separate haemodialysis machine for hepatitis B patients

Gastroenterology

- Diagnostic & therapeutic endoscopies

Orthopaedics

- Knee & hip replacement
- Uni-compartmental knee replacement
- Surface replacement of hip
- Arthroscopic management of knee, shoulder & ankle problems
- Complex fracture Clinic
- Osteoporosis clinic.
- Management of sports injuries.

- Spinal surgery

Obstetrics & Gynaecology

- Antenatal screening.
- Antenatal classes for pre-delivery care conducted by a team comprising of a gynaecologist, physiotherapist and dietician.
- Post delivery care clinic with contraceptive advice.
- Specialized treatment of infertility.

Medicine

- Diabetic clinic.
- Asthma & hypertensive clinic.
- Sleep clinic.

ENT

- State- of- the- art ENT station, with facilities of conducting various tests.
- 3rd generation diagnostic audiometry set-up for evaluating deafness.
- Minimally invasive surgery for sinus & ear problems with state-of-art equipment.

Ophthalmology

- Complete eye care facility, including routine eye checkups, glaucoma unit, cataract, squint & retina unit.
- All eye surgeries & microsurgeries, which includes phako emulsification (stitch less) surgery.

Paediatrics

- The Complete Child Care (CCC) approach caring for every aspect of a child's health.
- The medical health concept - homely care to your child, from newborn to adolescent (18 years).

Radiology

- Multi slice dual CT scanner.
- Mammography.
- X-ray with image intensifier. Also several mobile.
- X-ray units for the OTs and ICUs.
- Ultrasound with facilities for Doppler, small parts & intracavitary imaging, also for guided biopsy.

Laboratory Medicine

Complete range of laboratory investigations available round the clock with auto analysis facilities.

Oncology

- Preventive oncology & screening procedures for detection of early cancers
- A complete diagnostic evaluation to know the exact extent of the disease
- Practice of 'Evidence based cancer management'.
- Management of chemotherapy induced toxicities with a fully equipped intensive care unit & critical care experts.
- Palliative care for advanced cancers by trained professionals.

- Physiotherapy for patients disabled by extensive cancer treatment to improve their well-being.

Plastic Surgery
All types of advanced 'Vascular & Micro vascular surgeries'

- Peripheral nerve surgeries
- Transplantation of skin, muscle, tendon, cartilage, bone- all in one step and separately also
- Aesthetic / cosmetic surgery where deformities are greatly restored
- Treatment of all types of burn related injuries

Urology
- Top-grade investigative & treatment facilities like urodynamic machine, urology and laproscopic urology etc.
- State-of-the-art operation theatre equipped for urological procedures.

Dermatology
- Focus areas of treatment include: Acne management, Psoriasis treatment, Vitiligo management, Hair & Nail clinic, Cosmetology & Dermatosurgery clinic for sexually transmitted diseases
- Allergy testing, etc.

Dentistry
- Panel of super specialists available around the clock; orthodontist, oral & maxillofacial surgeon, etc.
- Equipped with state-of-art imported physiological dental chair with accessories and high quality dental materials.
- Special school dental health checkups
- Community camps to promote good dental hygiene.

Physiotherapy
- Fitness and health promotion clinics.
- Special sessions for the care of senior citizens.
- Physiotherapy for burns and plastic surgery cases.
- Ortho and trauma rehabilitation.
- Special women clinics for pre and post natal care advice/ post gynaecological problems.

DEPARTMENT VISITED/ WORKED

- Emergency Department
- Human resource Department
- Housekeeping Department
- Quality Department
- Operation
- Radiology
- CSSD

- ICU/ICCU/SICU/MICU
- Gas manifold room

I. EMERGENCY DEPARTMENT

OBSERVATION

Sharda hospital emergency department is situated in the "B" Block of ground floor, near the radiology department, which have the separate entrance for emergency patients.

Emergency Department- Facts

- Ambulances equipped with the essential equipment like oxygen, ventilator, monitors, syringe pumps, and emergency drugs are available round the clock.
- There is a casualty medical officer (CMO) for this department.
- Specialty Physicians in departments such as Cardiology, Surgery, Medicine, Orthopedics, Gynecology, Psychiatry, and Plastics are available on call.
- X-ray, Lab, CT Scan and Ultrasound testing available 24 hours a day

LOCATION AND LAYOUT

It is situated on the ground flood in the B Block, and the department is divided into following parts

- Resuscitation room
- ICU
- General area
- Dirty utility area

RESUSCITATION ROOM

It is 6 bedded areas. This area is dedicated to the immediate care of patients in cardiac arrest, airway, and breathing and circulation compromise with all resuscitative equipment monitors, defibrillators, airway, intubation & surgical equipment

A patient may be shifted to the Resus area from outside or from an area within the hospital or emergency department itself.

ICU

Casualty has a 10 bedded ICU for critical patients, which is equipped with ventilators for all types of major emergencies such as Road Accidents, Brain & Spinal Emergency, Abdominal Injuries, Stroke or Paralysis, Epilepsy, Brain Haemorrhage, Poisoning, and Heart Attack.

GENERAL AREA

It is 14 bedded areas for non critical patients including the 3-4 bedded observation room for student. And which is equipped with oxygen and suction supply and other necessary equipment.

DIRTY UTILITY AREA

There is a dirty utility area for emergency department in which all material, equipment and agent are placed for cleaning. And 4 colours coded dustbin are placed for segregation of waste

MANPOWER

- 1 casualty medical officer (CMO)
- 1 emergency medical coordinator
- 1 junior doctor in each shift
- Specialty physician in department on call
- 5 nursing staff in each shift
- 2 housekeeping staff in each staff
- 1 guard in each shift

DOCUMENTATION

- Emergency patient register
- Patient shifting register
- Crash cart register
- Inventory stock register
- Death register
- MLC register
- Police record file

PROBLEMS AND ISSUES IN THIS DEPARTMENT

- Emergency department entrance should not allow common entrance for every patients
- This department should have the separate registration counter for emergency patient
- There must be sample collection room and patient waiting room
- Only 1 patient attendants should be allow with one patient
- Wheelchair and trolley bay to keep trolley and stretcher on place
- Dirty utility room is not utilized properly

- Man power shortage of nursing staff requirement of 2 extra staff in each shift
- Triaging should be followed to reduce the patient load
- Patient assessment form for emergency department
- Proper training of employee to use equipment safely to reduce electric shock and equipment failure

II. HOUSEKEEPING DEPARTMENT

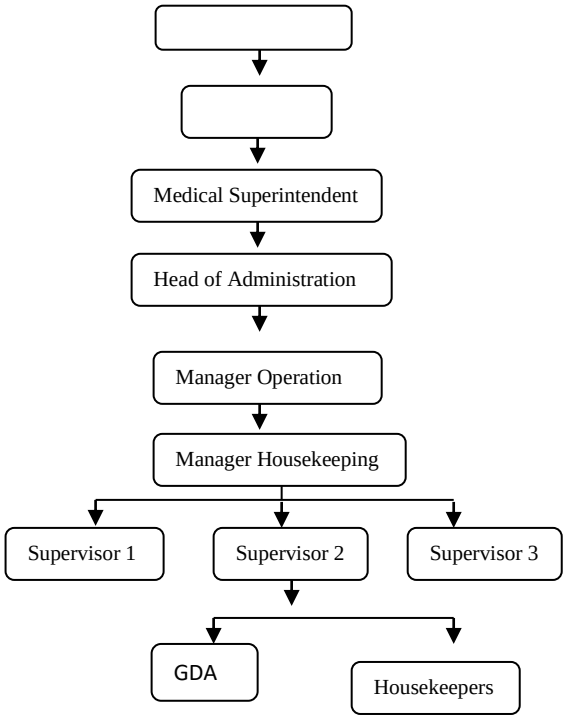
Housekeeping department of sharda hospital is outsourced. Name of the company that provides housekeeping service in hospital is SHINE. Which are responsible for cleaning and dusting, disposing of rubbish, vacuuming and maintenance of hospital property.

LOCATION**:** Housekeeping department of sharda hospital is located on ground floor in "C" Block, opposite to pharmacy.

Following facilities and space are provided for housekeeping department-

1. Office for manager housekeeper.
2. Desk for housekeeping in-charge and supervisor.
3. Storage room for housekeeping equipment and supplies.

ORGANOGRAM OF HOUSEKEEPING DEPARTMENT



STRENGTH OF HOUSEKEEPING PERSONNEL

Position	Existing strength in hospital
Housekeeping Manager	1
Supervisor	4
GDA	42
Housekeepers	37

The working hours in hospital are in two shifts i.e.8am to 8pm & 8 pm to 8am. Housekeeping manager does the general shift and the three supervisors do the morning, evening and night shift on rotation basis.

FUNCTIONS PERFORMED BY HOUSEKEEPING DEPARTMENT

- Sanitation

  a) Basic Cleaning
  - Dusting
  - Sweeping
  - Polishing
  - Washing

  b) Special Cleaning of
  - Different types of floors
  - Wall & Ceiling
  - Doors & Windows
  - Furniture & Fixtures

  c) Maintenance of Toilet

- Odour control

  a) Identifying and determining the sources of unwanted odours in hospital

  b) Controlling and removal of bad odours

- Waste disposal

Supervise hospital waste disposal

- Collection
- Transportation

- Disposal

- Pest, Rodents control
- Interior Decoration
- Environmental hygiene
- Infection control

Tools, equipment & raw material used by housekeeping department

Manually operated equipment

- Floor cleaning brush
- Floor wiping brush
- Glass cleaning /wiping brush
- Dustbin
- Manual sweeping machine
- Gowns, Mask & Gloves

Power operated equipment

- Fumigation machine
- Single dice machine (scrubbing machine)
- Telescopic cobweb removing rod
- Vacuumed cleaning machine
- Power operated wiper

Cleaning material

- Taski R1-Bathroom cleaner
- Taski R2 –hygienic hard surface cleaner concentrate
- Taski R3-glass cleaner concentrate
- Taski R4 furniture maintainer
- Taski R5air freshener
- Taski R6toilet cleaner
- Taski R7 floor cleaner

- Taski R9 bathroom cleaner concentrate
- Taski spiral floor cleaner concentrate

- Lifebuoy soap
- Dettol soap
- Naphthalene balls
- Hand wash

Patient care areas were cleaned three times a day in three shifts. Taski R7, floor cleaner concentrate used for both wet mopping as well as scrubbing with a machine.

Dilution

For normally soiled surface 20ml in 1 litre of water.

For heavily soiled surface 50 ml in1 litre of water.

A mop is used for about 15 days and then discarded .the mops were never laundered.

RECOMMENDATION

Recommended cleaning technique

FLOORS-Disinfectant should only be used on a clean surface .However, mops should be disinfectant after use in the rooms of infected patients and also before use in rooms occupied by immune suppressed patients. Rising followed by a soak in (1%) bleach or chlorine for 30 minutes, re-rising and allowing drying was an acceptable method for disinfectant of mops.

SPILLAGE- Liquid disinfectants like phenolics or chlorine releasing agents could be used for spillage >30 ml. Chlorine releasing powder, granules should be used for blood or body fluid spillage if contaminated with HBV or HIV.

BATHROOM AND LAVATORY CLEANING- Here, sufficient amount of disinfectant solution could be sprayed on to the bathroom fixtures and surfaces and be allowed to remain for a period of maximum disinfection. It was more cost effective and safer to use a disinfectant detergent to clean toilet on a daily basis.

Required no. of housekeeping staff

GDA- 49 day time

21 at night time

Cleaners-37 day time

20 at night time

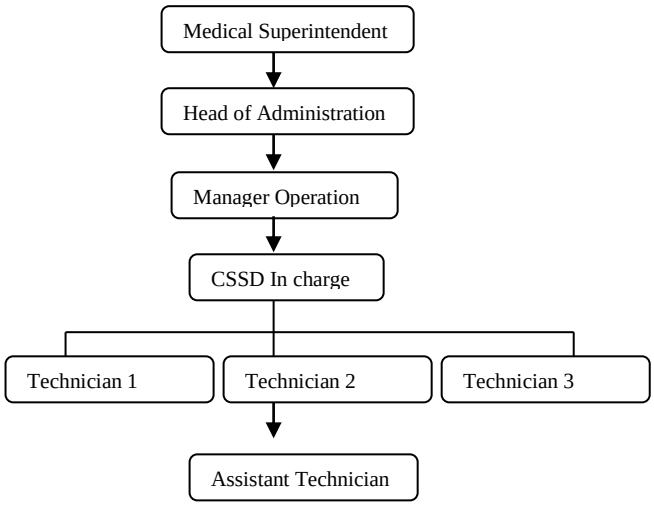
III CENTRAL STERILE SUPPLY UNIT

CSSD of Sharda Hospital is located in the second floor, close to the OT & catering for the sterile supplies to all departments, both to specialized units as well as general ward and OPDs.

AIM

- Centralizing the activities of receipt, cleaning, assembly, sterilization, storage and distribution of sterilized material
- To provide an efficient, economic, continuous and quality supply of sterilized material to various area of hospital to deliver quality and infection free patient care.
- Contributes to reduction in hospital infection rate.

ORGANOGRAM OF CSSD



FUNCTIONS OF CSSD

- Receiving and sorting soiled material used in hospital
- Inspecting and testing instruments, equipment and linen
- Assembling treatment trays , instrument sets, linen etc

- Packing all material for sterilization
- Labelling and dating material
- Storing and controlling inventory

- Issuing and controlling inventory

OBSERVATION

CSSD of sharda hospital is located in the second floor and divided into four part

- Receiving room
- Packing room
- Sterilization room
- Distributing room

Major activities in CSSD are receiving, packing, sterilizing and then distribution to user departments and efforts are made to maintain the unidirectional flow of activities so that sterile and unsterile material can be keep separately.

RECEIVING AREA

Used items from various departments are sent to the CSSD after cleaning for sterilization. Decontamination and disinfection of item are done in user department itself and after disinfection they are shifted to CSSD for sterilization.

The receiving area of CSSD has access to outside through a door. The items are counted and received. Thereafter instruments are inspected and blunt items are segregated or discarded. And entries are made for record. Then items are sent to the packing room

PACKING AREA

Clean and dry instrument are packed before sterilization so that they are not contaminated while handling after they are sterilized. Most of the items are packed in trays that are wrapped with double layer of cotton cloths.

Gauge and cotton cutting is also done in the same room with the help of the machine.

STERLIZING AREA

In Sharda Hospital sterilization is done only by Autoclave machine, they use the disposable items and don't use the reusable items so they don't use the ETO steriliser.

There are three Autoclave machine in this hospital with different capacities.

DISTRIBUTION AREA

Distribution area is in the outside comprised of a window with counter and sterilized items are arranged in racks for distribution to user areas.

TIMINGS OF CSSD

Receiving time- 8am to 11am & 4 pm to 6pm

Staff in CSSD works in two shifts i.e. morning shift 8am to 4pm & evening shift 12pm to 8 pm

LIST OF ITEMS AND SPECIAL TRAYS THAT ARE PROCESSED IN CSSD

- Instruments
- Appliances
- Dressing
- Sponges
- OT linen
- Special packs
- Gauze and cotton material
- Gloves

REGISTER MAINTAINED IN CSSD

- Receiving register
- Loading register
- Issue register
- Autoclave in time and out time register

STERILITY INDICATOR

They use only chemical indicator to monitor one or more parameter of a sterilisation cycle.

TOTAL TIME

Autoclave- 1hrs to 1:15hrs

PROBLEMS IDENTIFIED

- Sluicing machine is not present
- Storage racks in the distribution area is not covered
- One way traffic is not maintained
- No GDA or HK staff particularly for this department

- There is the need of CSSD manager for department
- Washing or cleaning room should be present in the department itself
- No fire protecting measures are installed in department
- Gauge and cotton are cut in the packing room they should be separate
- There should be use of biological indicator to identify whether bacterial spores are destroyed or not
- They don't have the ETO machine for sterilization of reusable items

IV) ICU/ICCU/SICU

Location:

- ICU/MICU/RICU/SICU of Sharda Hospital is located in the 'D' Block of second floor with easy access to OT.
- Away from general traffic
- Restricted entry

Size: Total no. Of beds in ICU are 16. Critical care unit of Sharda hospital is divided into-

MICU- 4 bed

SICU- 4 bed

RICU- 8 bed

Manpower:

Round the clock Anaesthetic, surgeon and physician

senior Resident Doctor in each ICU

2junior resident doctor

3 nursing staff in each shift
1 ward boy and 1 ward aaya in each shift
1housekeeping staff in each shift
2security guard

Design and layout of ICU:

ICU is rectangular shaped with the central nursing station

All patient can be closely observed

Ample space around bed for free movement

Suction and oxygen outlet in each bed
Adequate light and electrical outlet and fixture

Observation

Entrance

Two way swing door , 5’ to 6’
Protecting clothing gown, foot cover, mask for relatives and other person entering in ICU is placed in the entrance of ICUToilet is placed in the right side of main entrance of ICU

Patient care area

Space between two bed of ICU 2.5M

Central nursing station
Call bell system
Oxygen, suction outlet with monitor in each bed
10 infusion pump
5 ventilator
Head wall space is 2 ft
Electric socket for plugging
Small wash basin
Crash cart

Other

Planning for bed side dialysis for acute kidney failure
Cardiac patient refer to other hospital
Light color coated wall
Air conditioning at 28.C
sunlight with glass wall
hygiene and clean
proper disposal and segregation of BMW
proper maintenance of biomedical equipment

Admission criteria

Patient of COPD
Respiratory failure
CVA
Diabetes
RTA/ trauma head injury
Haemorrhagic shock, electrolyte imbalance

Treatment policy

1. No direct admission patient first comes in casualty or ward

2. Responsibility lies with the in-charge doctor admitting the case

3. A vacant bed is allocated for patient in the original ward

4. All admission and discharge are recorded

5. Standard treatment protocol are followed

6. Decision of discharge of patient is taken by the treating consultant with the help of admitting doctor

Recommendation

1. There should be direct connection between ICU and laboratory regarding the reports of investigation and blood sample collection through HMIS

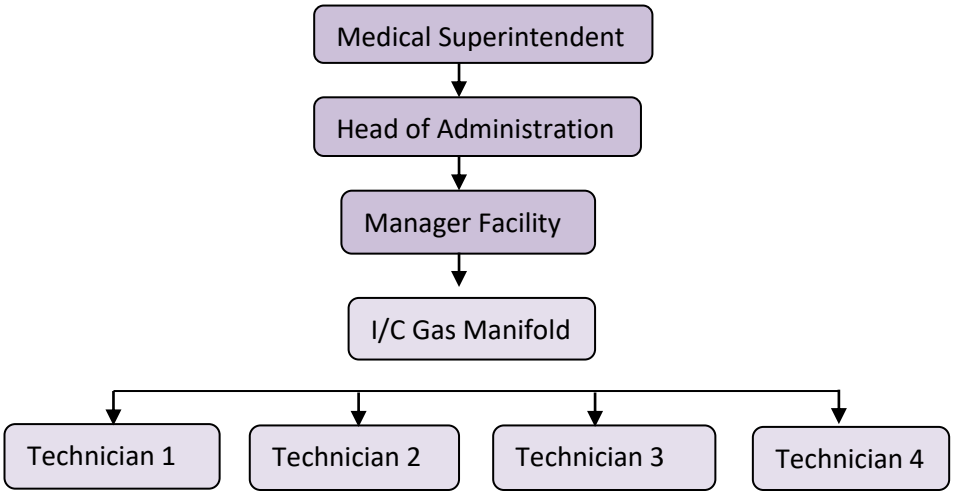
2. No. of nursing staff should be more to reduce the work load

3. There should be strict policy for entrance inside the ICU

4. Frequency of cleaning should be two in each shift
5. There should be an isolation room for immune deficient patient
6. There should be waiting area for relatives outside the ICU

GAS AND MANIFOLD ROOM

ORGANOGRAM OF GAS MANIFOLD



Gas and manifold room is situated in the outer side of ground floor, in front of pharmacy department. There are one incharge of gas manifold room and four technicians.

Incharge works in the general shift and four technician work in the four shifts i.e. morning, evening, general and night in rotatory manner.

Sizes of cylinder – A type, AA type, B type, BB type, D type

Gases present in cylinder – oxygen, nitrous oxide, CO_2

Colour coding- Blue- Nitrous oxide

Yellow – suction

White – oxygen

Grey – CO_2

Pressure- Nitrogen-50 -55 Psig

Other than nitrogen 160 Psig

Hazards-

Be careful against leak
Incorrect colour labelling
Suffocation, fire.
Overfilling
Theft

TASK PERFORMED IN THE HOSPITAL

Sharda hospital is the 640 bedded medical college and hospital and going to apply for NABH accreditation in the month of May. I did 3 month of dissertation from this hospital and

Following are the learning's in this hospital

1. Understanding and learning's of different departments of hospitals e.g. ICU, emergency department, gas manifold, housekeeping, CSSD

2.NABH documentation work of HR e.g. preparation of Organogram, preparation of different laws and acts applicable in hospital, licences required, preparation of JD JR for nursing staff and other technician

3. HR personnel file tracking for NABH documentation

4. Various forms preparation for hospital e.g. emergency assessment form, pain assessment form, LAMA/DAMA forms, neonatal assessment form

5. Comparison of rate list of facility and services of different hospital

6. Daily hospital round for sanitation, hygiene, BMW and for proper management of service
7. Also involved in the training of housekeeping staff for hand hygiene and BMW waste segregation.