Guidance Note On Cost Management In Healthcare Sector

The Institute of Cost Accountants of India
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FOREWORD

The challenge for any country around the world is today is to keep good health for their citizens at affordable cost. The challenge is particularly acute given the rising cost of healthcare. While many factors contribute to success in the global economy, no country can be competitive without a healthy and productive population. On the other hand, the indirect costs associated with health problems of the population, which has not been measured so far, may be very high. This naturally triggers positive action from the Governments to provide affordable healthcare as well as provide free health care to the economically weak public.

The total costs of an unhealthy population are growing at an unsustainable pace. To keep this escalating cost under check, the Central and State Government policy makers continuously plan for monitoring the reason for this escalation Since Government owned facilities alone cannot take care of the public health care needs, it is also planned to rope in private sector on a reimbursement package basis for critical ailments. This has been successfully put in place in some states Viz., Andhra Pradesh and Tamil Nadu. The main basis for fixing the package costs has to be naturally on the basis of costs arrived for standardised treatment templates. While this is huge opportunity for the private healthcare providers for the sustenance and growth of their entities, they have to micro managed their costs so as to remain within the benchmarked costs. This leads to cost management emerging as a major need in healthcare sector, being elevated to the main concern of healthcare administrator to become more relevant than ever. There are multiple reasons for this, both on tactical side – to create customer satisfaction with quality healthcare & from strategic point of viewincreasing the organization's competitiveness by providing quality healthcare at minimal prices.

This Guidance Note is designed to provide the right template to all users including healthcare administrators to streamline tariff fixation on generally accepted principles and would also supplement the effort of the Cost Management Professional in designing and implementing an effective costing system in health care entities. The basic objective of this Guidance Note is to provide an actionable insight into cost Structure for healthcare deliveries for better performance and at the same time to achieve economic of scale require in all forms of organization.

I am quite hopeful that this Guidance Note is useful for healthcare professional in fine tuning the internal performances monitoring using cost parameters; enable them to maintain a robust costing system to achieve sustainable growth. I compliment the CMA Committee headed by CMA.M.Gopalakrishnan, to have come out with a practically useful contemporary publication. I also place on record my appreciation to CMA.Nisha Diwan, Secretary, CMA Committee, who has spearheaded the process of preparing

the Guidance Note. I am also happy that the Technical Directorate Extension Centre, Chennai has been helping the various Committees of the Institute in preparing the base papers and fine tune them after discussions and interactions with domain experts. I understand this publication is also one of the firsts which are coming out of the stables of TDEC, Chennai.

(CMA Dr. A.S. Durga Prasad)

5th March 2015

PREFACE

Accomplishment by a professional body comes from issuing guiding principal to members of such professional body , to assist in latest developments , provide continuous education, provide guidance on contemporary topics authored in-house or with the help of experts in particular field. This publication represents the true essence of application of well known concepts applied to business and economic environment, faced by health care professionals working in such health care industry. More often it is felt that original concept needs alignment with dynamic changes when applied to practical situation. This guidance note helps professionals to align the conceptual approach to get aligned with contemporary changes experienced by users.

"Change in inevitable". Often we see introduction of new technology and research in medical science. This create tremendous pressure on health care professional and cost & management accountant, who associates with the government and business to reduce the cost to provides goods and service at affordable price. Optimum cost of care is often equated with access to latest facilities and technology, poised at the cutting edge of hospital care and research. This should go hand in hand with the efficient utilization of health care resources by hospital professionals.

This guidance note is prepared exclusively for health care management professionals such as doctors, paramedical staffs, management of hospitals , cost and management accountant working in such industry & the society at large, assessing the contemporary trend of performance evaluation used by health care professionals and to enable them to achieve triple bottom line (people, planet, profit) putting thrust on sustainability. This guidance note offers a sound knowledge on hospital cost structure and management method which deals with cost management approach, costing techniques, identification, assignment, allocation and absorption of overhead costs on the services rendered in hospitals and gives an insight about hospital operation that are of significant relevance today.

The journey towards this note started in 2011-12, when the Secretary, Ministry of Corporate Affairs, triggered the Institute to arrive at a sample cost template, which can be used for arriving at Cost of any two vital medical procedures. He was also kind enough to enable the Institute to locate medical professionals and other who are involved in the Healthcare costing field. The active involvement of the Institute in the Committee on

Healthcare Costs under the Ministry of Health and Family Welfare under the leadership of Dr. A.S. Durga Prasad also enabled the Institute to suggest a Costing Template which was adopted by the Ministry. Subsequent to the adoption by the Ministry, he requested the Cost& Management Accounting Committee, to distil the essence of the key learning by the Institute from the deliberations and bring out the "Guidance Note on Cost Management in Healthcare Sector". I commend the valuable contribution made by Mr. Manivannan, Managing Director, Parama Healthcare, Chennai and M/s Rao Murthy & Associates Cost Accountants –Bangalore, CMC Hospital Representative Mr. Cheziyan -Vellore –Tamil Nadu, and Apollo Hospitals Representative Mr Bhargava in actively contributing to this publication to enable it to emerge as a practical guide for the Healthcare industry.

I also acknowledge the valuable service rendered by Technical Directorate Extension Centre, Chennai and the executives of CMA Service Cadre of the Institute, who had toiled hard to condense the vast information that was available on the subject into a practical Note.

CMA. M. Gopalakrishnan
Chairman, Cost & Management Accounting Committee
The Institute of Cost Accountants of India

New Delhi
Dated : 4th March, 2015

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1. INTRODUCTION

One of the important objectives of Government is to improve the standard of living and health status of its population. For this, government endeavors to provide its populations accessible, affordable, awareness and quality healthcare. Indian Government is also making continuous efforts to improve the standard of living and health status of its population and it remains one of the primary objectives in Indian planning. The 12th five year plans (2012-17) focuses on providing universal healthcare infrastructure, promoting R&D and enacting strong regulation for the Health Sector. India's health care system have mixed treatment ownership patterns and with different systems of medicine – primary Allopathy & Homoeopathy, co existing with indigenous system like Ayurvedic, Unani and Siddha.

The health care sector in India comprises both of private sector and public sector. Health care service is gradually emerging as one of the largest service sectors in India. The private health care sector consists of the 'not-for-profit' and the 'for-profit' health sectors. The not-for-profit health sector includes various health care services provided by Non-Government Organizations (NGO's), charitable institutions, trusts, etc. Health care services in the not-for-profit health sector are provided by various types of practitioners and institutions in private sector. Most of the critical healthcare services are provided by the private sector. The increased purchasing power of the Indian Society is providing growth opportunities to healthcare providers. The public health sector also known as publicly-funded government hospitals are run by central government, state government, municipal & local or peripheral. Providing good health is a State & Union responsibility but the central government contributes substantially through grants and centrally sponsored health programs/ schemes.

Publicly-funded government hospitals provide all desirable care but often lack adequate infrastructure. We may witness that the public funded government hospitals are crowded and waiting times in these hospitals is very long further, the Government hospitals are often under staffed, however the cost of care is significantly less as compared to private hospitals. On the other hand, the private hospitals offers high standards of health care and are well equipped with modern technology, the doctors are highly qualified and well trained, and therefore the cost of care is significantly more. Furthermore, the private sector in India has a dominant presence in medical education and training, hospital infrastructure and ancillary services- areas such as medical technology and diagnostics,

pharmaceutical Health care costing is one of the least analysed topics in India. This is mainly on account of the uncertainty and non transparency which was associated with health care delivery systems in India. In addition, the concept of corporate or trust hospitals came much later in the last three to four decades only. The individual nature of healthcare delivery was also one of the reasons where there was a close relationship between the doctor and patient through the "family doctor" concept. The establishment of mega industrial townships, especially in public sector and some in private sector gave the rise to the hospitals mainly to take care of the employees in that particular organisation.

Objectives of Health Care

The proper goal for any health care delivery system is to "Touch & Enriching billion Lives with creating certain set of value" i.e. Patient Centricity, Ownership, & integrity to patients. Objective in health care is measured in terms of the patient outcomes achieved per rupee expended. It is not the number of different services provided or the volume of services delivered that matters but the true status of health.

Achieving the Objective with Optimum Cost

To properly manage cost, both outcomes and cost must be measured at each patient level, measured outcomes and cost must include the whole cycle of patient care and particular medical condition. A medical condition is an interrelated set of patient circumstances that should be best addressed and defined to include common complication and symptoms. The cost of treating a patient with diabetes, for example, must include not only the cost associated with endocrinological care but also the cost of managing and treating associated condition such as retinal disease and renal disease and educating the patient about the life style changes in order to contain the ill effects.

Understanding the Essentiality of Cost Management in Health Care Sector:

Participants in the health care system do not even agree on what they mean by costs. When government and policy makers talk about cost reduction and reducing the cost "bending the costcurve," they are typically referring to how much the government or insurers pay to service providers—not to the costs incurred by providers to deliver health care services. Most healthcare organisations continue to struggle with identifying

the costs of products and services provided by them, capturing the full cost of products and services, including inter-entity and department costs as part of full costs. The difficulties experienced in allocation and absorption of costs due to the integration of various inter-related processes and inter-dependence of the processes flowing from various service cost centres mutually. The hospital usually feels difficulties to allocate the cost of stand-by facilities such as generator, backup operation theatre, and extra trained staff. They charge these cost to each patient, which is overloading the price Poor costing system have adverse influence on pricing and on its own sustainability and quality of service rendered. It is a well-known management axiom that what is not measured cannot be managed or improved. Since without a correct understanding of cost it is difficult to make out the sound pricing system etc. as they are unable to link cost to process improvements or outcomes, preventing them from making systemic and sustainable cost reductions & services. Hence, it becomes imperative to hold the sound cost management Strategies & technique.

Cost Management can be a useful tool for Hospital Managers to:

- Estimating the reasonable cost of Health care resources used in patient care.
- Performance measurement of all the Cost & Revenue drivers.
- Lower health care cost without compromising on quality of services rendered or extended.
- Defines the Health care delivery value chain.
- Determine the fees or tariffs for goods and services.
- Estimates the capacity of each resources and comparison with actual utilization.
- Authorise, modify or discontinue a programme or activity.
- Manage materials & its storage and associated costs in terms of consumables, drugs, etc.

Health Care Pricing:

The pricing strategy in healthcare is the most critical component of managing hospitals irrespective of whether they are for-profit or not-for-profit. While a variety of factors influence pricing strategies, it is important to keep the process simple and uncomplicated.

Pricing is dependent on a variety of factors like competition, demand for the Services in the community, affordability by the community. Therefore, the beginning of any pricing process is to understand the correct cost of service, Cost accounting helps to identify such correct cost.

End user for this Guidance Note

This guidance note is prepared considering the day to day requirement of cost management for hospital managers as well as those wish to deploy strategic management in such hospitals and make policy framework in hospitals at the national, state, regional and district level. The objective of this guidance note is to enable users such as doctors, entrepreneurs, finance executives and cost and management professionals to understand the process of cost management and to service the users.

Why is Hospital Cost Management Important?

Hospital cost information is derived by relating the inputs of resource in monetary term to the output service provided by the hospital. Cost information is part of the basic information needed by the manager, policy maker & government for making decision about how to improve the performance of a hospital. Where to allocate the resources within or among hospitals, or to compare the performance of different hospitals to one another, In addition some of the other reasons wanting for cost information are to improve efficiency, increase effectiveness, enhance sustainability and improve quality and vital factors that are needed for pricing.

What are the uses of Cost Data?

Cost data can be used for two primary purposes,for the present situations and for the future. It can be used to assess the current situation of a hospital, such as for assessing its efficiency, determining the effectiveness of the hospital, reviewing its priorities, and setting of prices. Cost information may also be used for the future: ie for making cost projections, budgeting, and scenario planning with "what if?" situations. Information on the costs in hospitals can provide considerable information for managers of hospitals, regional coordinators of health services, and policy makers overseeing the issues of the national health system. The information can be used to assess the internal operations and performance of a single hospital—such as utilization of health personnel in different

departments of the hospital in providing services—and to make comparisons of the operations and efficiency of different hospitals. Some of the specific potential uses of cost information for a health care administrator are:

- Comparison of costs across different facilities and to identify those that are efficient from those that are not,
- Comparison of costs with revenue,
- Development of a cross-subsidization model in pricing,
- Evaluation of financial feasibility of a new program, or activity,
- Analysis of the effect of changes in resources used.

2. OVERVIEW OF HEALTH CARE SECTOR IN INDIA

Background

The health care industry is described as a 'lifeline' industry whose service cannot be replaced or substituted. The industry is in the core sector and it is always regarded as a noble service because it deals with human life which is precious.

An ideal situation for any society is to protect every person from the cradle to the grave against pain and sufferings caused by sickness and ill health. The World Health Organization (WHO) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". Health is a fundamental human right. The proactive health care by the Government should be a continuous Endeavour and extremely important in this industry as the rate of obsolescence of processes, products, etc. is higher. Utmost attention is required in this direction as the very existence and viability depend primarily on proper health care.

Health Care System in India

India has traditionally been a rural, agrarian economy. From health care perspective, it is geographically divided into rural, semi-urban and urban areas. Nearly three quarters of the population, currently 1.2 billion, still live in rural areas. However, India's thriving economy is raising average income levels, driving rapid urbanization, creating an expanding middle class and increasing awareness of health insurance. In India, only 65 doctors are available per 100000 populations whereas 230 doctors are needed per 100000 populations. This was the status in 2009.

Healthcare is one of India's largest service sectors. It is the second largest employer in the country. The challenges the sector faces are substantial, from the need to reduce mortality rates, improve physical infrastructure, necessity to provide health insurance, ensuring availability of trained medical personnel, etc. There has been a rise in both communicable/infectious diseases and non-communicable diseases, including chronic diseases.

Health Care is a key focus area under 12th Five Year Plan (2012-2017)

1. The Planning Commission has allocated Rupees 3 lacs crores under the 12th Five-

Year Plan to the Ministry of Health and Family Welfare, which is about three times the actual expenditure under the 11th Five-Year Plan.

2. The share of healthcare in total plan allocation is set to 2.5% of GDP in the 12th Plan from 0.9% in 11th Plan.

3. The 12th plan focuses on providing universal healthcare, strengthening healthcare infrastructure, promoting R&D and enacting strong regulations for the healthcare sector.

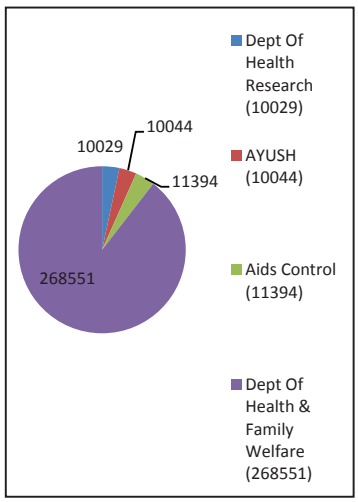
4. In union Budget 2014-15, The Finance Minister announced following facilities to build

   a. AIMS –like institution to be introduced in Andhra Pradesh, West Bengal, Vidarbha, Poorvanchal.

   b. Fifteen Modern rural health research centres to be set up for research on local health issues.

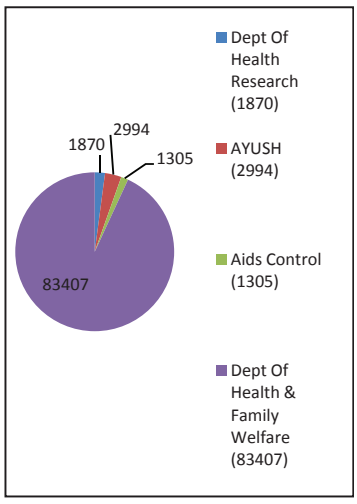
In Budget 14-15, the Government's focus is firmly on rural health. Many rural regions lack even basic healthcare, putting a burden on the overall economy.

Proposed Budget Allocation for Dept. of Ministry Of Health & welfare under 12Th Five Year Plan (Rs in Crores)



Source: Planning Commission, http://planningcommission.gov.in/

Proposed Budget Allocation for Dept. of Ministry Of Health & welfare under 11 Th Five Year Plan (Rs in Crores)



AYUSH: Department of Ayurveda, Yoga & Naturopathy, Unani, and Homeopathy

Reasons for Health Degeneration

As more and more Indians migrate to affluent lives and used to diets that are high in fat and sugar, the country is experiencing rapidly rising trend in non-communicative diseases / lifestyle diseases such as hypertension, cancer, and diabetes and these are expected to grow at a faster rate than infectious diseases. In addition, the growing elderly population will experience the same set of life style related diseases.

Initially, Indian health care was dominated by general physicians and nursing homes. Gradually, religious and charitable institutions started creating and maintaining hospitals with service motto. Though these were run clinically well, these did not focus on professional management of hospitals.

There are considerable shortages of hospital beds and trained medical staff such as doctors and nurses, and as a result public accessibility is reduced. There is also a considerable rural-urban imbalance in which accessibility is significantly lower in rural compared to urban areas. Women are under-represented in the healthcare workforce.

National Health Policy

The health needs of the country are enormous and the financial resources and managerial bandwidth available to meet them, even on the most optimistic projections, fall somewhat short. India's National Health Policy, 2002 had to make hard choices between various priorities and operational options. It does not claim to be a road-map for meeting all the health needs of the populace of the country. Furthermore, it has to be recognized that such health needs are also dynamic, as threats in the area of public health keep changing over time. The policy, while being holistic, focuses on the need for enhanced funding and an organizational restructuring in order to facilitate more equitable access to the health facilities. Also, the policy is focused on those diseases which are principally contributing to the disease burden. This is not to say that other items contributing to the disease burden of the country will be ignored; but only that the resources, and also the principal focus of the public health administration, will recognise certain relative priorities. The policy aims to achieve an acceptable standard of good health among the general population of the country and has set goals to be achieved by the year 2015.

What Governments Spend on Health Care vis a vis Other Countries

While the primary endeavour of the government is to provide good heath for all its citizens, it appears that still there is a long way in terms of the govt spending in providing such good health. Below table is an illustration of the govt spending vs. other countries.

	% of GDP spend on Health care	per capita Health care expenditure	Govt share in Health care spend	Health care exp to total Govt expenditure	% of Pvt out of pocket expenditure
USA	18%	8608 $	46%	20%	11%
UK	9%	3609 $	83%	16%	9%
India	4%	60 $	31%	8%	60%
China	5%	278 $	56%	12%	35%
Brazil	9%	1121 $	46%	9%	31%
Germany	11%	4875 $	76%	19%	12%
Russia	6%	807 $	60%	10%	35%
Nigeria	5%	80 $	37%	8%	60%

A cursory glance at the above table shows that still there is a lot of scope for Government spending on health care in India when compared to other countries.

Source:www.who.in.

http://forbesindia.com/article/world-watch.

(These details appeared in Forbes India magazine issue of 15th Nov, 2013)

Problems of Healthcare System in India

The Indian healthcare system is in a dilapidated state. The cost of medical care in private hospitals rises day by day and it seems there is no control of government on these hospitals. Much of these costs can be attributed to the diagnosis and treatment of chronic diseases and conditions such as diabetes, obesity, cardiovascular disease and asthmatic etc.

Although healthcare real costs looks affordable but the health care price is, almost prohibitive, to the average Indian citizen. Further, the quality of healthcare in India varies from hospital to hospital in urban and rural areas. Access to quality medical care is limited or unavailable in most of the rural areas. For a poor family with a meagre

income, the health care is almost unaffordable. One medical procedure can cost lakhs of rupees and this may send the family of a patient into a huge debt. Further, the population accessing private services largely encounter with unlicensed practitioners who deliver poor quality of services. High cost of treatments in private hospitals is due to lack of regulations and standardized cost of procedures prescribed by the Government. Therefore, there is an urgent need to control and prescribe the standardized cost of procedures/ treatments as good medical treatments can be afforded by those only who are in the higher income brackets.

Following are the major weaknesses of Indian Health care system

Source: (http://planningcommission.gov.in)

Availability of health care service from the public and private sectors taken together is quantitatively very poor

Quality of healthcare services varies considerably in both public and private sector. Many practitioner in the private sector are actually not qualified doctors, regulatory standards for public and private hospitals are not adequately defined and, in any case, are ineffectively enforced.

Affordability of healthcare is a serious problem for the vast majority of the population, especially in tertiary care. The lack of extensive and adequately funded public health services pushes large number of people to incur heavy out of pocket expenditures on services rendered by private sector. Out of pocket expenditure arises even in public sector hospitals, because insufficient supply of medicines means that patients have to buy them from medical shops. This results in very high financial burden on families in case of severe illness.

The problem outlined above is likely to worsen in future due to ever growing population and diseases. Health care costs are expected to rise, because, with rising life expectancy, a larger proportion will become vulnerable to chronic non Communicable Disease (NCDs), which typically requires extensive treatment and hence becomes expensive.

Reasons of Rising Healthcare Costs

1. One of the main reasons for rising healthcare costs in India is: use of latest sophisticated technology and equipment by the doctors and hospitals. Earlier,

Doctors prescribed tests only if the patient's illness was of serious nature and also those tests were very simple. Now doctors advise a bunch of complex tests to ensure correct diagnose.

2. Medical negligence cases are now under the purview of consumer courts and the doctors have no alternative but to ask for the test reports before prescribing the treatments. This has also lead to the over-recommendation of diagnostic services. Doctors in order to correctly diagnose the diseases and due to other reasons generally prescribes numerous diagnostic tests which are unnecessary in many cases.

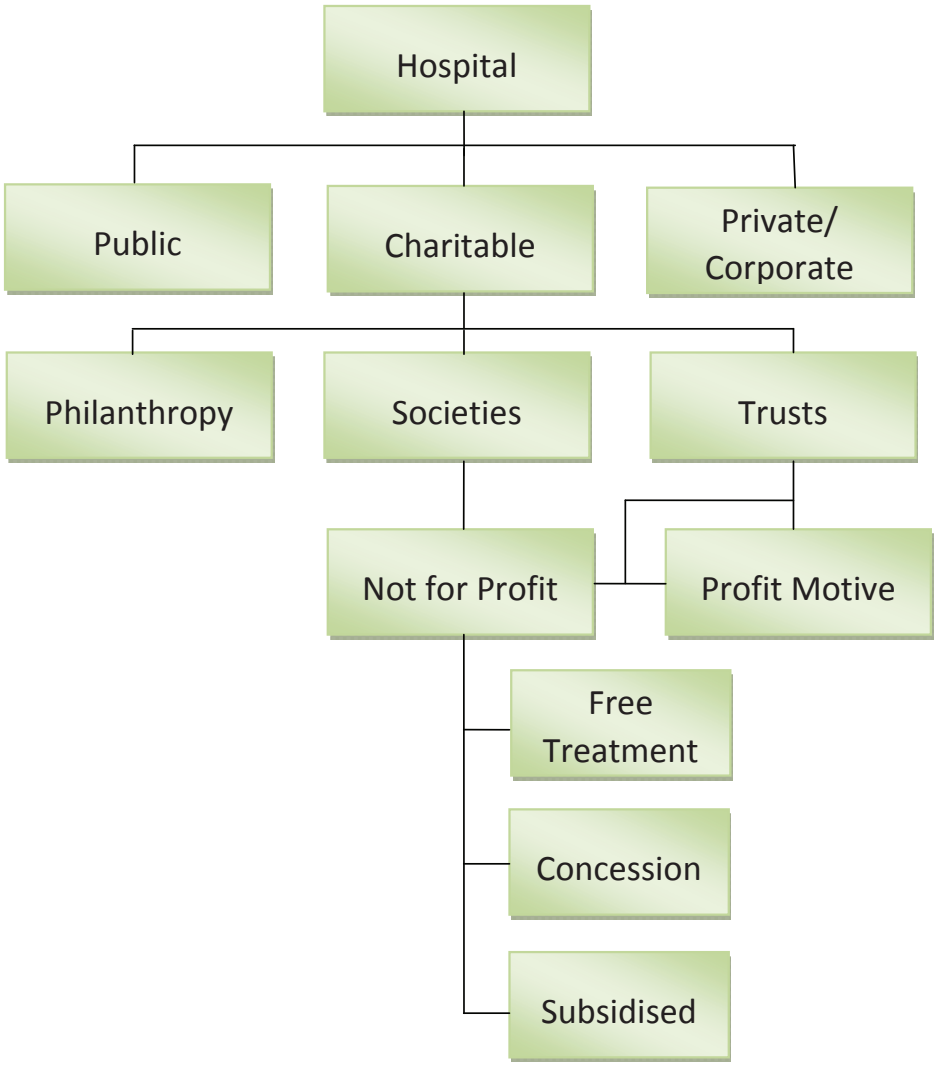
3. The opening up of the private sector in providing healthcare has also contributed to the rise in costs. In Private Hospitals all things are commercial be it Land, Professional fees to Doctors, salary to Nurses, staff etc. So while fixing the charges for treatments/ procedures by the private hospitals, the costs are to be loaded and the patients have to pay more for diagnostic, hospital stay, doctor fees, nursing charges, and planned diet while seeking treatment from private hospitals.

4. As per World health organisation (WHO) data-2012, higher life expectancy of 64 to 68 years (male/female) and lower infant mortality rate of 56 per 1000 live births have also played its role and more people are seeking healthcare putting a demand on its availability and hence pushing the cost upwards.

5. Higher purchasing power due to rising income levels and rising literacy levels has boosted awareness on preventive and curative healthcare and, in turn, increase the hospitalization rate.

6. The sustained expansion of healthcare insurance coverage also pushes the hospitalization costs.

Broad Business Model of Hospitals in India



Public Hospital

These hospitals in today's context refer to the government hospitals run by them which provides healthcare to the population at large. These hospitals may or may not be associated with a Medical College. The funds required for day to day operations of the hospital are through the State Treasury or through Grants, Donations and from well wishers. These hospitals are mainly run with a motive to cater to the poorer sections of the society at subsidized rates from the Government.

Charitable Hospital

These hospitals are usually formed by a group of Philanthropists, Societies and groups of people with Charity as the primary motive. Charity means, a certain percentage of cases are treated free, some on Concessional / Subsidised basis. These hospitals are mostly not-for-profit organisations.

Not-for-profit does not necessarily mean that the hospitals do not generate surplus, but the surplus are ploughed back into the operations for upgrading / improving the technical base of the hospitals. These hospitals do not attract taxes in the form of Income Tax on the revenue generated but necessarily need to prove that the income so generated is used for treating the weaker section of the society.

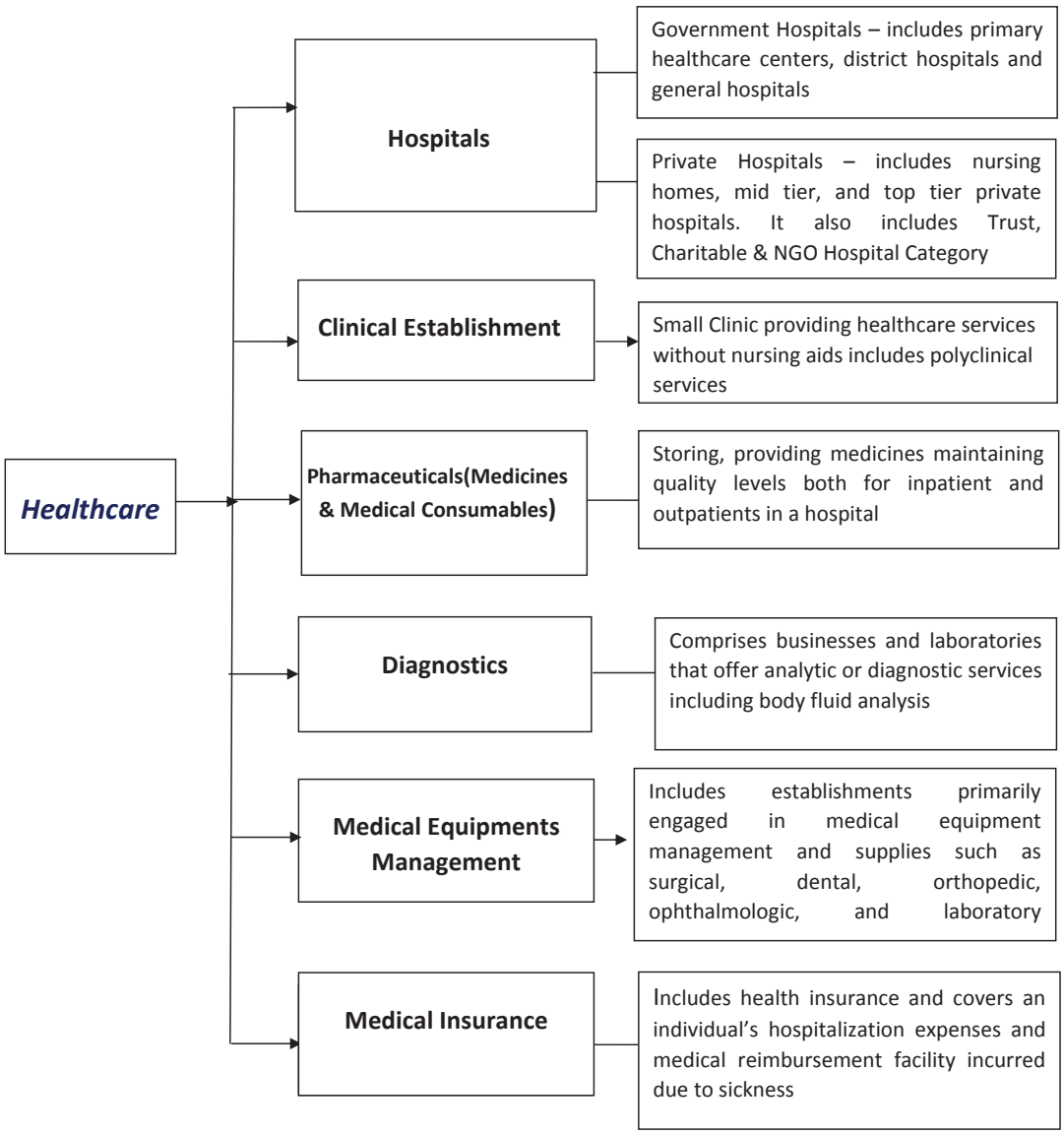
In most hospitals, the money collected for treatment would be very nominal says few thousand rupees. These hospitals usually undertake promotional programs to create awareness among the community. Usually Research Institutes are associated with such hospitals. Such hospitals look towards the Trust / Society for capital requirements and for funding the day to day operations. Viability is not the criteria at all.

Private / Corporate Hospital

The basic difference between this hospital and all the others as discussed above is the motive. In this case the main motive is profit making the reason being that profits that are generated need to be distributed among the equity share holders after repaying the debt from the financial institutions. These institutions usually take money in the form of loans to establish the setup. Hence, the charges that are levied are usually on the higher side as they need to service the loan component toward the institution.

3. COMMON HEALTH CARE SERVICES

The healthcare market is split into various downstream & upstream segments shown below;



(Note: This Guidance Note only covers detailed study about Hospital and Hospital related services)

In addition, Hospitals are also grouped based on nature of service they provide

1. **Primary Care :** A primary care provider (PCP) is a doctor who see the patient first and checkups health problems. If the patient has a health care issue then he finds out what type of practitioner can serve the patient and the doctor refers the patient to relevant specialist doctor for further diagnosis.

2. **Nursing Care :** A Nursing care provider generally refers to procedures or medication which are solely or primarily aimed at providing comfort to a patients or alleviating that person's pain, symptom or distress, and includes the offer of oral nutrition and hydration.

3. **Telemedicine :** The practice of medicine through telecommunication. It provides services through the use of advanced telecommunication technologies to exchange health information and provides health care services across geographic, time, & cultural barrier. Nowadays people situated in different geographical location may connect to hospitals through telecommunications to take advice or prescription based on his case history. It provides facilities for exchanging the test report as well.

4. **Drug Therapy :** Once the patient is diagnosed for the ailment, then he is administered with relevant medicines and treated as outpatient category in a hospital.

5. **Diagnostic:** It is a procedure that is used to determine the cause of an illness or disorder. It generally provide healthcare practitioner with information about the presence, severity and causes of diseases in patient. Subsequently, health care providers deliver the appropriate treatment (illustrative list below) to their patient, reducing the patient's mortality and morbidity levels.

    a. X-rays

    b. Blood Tests

    c. ECG

    d. TMT

    e. Echocardiography

    f. Liver function test

g. Urine & Stool Routine

h. Urine Pregnancy Test

6. **Specialty Care** are specialized services that are provided by hospitals as follows

a. Allergy and asthma

b. Anaesthesiology -- general anaesthesia or spinal block for surgeries and some forms of pain control

c. Cardiology -- heart disorders

d. Dermatology -- skin disorders

e. Endocrinology -- hormonal and metabolic disorders, including diabetes

f. Digestive system disorders

g. General surgery -- common surgeries involving any part of the body

h. Haematology -- blood disorders

i. Immunology -- disorders of the immune system

j. Infectious disease -- infections affecting the tissues of any part of the body

k. Nephrology -- kidney disorders

l. Neurology -- nervous system disorders

m. Obstetrics/gynaecology -- pregnancy and women's reproductive disorders

n. Oncology -- cancer treatment

o. Ophthalmology -- eye disorders and surgery

p. Orthopaedics -- bone and connective tissue disorders

q. Physical therapy and rehabilitative medicine -- for disorders such as low back injury, spinal cord injuries, and stroke

r. Psychiatry -- emotional or mental disorders

s. Pulmonary (lung) -- respiratory tract disorders

t. X-rays and related procedures (such as Ultrasound, computerised Tomography (CT scan), and Magnetic Resonance Imaging- (MRI)

u. Urology -- disorders of the male reproductive and urinary tracts and the female urinary tract

v. Dental Procedures

7. **Therapeutic :** These services will overcome the disease and promote recovery.

a. Anaesthetic Procedures

b. Blood Transfusions

c. Bone Marrow Transplants

d. Treatment of Cancer (Brach therapy)

e. Cardiac Interventions

4. CLINICAL PRACTICES IN HEALTH CARE SERVICES

A clinical procedure is a course of action intended to achieve a result in the case of persons with health problems. A clinical procedure is done with the intention of determining, measuring or diagnosing a patient condition or parameter and it is also called as medical test/procedure. Exhaustive list of clinical Health care procedures that are being provided by various hospitals are listed below :

1. Critical care
    a. Intensive Critical Care Unit (ICCU)
    b. Intensive Care Unit (ICU)
    c. Coronary Care Unit (CCU)
    d. Neo-natal Intensive Care (NICU)
    e. Paediatric Intensive Care (PICU)
    f. Special Care Baby Unit (SCBU)
    g. Other Specialist such as Intensive Therapy/Treatment Unit (ITU)
2. Diagnostic
    a. Gait Laboratory
    b. Medical Photography
    c. Neurophysiology – example EEGs
    d. Physiological Measurement Tests – example ECGs, Echo cardiograph tests, BP Monitoring
    e. Other – i.e. Lung Function Tests
3. Imaging
    a. Computerized Tomography (CT)
    b. Fluoroscopy
    c. General Radiology
    d. Magnetic Resonance Imaging (MRI)
    e. Mammography

f. Nuclear Medicine

g. Positron Emission Tomography (PET)

h. Ultrasound

4. Emergency Procedure

a. Emergency Department/minor injuries units/walk-in Patients

5. Maternity

a. Birthing Operations

b. Delivery Room/Labour Ward

c. Obstetric Operating Theatres

6. Operating theatres

a. Operating theatres including sterile service department

b. Operations preparations and emergency activity during operations

7. Wards

a. Admission /Discharge Facilities

b. Home Care

c. Wards

8. Pharmacy

a. Supply of Medicines both for Inpatients and out patients

b. Sale to walk inpatients

9. Special procedures-operations

a. Angioplasty

b. Cardiac Catheter

c. Endoscopy

d. Interventional Imaging

e. Lithotripsy

f. Renal Dialysis

g. Dentals operations of higher order

h. Coronary

10. Radiotherapy

a. Radiotherapy Treatment (external beam and brachytherapy) mould room and planning room

b. Radiotherapy Planning (CT/MRI Scans, Activity)

11. Special Treatment Rooms

a. Dressing Rooms

b. Hyperbaric Chamber

c. Plaster Rooms

12. Therapies

a. Diabetic Educator

b. Dietetics

c. Neuropsychology

d. Occupational Therapy

e. Orthotics

f. Physiotherapy

g. Play Therapy

h. Podiatry (including therapy services)

i. Psychology

j. Speech and Language Therapy

13. Pathology

a. Autopsy

b. Clinical Biochemistry

c. Clinical Microbiology

d. Clinical Pharmacology

e. Cytogenetic
f. Cytology
g. General Pathology
h. Haematology (Laboratory)
i. Histopathology
j. Immunology (Laboratory)
k. Mortuary
l. Phlebotomy
m. Serology
n. Toxicology
o. Virology

14. Blood
    a. Blood Transfusions
    b. Blood Products
    c. Blood Storage/Bank Management
15. Others
    a. Audiology
    b. Dental
    c. Interpreters
    d. Optometry
    e. Orthotics
    f. Outpatient Clinics, Including Outreach Clinics
    g. Palliative Care Unit
    h. Social Work

16. Ancillary critical clinical activities that are incidental to the above main clinical activities
    a. Patient Catering
    b. Clinical Coding
    c. Clinical Safety, Quality and Audit
    d. Clinical Equipment Maintenance
    e. Medical Records
    f. Pharmacy Services (Managing and Running Costs)
    g. Patient and Clinical Pottering
    h. Specimen Collection
    i. Sterile Services
    j. Clinical Training for nurses, OT supporting staffs
17. Bio Medical Waste Management
    a. Waste Collection & Segregation
    b. Recycling and Disposals
18. Mortuary Management
    a. Records Management
    b. Storage Management
    c. Disposal Management
    d. Compliance on Regulatory Requirements

5. CRITICAL ACTIVITES IN HEALTH CARE SERVICES

A patient movement general chart is represented at the end of this chapter. In addition - Critical activities in a hospital can be classified as Technical and Non Technical.

All technical activities shall fall under medical and medical support services called as revenue centres and semi revenue centres .All technical services costs can be attributable /traceable to the service /procedures or service group /service groups and hence can be called as direct costs.

All non technical activities shall fall under common services (i.e.) called as service cost centres. The costs incurred in these service costs centres are to be collected / pooled as much as possible to the technical /procedures and the balance can only be allocated/ apportioned to services / service groups depending on the type of activity on a quantifiable basis. The best way is to identify the activity rendered to which user dept

Each of the technical activities shall consist of following sub activities such as

1. Reception Activities
2. Diagnosis Activities
3. Patient Admissions
4. Central Sterile Supply Management (CSSD)
5. Pharmacy and Medical Support Services Management
6. All Clinical Activities as referred Earlier
7. All Diagnostic and Therapeutic Activities
8. Treatment as Inpatient or Outpatient Activities
9. Operation Theatre Management
    i. Ward Management
    ii. ICU Management
10. Laboratories and Research Activities
11. Rehabilitation Activities
12. Medical Records Management such as

i. Statistics on treatment practices and bio behaviour statistics

ii. Statistics of all hospital technical services

iii. Legal services management.

13. Bio Medical Waste Management.

14. Mortuary and Disposal Management.

15. Other Allied Services incidental to main technical dept

The non technical services shall consist of those entire departments that render service to the main technical depts. and the hospital as a whole. A few illustrative departments are listed below

1. Accounts & Finance

2. MIS and Costing

3. HR dept

4. IT dept

   a. Ancillary Medical services like ambulance services, medical furniture maintenance

   b. Non medical services

5. Administration Department

6. Procurement cum stores

7. Equipments Maintenance Department

8. Security Department

9. Transport Department

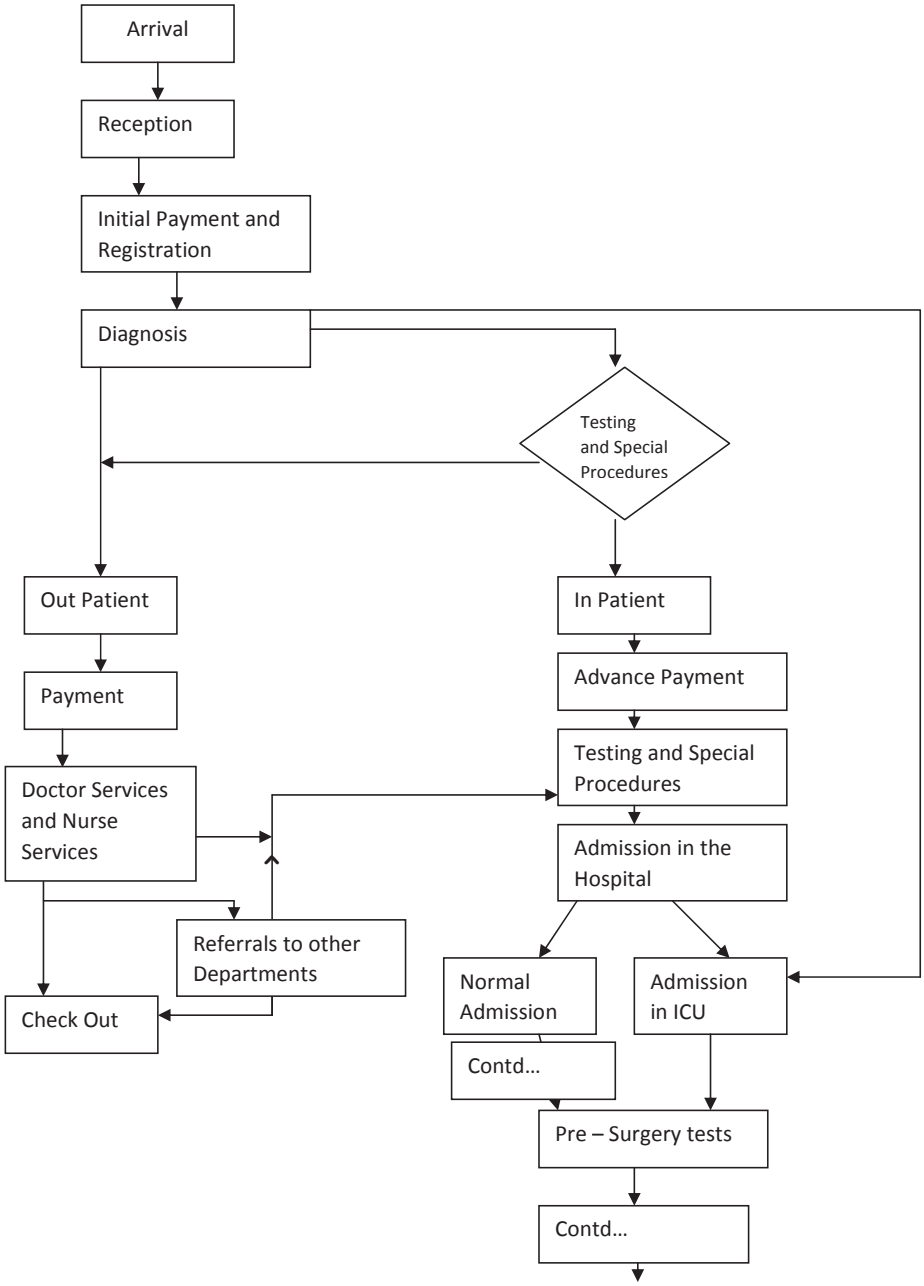
10. Safety Department

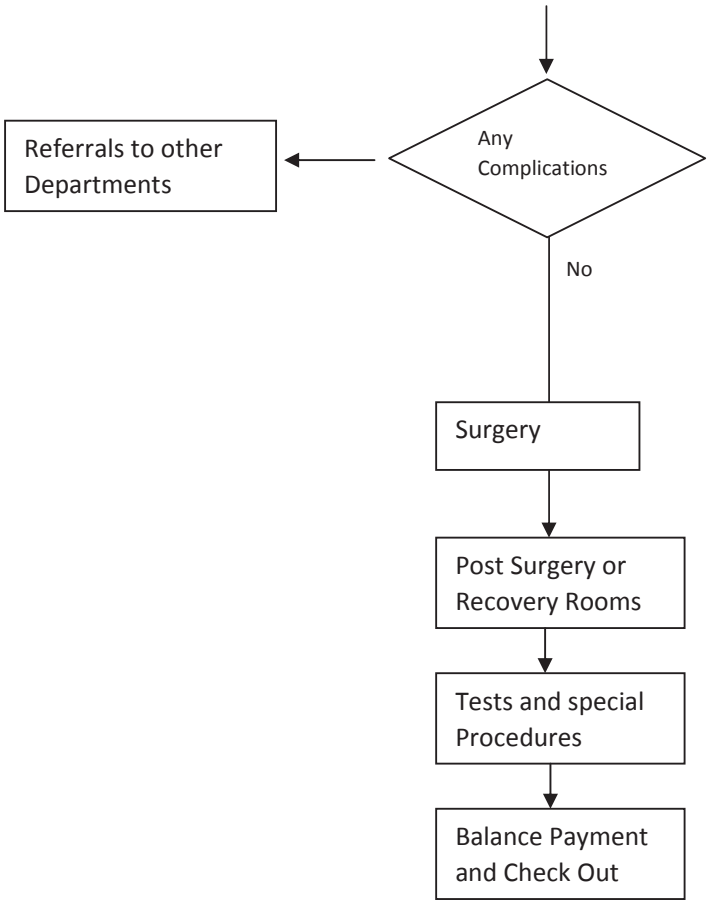
11. Hospital and Estate Maintenance Department

12. Canteen

13. Utilities

Patient Flowchart




Any Complications
Referrals to other Departments
No
Surgery
Post Surgery or Recovery Rooms
Tests and special Procedures
Balance Payment and Check Out

6. HEALTH CARE SERVICES COST POOL & COST ALLOCATION PRACTICES

Cost pooling means classification, collection of costs/resources used in respective depts. and then allocated, apportioned to respective activities. Health Care services are broadly classified into the following groups and hence cost pools are also classified in the same manner:

(i) Medical Departments

(ii) Medical Support Service Departments

(iii) Non-Medical Support (Service) Departments

Medical Departments

Department which generates income directly from the patients are called medical departments. Examples: General Medicine, Gynaecology, Cardiology, Orthopaedic, Neurology, Nephrology Etc. Income on CABG surgery to a patient under package will be the income of Cardiology dept.

Income from LSCS (Lower Segment Caesarean Section) surgery to a patient will be the income of Gynaecology dept.

Medical departments are further classified into Out Patient (OP) and In Patient (IP). Of course, Day Care Unit is considered as separate medical department.

Medical Support Service Departments

These departments generally support medical departments. These may also generate revenue from patients directly. Examples: Operation Theatre, Laboratory, Radiology, Physiotherapy, Blood bank, Pharmacy and Wards.

By doing X-ray to a walk in patient, Radiology department is generating income. At the same time Radiology department is contributing revenue to Cardiology department by doing X-ray for CABG patient under package.

Non-Medical Support Service Departments

Department which do not generate income directly but supports the Medical and Medical support service departments to do their services effectively are known as Non-medical departments. Examples: Medical Records, Operations & Admin, Finance & Accounts, Bio-medical Engineering, Maintenance, ITD & House-keeping, Admission, HR, Purchase & Stores department etc.

Basis of allocation of cost are defined in further topics

Health Care Services (Medical & Medical Support Service) Cost Pool & Cost Allocation Practices.

Health Care Support (Non-Medical) Services Cost Pool & Cost Allocation Practices.

Health Care Services (Medical & Medical Support Services) Cost Pool & Cost Allocation Practices (weightage to be given in applicable activities for equalising the resources)

Classification of Departments	Department	Cost Component	Basis of Allocation
Medical Support	Operation Theatre (OT)	Man power	Hours of surgery
		Consumables	Cost per surgery
		Equipments	No of Surgery
		Non medical Assets	No of Surgery
		Power consumption	Hours of surgery
		AC	Hours of surgery
		Building	No of Surgery
Medical Support	Post Operative Ward	Man power	Hour of stay.
		Consumables	Cost per surgery
		Equipments	Hour of stay.
		Non medical Assets	Hour of stay.
		Power consumption	Hour of stay.
		AC	Hour of stay.
		Building	Hour of stay.

Medical Support	Lab	Man power	Number of investigation in each department within the lab. Wherever technicians are dedicated, cost is allocated to that department
Medical Support	Lab	Consumables	Number of investigation in each department within the lab. Wherever kits are used, based on number of tests per kit
		Equipments	Number of investigations done
Medical Support	Lab	Non medical Assets	Specifically identified & number of investigations done
		Power consumption	Specific output calculation and number of hours for which the equipments are used
Medical Support	Lab	AC	Number of hours for which AC is working & number of investigations
		Building	Proportionate area and calculation of common area

Medical Support	Radiology	Man power	Number of investigations in each department within Radiology. Wherever technicians are dedicated, cost is allocated to that department.
Medical Support	Radiology	Consumables	Number of investigations in each department within Radiology. Wherever materials are particular to a machine, cost allocated to procedures from such machine.
		Equipments	Number of investigations done.
		Non medical Assets	Specifically identified & number of investigations done.

Medical Support	Radiology	Power consumption	Specific output calculation and number of hours for which the equipments are used. Cost of power consumption on usage of normal electrical fittings and appliances is to be allocated based on the number of services done.
		AC	Number of hours for which AC is working & number of investigations
		Building	Proportionate area and calculation of common area

Medical Support	Physiotheraphy	Man power	Number of sessions per patient.
		Consumables	Generally does not arise. Based on the number of services done.
		Equipments	Based on the number of services done.
		Non medical Assets	Specifically identified & number of services done.

Medical Support	Physiotheraphy	Power consumption	Specific output calculation and number of hours for which the equipments are used. Cost of power consumption on usage of normal electrical fittings and appliances is to be allocated based on the number of services done.
		AC	Number of hours for which AC is working & number of sessions
		Building	Proportionate area and calculation of common area

Medical Support	Blood Bank	Man power	Number of bags
		Consumables	Number of bags
		Equipments	Cost allocated by number of bags
		Non medical Assets	Specifically identified & number of bags
Medical Support	Blood Bank	Power consumption	Specific output calculation and number of bags
		AC	Number of hours for which Ac is working and number of bags
		Building	Proportionate area and calculation of common area

Medical Support	Pharmacy	Man power	No of days stay
		Consumables	No of days stay
		Non medical Assets	No of days stay
		Power consumption	No of days stay
		AC	No of days stay
		Building	No of days stay

Medical Support	General Ward & Special Ward (With Due Weight Age)	Man power	No of days stay
		Consumables	No of days stay
		Equipments	No of days stay
		Non medical Assets	No of days Stay
		Power consumption	No of days stay
		AC	No of days stay
		Building	No of days Stay

Health Care Support (Non-Medical) Services Cost Pool & Cost Allocation Practices(weightage to be given in applicable activities for equalising the resources)

Classification of Departments	Department	Cost Component	Basis of Allocation
Non-Medical Support Service Departments	Admission	Man power	Cost per admission per day
		Consumables	Cost per admission per day
		Non medical Assets	Cost per admission per day
		Power consumption	Cost per admission per day
		AC	Cost per admission per day
		Building	Cost per admission per day

Non-Medical Support Service Departments	Central Sterile Services Division (CSSD)	Man power	Cost per hour
		Material	Cost per hour
		Equipments	Cost per hour
		Power consumption	Cost per hour
		Non medical Assets	Cost per hour
		Building	Cost per hour

Non-Medical Support Service Departments	CCTV	Man power	Cost per day per bed
		Equipments	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed

Non-Medical Support Service Departments	IT	Man power	Cost per day per bed
		Materials	Cost per day per bed
		Equipments	Cost per day per bed
		Power consumption	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Building	Cost per day per bed
		Ac	Cost per day per bed

Non-Medical Support Service Departments	FIRE SAFETY	Man power	Cost per day per bed
		Machinery	Cost per day per bed
		Non medical Assets	Cost per day per bed

Non-Medical Support Service Departments	Finance & Accounts	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed
		AC	Cost per day per bed
		Building	Cost per day per bed

Non-Medical Support Service Departments	Operations & Admin	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed
		Ac	Cost per day per bed
		Building	Cost per day per bed

Non-Medical Support Service Departments	Maintenance	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed
		Ac	Cost per day per bed
		Building	Cost per day per bed

Non-Medical Support Service Departments	Purchase & Stores	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed
		Ac	Cost per day per bed
		Building	Cost per day per bed

Non-Medical Support Service Departments	Human Resource	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed
		Ac	Cost per day per bed
		Building	Cost per day per bed

Non-Medical Support Service Departments	MRD	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed
		Ac	Cost per day per bed
		Building	Cost per day per bed

Non-Medical Support Service Departments	House-Keeping	Man power	Cost per day per bed
		Materials	Cost per day per bed
		Equipments	Cost per day per bed
		Non medical Assets	Cost per day per bed
		Power consumption	Cost per day per bed
		Ac	Cost per day per bed
		Building	Cost per day per bed

Non-Medical Support Service Departments	Dietics	Man power, materials, equipments, expenses	Cost per day per bed
	Laundry	Man power, materials, equipments, expenses	Cost per day per Bed
	Security	Man power, materials, equipments, expenses	Cost per day per bed

Indirect Cost	UPS	Man power, materials, equipments, expenses	Cost per day per bed
	Communication Expenses	Communication Exp	Cost per day per bed
		Equipments	Cost per day per bed
	Genset Power Backup	Man power, materials, equipments, expenses	Cost per day per bed
	Solar Heating	Man power, materials, equipments, expenses	Cost per day per bed
	Bio Medical Waste	Man power, materials, equipments, expenses	Cost per day per bed
	Water Utilization	Man power, materials, equipments, expenses	Cost per day per bed
Indirect Cost	Bio Metrics	Man power, materials, equipments, expenses	Cost per day per bed

7. COSTING APPROACH IN HEALTHCARE INDUSTRY

Overview of cost management in hospitals

For bringing healthcare of ideal standards in our country within the reach of every individual, there is a need to provide healthcare services at affordable costs, so that individuals from various economic statuses are able to avail medical treatment.

To full fill this dream of affordability "Total cost management in hospitals "(TCM) will help in fixing right pricing of services provided by hospitals.

TCM will enable to achieve sustainable savings in the cost of operations.

However achieving such TCM requires the following

(a) To evolve a detailed methodology for performing costing function uniformly across different hospitals under the same management.

(b) To evolve a software solution which is built around a well defined costing algorithm and to generate hospital specific cost reports, incorporating healthcare Key performance indicators like Average realization per patient, bed occupancy rate survival rate, etc. etc

(c) To evolve a system which will consolidate the cost reports across various hospital locations and helps the Management Accounting team to draw inferences on cost comparisons across locations, trends and relative profitability.

Accounting of Resources used and computing costs plays a key role in cost management in a health care industry.

Designing Costing System in hospitals

In healthcare industry, the costs are identified to Main medical dept Costs, Medical support dept costs, and non medical services dept costs .Further they are sub classified as Direct costs, Indirect Costs / Overhead Costs. The patients are billed for each activity / procedures performed on him/her. It is therefore imperative to identify the cost of each activity/ procedure to have efficient cost accounting and profitability analysis systems in a hospital. Traditional method of apportionment of costs to respective depts. shall discount the intensity of services in respective depts. (Instead this can be managed

by giving weight age to the departments). However ABC method would be the most appropriate method of identifying the cost to respective depts.

Capacity percentage used in the context of service industry like health care is expressed as the amount of time that the resources are kept occupied say no of beds kept occupied in given period. No of hrs employees render service against the available period, time usage of each resource as against its total availability period. Capacity used percentage can be worked out for each resource. However, overall capacity used percentage is expressed as the quantum of services rendered as against the overall capacity available in the hospital

The type of cost model practiced will vary from hospital to hospital depending on the size of such hospital and the extent of the capacity being used. Typically the depth of cost model is made according to the size of the hospital such as small, medium and large ones.

For small hospitals where the degree/no of services rendered are minimal, variable cost approach would be an ideal one since the fixed overhead shall be kept at minimal level. However for medium and large hospitals total cost approach would be appropriate since there is a large overhead portion involved in the non medical services depts.

A broader view of costing process to be adapted in a hospital

1. Break down the revenue streams from different services
2. Break down the costs to different cost centers & map costs to activities
3. Match the revenues with costs using the activity links
4. Remove non cost items like discretionary costs, sunk costs
5. Remove non operating revenues like interest received, miscellaneous income
6. Add risk premium to cover inherent risks in the project
7. Identify and quantify cost drivers
8. Match cost pools with suitable cost drivers
9. Decide on suitable allocation keys and apportion costs to objects
10. Compare cost of each service group with revenues generated and arrive at profitability

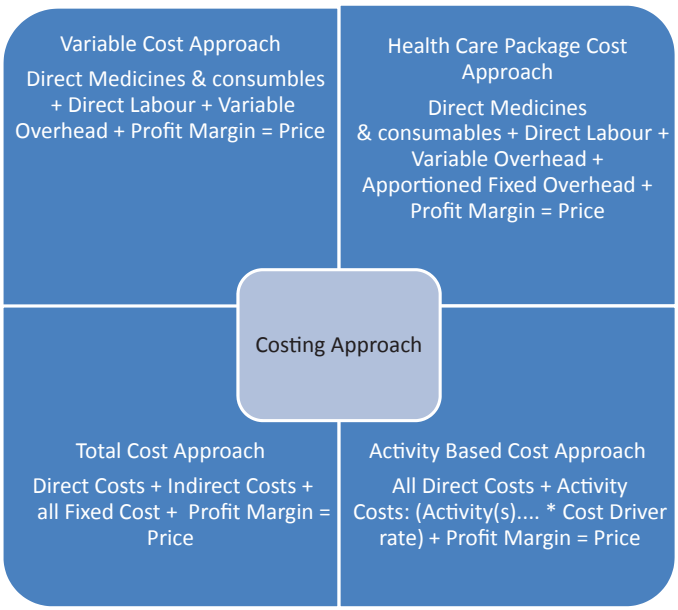
Following cost models can be practiced depending on the size and policy

A. Variable Cost Approach

B. Total Cost Approach

C. Health Care Package Cost Approach

D. Activity Based Cost Approach



Each approach is explained as follows

A) **Variable Costing Approach:** Here all variable costs are traced to respective procedures /operations via accounting process namely cost centre model .This is for both medical and medical services departments. Mark up is added (based on management policy) to such variable cost to arrive at the billing costs. This is because the cost of non medical support services would be kept minimal due to direct interaction of management on day to day activities. This is applicable for small hospitals.

B) **Total Cost Approach:** Here the direct costs are traced to respective procedures/ services (including medical support services departments) and then non medical support services costs usually called as overhead costs are identified to activities are then added on to the respective services. In addition the cost of fixed resources

in the form of fixed cost has to be clubbed with the above cost to arrive at total cost.

C) **Health Care Package Cost Approach :** Here the patient is advised with estimated costs /price for a procedure/for a list of services needed for the patient After the completion of the procedure he will be provided with actual price with cost details .In this approach all costs that are incurred exclusively for a patient is assigned and then end to end cost is computed after adding a portion of apportioned fixed overhead in the name of administrative charges -as applicable to respective patient.

D) **ABC method:** Here the resources costs are assigned through activities;

- Direct Cost Collected through respective cost center
- Activities are identified for each of the services rendered;
- Cost drivers for each of the activity are determined;
- Cost is accumulated for each activity according to the cost drivers;
- Assignment of cost to the activities is done based on cost driver.

The actionable points for above cost models are narrated below.

The first step is: to identify the following

1. Main medicals depts. such as General medicine, Gynaecology, Cardiology Ortho, etc.
2. Medical support dept such as Operation theatre, laboratory, blood bank, pharmacy, radiology etc., etc.
3. Non medical service dept such as Medical records dept, Administration, accounts and finance, IT, purchases and so on

Second step is: Each of the above dept is assigned a cost centre name. Each cost centre shall have many work centres such as diagnosis work centre, investigative work centre, preparatory work, preoperative ward work centre etc and each work centre shall have a sequence of activities such as inspection, counselling for further procedures, difference medical activities till the completion

Third step is: As and when the activities happen the costs are captured in respective

cost centres. Once captured, the cost for respective centres can be pooled to get the total cost of that cost centre.

Fourth step is: This could be to find out the total quantum of services rendered in respective cost centre/work centre and the total costs are divided by the no of activity services rendered to arrive at cost per service or cost per activity.

Fifth step: The next course of action is to identify the resources used in the main cost centre (here it is medical departments) from the service departments (here it is medical support departments) and non medical service departments and the costs are absorbed to that cost centre based on the no of units of services rendered.

The final cost object decides the matrix of cost collection and final costs. Following are a few suggested cost object that can be used as final cost object

1. Cost per Bed/day (Sample cost sheet displayed in subsequent pages)
2. Cost per patient
3. Cost of each department (cost collectible from respective cost center bookings)
4. Cost per standard procedure/treatment/package (sample cost sheet displayed in subsequent pages)
5. Cost for a service activity (cost workable based on ABC method)

Salient features in the costing process

1) Identification of departments in to medical (primary cost center) medical support (secondary cost center) and Non medical (i.e.) service departments (tertiary cost centers). It will be prudent to follow the principle of case mix groups where in homogeneity is the criteria for classifying the medical departments.
2) Maintaining the number of departments to the minimum levels is desirable.
3) Fixing Primary and secondary and tertiary cost centres among the departments.
    a) Primary cost centres are those where in cost can be segregated directly and the revenues are Identifiable.

b) Secondary cost centres are those (medical support) depts. wherein they play a dual role of both a profit center as well as cost center. Eg Scanning , blood bank This is because, medical support dept renders services both for inpatients as well as outpatients and also for walk in patients.

c) Tertiary cost centres are those where in costs have to be accumulated and distributed among the primary and secondary cost centres.

4) Identifying the cost drivers within each cost centre. This is important in accumulating the costs though respective cost drivers. For example while Operation theatre complex is a cost centre, the Operation hrs is a cost driver.

5) Identify within medical and clinical departments, department which generate revenues as well support other revenue generating department (Secondary Departments). For example Lab generates direct income as well as supports other medical departments as part of various packaged products.

6) The costs of non medical service departments are to be apportioned among the medical and clinical departments. Ex: Costs of housekeeping, laundry, boiler, AC maintenance etc.

7) Analyzing and arriving at appropriate basis for allocation and absorption of costs of medical and non medical service departments is to be done.

8) Patient is taken as the unit of costing.

9) Resources consumed by the patient are identified for every procedure. It could be from Average Length of stay (for cost of room, nursing care laundry expenses and diet food where ever applicable) medicines, materials and doctors fee etc.

Certain Key Issues involved in costing under various methods are given.

a) Apportionment/allocation of indirect cost.

Most of the service departments are interdependent on each other. It is difficult to arrive at basis of apportionment of costs accurately since multiple departments

are involved and crisscross use of resource will be there and hence data capturing will be relatively challenging.

For example, when a ward is used by multiple specialties, the costs accumulated at the ward level are apportioned among the user departments based on patient service days. However, the intensity of cost incurred by a patient who may stay for lesser days than another is not captured. Hence we try to use Resource Intensity Weights to each type of specialty for the length of stay of the patient

Assigning Resource Intensity Weights to the basis will even out the differences during apportionment process.

b) Selection of Time Horizon.

Selection of time horizon for the costing can have impact on cost of services in different ways.

1. The behaviour of certain costs could change with time.
2. The time horizon will also decide which cost should be included or not. The costs which remain fixed will change with time frame over a longer period.
3. The costs which are measured should be incurred in the same time period.

c) Difficulty in estimating and identifying costs where multiple services are rendered to a customer.

Many times, when multiple procedures are performed on a patient, the data is known by the major procedure. This poses difficulty in identifying and allocating costs.

d) On Package Costing and Costing Procedures.

Package costing has to take in to account the costs of different procedures from different departments involved in a package. This again involves costing of each department under which these procedures are covered.

e) Key aspects in micro costing to be considered.

1) Define standard procedures under OP, IP and day care with all components of services like stay (for IP and day care), materials, medicines, doctors' fee and investigations etc.

2) Determine the unit of service mostly per intervention or per patient.

3) Patient specific consumption of resources or such units of services have to be captured.

4) Trace indirect cost applicable to the respective department under which the procedures are covered and apportioning these to procedures.

5) Trace patient specific direct costs.

6) Measuring all costs in terms of units of service defined earlier.

7) Finding Capacity utilisation for following indicative areas

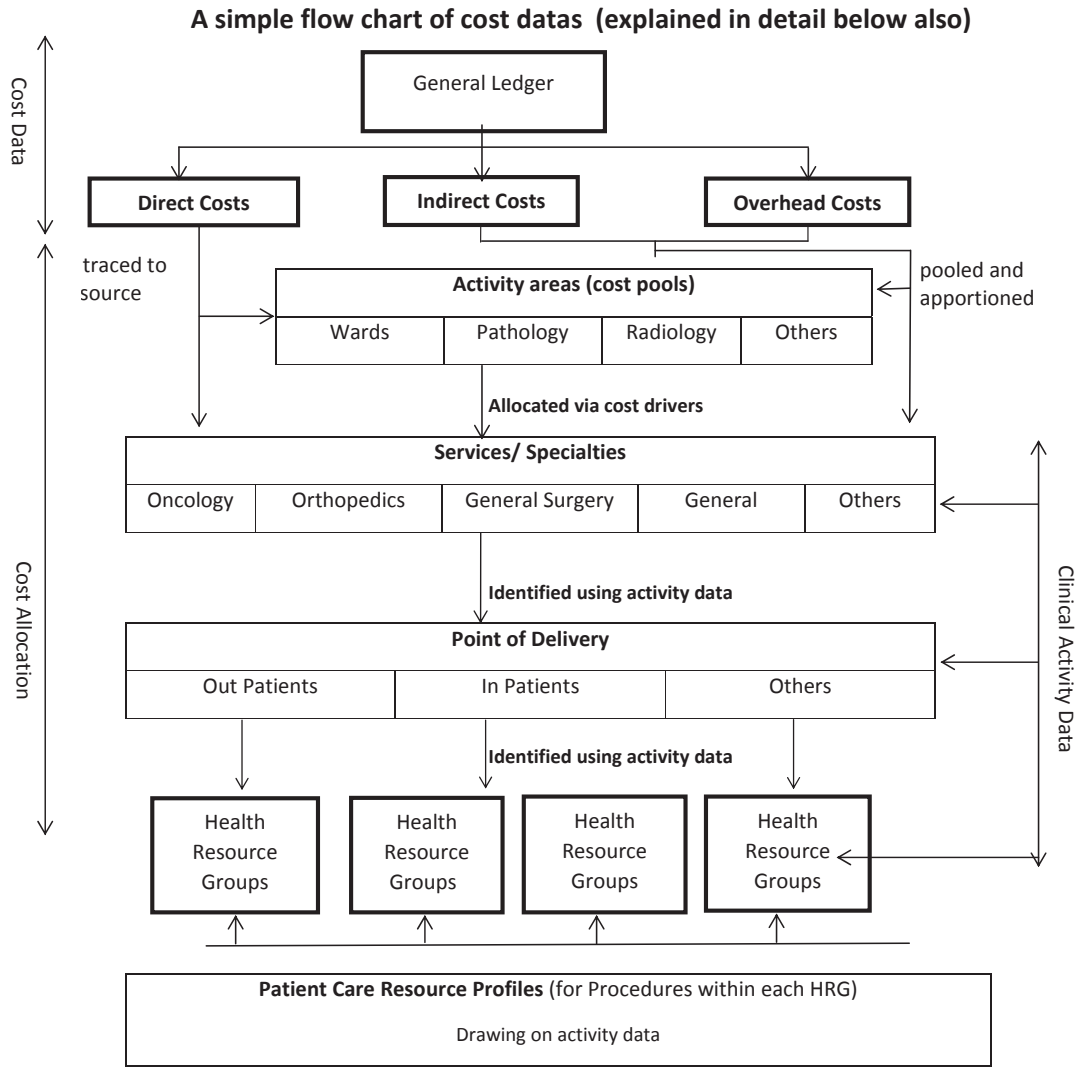
   a) Labs and diagnostic divisions.

   b) OT complex.

   c) Wards.

   d) Utilities like laundry and air-conditioning etc.

   e) All other medical equipments.



Cost Data Capturing Mechanism in above Flow Chart

(Posting screen in the accounting pack has to capture each of the expenses in a separate field).

Once the costs are captured as below, then it is grouped/assembles/collected / summarised, it can be tabulated in a matrix format with several dimensions such as cost centerwise/job wise/ patient wise/activity wise /work center wise /and then considered for apportionment on suitable basis for respective cost object

As and when the expenses are incurred, the same is to be identified /traced to the following heads and then posted in books of accounts in respective filed on the screen

a. Location

b. Account /code or description

c. cost center identification (either Medical, (including medical procedure grouping) medical support or non-medical(service) This is required to find which dept has incurred how much cost

d. Work center (example front office/ day care/ OP/IP)

e. Activity (consultation, diagnosis/ dressing/ testing/ counselling)

f. Patient (if identifiable to a patient and for patient level costing)

g. Job or activity (example dressing/ consultancy/ diagnosis/curing / observation)

h. Employee/employee/ vendor /vendor group / location

i. Work order (example procedure or procedure group)

j. OP or IP (example Out patient /inpatient/ nursing/ ward (For activity costing))

k. Ward name (general, single, double, multiple, duplex, luxury etc)

A few example of each of above heading are given (list is only illustrative and not exhaustive)

Account heads (General ledger) to be grouped as direct costs/Indirect costs and overhead costs elements

a. Medicines (further classified as imported, indigenous, subsidised etc)

b. Medical consumables

c. Direct utilities such as

   i. Oxygen

   ii. Nitrogen

   iii. Others life saving gases

d. Power and fuel

e. Salaries (further categorised as Surgeons, Drs, nurses, para medical staffs, workers, helpers etc)

f. All direct costs (one account head for each cost element –these costs can be directly allocable to respective cost center)

g. All indirect costs/overheads (one account head for each cost element) after posting to respective cost center, these costs are apportionable to other cost center /activities.

Cost center identification (here the costs are directly allocated to respective cost centers)

h. For medical departments (one cost center for each medical dept) called as primary cost centers

i. Cardiology dept

ii. ENT dept

iii. Coronary care dept

iv. Paediatric dept

v. Neuro dept

vi. Gynaecology

vii. Patholog

For Medical support department (secondary cost centers)

Here revenue bookings also happens due to dual role of such cost center

viii. Pharmacy

ix. Laboratory

x. Wards

xi. Imaging

xii. Blood bank

xiii. Operation theatre with several grades OTs

xiv. CSSD (central sterile services dept)

xv. Nursing (day care, OP, IP, Others)

i. Service depts. (Tertiary cost centers or service cost centers) After the costs are collected, then it is apportioned to respective cost on suitable basis – Illustrative basis explained in allocation practices table given in this guidance note elsewhere

i. Investigation

ii. Transport (patient/non patient)

iii. Laundry

iv. Patient catering

v. Records management

vi. Mortuary

vii. Charity services

viii. Purchase

ix. Stores

x. Costing/Accounts /IT etc

j. E.g. of a few procedures for various depts. (medical primary and secondary cost centres) are as follows

1. Cardiology medical dept (as one cost center)

a. Aortic endarterectomy

b. Insertion of automatic implantable cardioverter

c. Insertion/replacement of pacemaker

d. Coronary artery bypass grafts and angiogram

e. Valve surgery

f. Valve replacement

g. Open heart surgery

2. Neurology dept (another medical cost center)

a. Cervical procedure

b. Thorasic procedure

c. Lumbar procedure

3. Imaging (as medical support cost center)

a. Scanning procedures

b. Ultra sound procedures

c. Intravenous treatment cum scanning procedures

Sample cost sheet for the cost object "Cost per bed /day " according to bed occupancy levels

The amount is collectible from respective cost center (numbers are illustrative)

Rs/ month

Cost center or Account name	Total Amt Rs	IP Services Rupees	OP Services Rupees
Nursing	1,252,628	1,252,628	
IP Services	1,206,199	1,206,199	
OP Services	240,557		240,557
Billing	87,588	87,588	
In-house	88,050	83,648	4,403
Laundry	21,925	21,925	
Tailoring	88,119	83,713	4,406
Hospital Admin.	547,505	547,505	
Doctors Fee	440,734	418,697	22,037
TOTAL	3,973,304 Rupees	3,701,903 Rupees	271,402 Rupees
Total IP Services Area in Sft		56594 Sq Feet	
Cost per day (Rs 3,701,903/30 days)		123,397 Rs per day	
Cost per Sft (Rs 123.397/56594)		2.18 Rs per sq feet	

Cost per day per bed

Cost Rs /sq feet at respective bed occupancy levels			Bed Occupancy % and Rs per bed			
			2.18	**2.73**	**3.11**	**3.63**
Room Type	No. of beds	Sft per Bed	at 100%	at 80%	at 70%	at 60%
Super Deluxe	8	582.66	1,270	1,588	1,815	2,117
Delux	7	517.92	1,129	1,412	1,613	1,882
Single & Critical Area	93	304.29	663	829	948	1,106
Sharing	57	275.14	600	750	857	1,000
Cubicle	12	210.40	459	573	655	765
General Ward	20	90.00	196	245	280	327
Total No of beds	197					

Cost collection mechanism:

1. Direct Costs (such as medicines, pharmacy stores, consumables,oxygen etc) incurred are collected in respective primary cost centers such as medical departments and also to secondary cost centers namely Medical services dept cost center.
2. Indirect cost elements (such as power, salaries, are also collected in respective primary /secondary /tertiary cost centers such as medical /medical support depts./service).
3. Service cost center cost elements are apportioned to medical and medical support cost centers on suitable /applicable basis (Illustrated basis is given in this guidance note elsewhere).
4. Other fixed costs are charged to each medical procedure based on the no of hrs for respective procedure.

The Procedures conducted in each medical and medical support depts. are listed out and each procedure is assigned with the work content in terms of no of hrs work .(this is because each procedure will involve different skills and resource contents). In addition to above, weight age is given for each procedure so that all procedures can be equated for arriving at total equivalent procedures conducted in a given period. The work content of the procedures (after giving due weight age) are summed up and such summed up

hrs is taken as denominator for arriving at cost per equivalent unit procedure This cost per equivalent procedure is then applied to respective procedures Gross hrs to arrive the gross cost per procedure.

Sample cost sheet for a Medical package:

	Rs
Consumables	xxxx
Pharmacy	xxxx
Investigations	xxxx
Doctors Fees	xxxx
Nursing Charges	xxxx
Other employee costs	xxxx
Accomodation costs	xxxx
Equipment Usage	xxxx
Maintanance	xxxx
Other Direct Expenses	xxxx
Total Direct cost	xxxx
Administrative costs	xxxx
Total costs	xxxx

Sample cost sheet for a patient (Patient level costing)

Patient-level costs are calculated by tracing expenses actually incurred to a patient and other costs associated on such a patient incurred by the organisation in providing a service. This patient level costing measures the costs of delivering care at the level of individual patient.

In this method , each patient is assigned with an identification code (similar to account code). Whatever expense such as medicines, consumables, Dr consultation fees ,amortised cost of other resources such as other consumables , and all those costs that are directly incurred on the patient is charged /collected to that identification code. The sum up will be direct costs and indirect costs that are attributable to that patient. In addition to above, each patient is charged with General overhead costs, such as administrative costs based on Activity Based costing rate (ABC rate).

(A sample cost sheet is provided at the end of this guidance note.)

8. COSTING SUMMARY TEMPLATE FOR SEVERAL PROCEDURES

(This is made for each location in the company)

The Name & Type of procedures has to be as per the classification prescribed by MOHFW and as per returns submitted by the Hospital.

Part I	Treatment Details (Quantity and Others)		Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others -list to extend	Total
	Package (MOH & FW/ICD….									
	Type of procedures (which are billable to the patient shall be given.)									
	No of Procedures	Nos								
	Hospital stay Details (Patient Days)	Patient days								
	OPD Visits									
	-Consultation	Nos								
	-Investigations	Nos								
	-Procedure	Nos								
	Casualty									
	-Consultation	Nos								
	-Investigations	Nos								
	-Procedure	Nos								
	IPD Visits									
	-Ward Days (General/ Special/Daycare)	Patient days								
	-ICU/CCU Details	Patient days								
	-Post Operative Ward Details	Patient days								
	-Step Down Ward Days	Patient days								
	OT Details									
	-Major	Patient Hrs								
	-Minor	Patient Hrs								
	-Speciality Lab	Patient Hrs								
Part II	**Cost Elements for a procedure**	**Reference**								
		Rupees								

1	All Direct Costs --->	XX	XX	XX	XX	XX	XX	XX	XX	XX
1.1	Pharmacy Costs	Schedule A								
1.2	Consumables & Implants	Schedule B								
1.3	Other direct costs like oxygen etc									
2	**Direct Employees Cost**	Schedule C								
3	**Operation theatre costs**	Schedule D								
4	**Investigations**	Schedule E								
4.1	LAB									
4.2	Radiology and Imaging									
5	**Blood Bank**	Schedule F								
6	**Room /Bed Costs**	Schedule G1								
6.1	For single occupancy									
6.2	For Double occupancy									
6.3	For multiple occupancy									
7	**Intensive care Unit ICU**	Schedule G								
7.1	Pre OP Ward (General/Special/ Daycare)									
7.2	Post OP Ward (General/Special/ Daycare)									
7.3	Critical care Unit CCU									
7.4	Others									
8	Health Care Support (Non medical)Services	Schedule H								
9	Hospital Administration Overheads	Schedule I								
10	Other Costs	XXXX								
	Total costs	Xxxxxxxx								
	Revenue --->									
	Margin ---->									

Costing Template- Summary

Schedule A		Rs.Lacs/Thousands							
Pharmacy Costs		Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
Particulars									
Pre OP									
Imported Material									
Indegenous Material									
Post OP									
Imported Material									
Indegenous Material									
OT									
Imported Material									
Indegenous Material									
Others									
Imported Material									
Indegenous Material									
Total Costs									
Imported Material									
Indegenous Material									
Note: If the nomenclature used is different, please mention the same in brackets.									

Schedule B									
Consumables & Implants		Rs.Lacs/Thousands							
Particulars	Procedure	Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
Pre OP									
Imported Material									
Indegenous Material									
Post OP									
Imported Material									
Indegenous Material									
OT/Cath Lab									
Imported Material									
Indegenous Material									
Total Costs									
Imported Material									
Indegenous Material									
Note: If the nomenclature used is different, please mention the same in brackets.									

Schedule C									
Direct Employees Cost		Rs.Lacs/Thousands							
Particulars	Procedure	Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
Super Specialist									
Specialist									
Assistant/Attending/Resident									
Others									
Total Costs									
Note: If the nomenclature used is different, please mention the same in brackets.									

Schedule D

OPERATION THEATRE			Rs.Lacs/Thousands						
Particulars	Procedure	Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
MAN POWER									
Employees									
-Nursing									
-Non Nursing									
MATERIALS									
General Consumables									
MACHINERY									
Depreciation									
Maintenance									
EXPENSES & UTILITIES									
EXPENSES									
Non-medical Furniture									
AC									
Fumigation									
UTILITIES									
Building									
Power consumption									
OTHERS									
TOTAL COST									

Note: If the nomenclature used is different, please mention the same in brackets.

Schedule E

Investigation			Rs.Lacs/Thousands						
Particulars	Procedure	Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
Lab									
Manpower									
Materials									
Consumables & Implants									
Utilities									
Expenses									
Others									
Total Cost									
Radiology									
Manpower									
Materials									
Utilities									
Expenses									
Others									
TOTAL COST									

Note: If the nomenclature used is different, please mention the same in brackets.

Schedule F

BLOOD BANK			Rs.Lacs/Thousands						
Particulars	Procedure	Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
Manpower									
Consumables									
Equipments									
Non Medical furnitures									
Power consumption									
AC									
Building									
TOTAL COST									

Note: If the nomenclature used is different, please mention the same in brackets.

Schedule G1
Room /Bed costs
No. of Patients-------->

	Rs.Lacs/Thousands								
Particulars	Procedure	Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
Nursing									
IP Services									
OP Services									
Billing									
Inhouse									
Laundry									
Tailoring									
Hospital Admin.									
Doctors									
TOTAL									
Total IP Services Area Sft									
Cost per day									
Cost per Sft									

Schedule G

PreOperative& PostOperative Ward			Rs.Lacs/Thousands						
Particulars	**Procedure**	**Ortho**	**Neuro**	**Trauma surgery**	**Poly trauma**	**Emergency surgery**	**General surgery**	**Others - list to extend**	**Total**
MAN POWER									
Employees									
-Nursing									
-Non Nursing									
-Duty Doctors									
Others									
MATERIALS									
Consumables									
MACHINERY									
Depreciation									
Maintenance									
Others									
EXPENSES & UTILITIES									
EXPENSES									
Non-medical Assets									
AC									
Food									
UTILITIES									
Building cost									
Power consumption									
OTHERS									
TOTAL COST									

Note: If the nomenclature used is different, please mention the same in brackets.

Schedule H

Health Care Support (Non medical)Services		Rs.Lacs/Thousands							
	Rupees	**Ortho**	**Neuro**	**Trauma surgery**	**Poly trauma**	**Emergency surgery**	**General surgery**	**Others - list to extend**	**Total**
CSSD (Central Sterile Services Department)									
MRD									
MEDIA CO-ORDINATION									
DIETITICS									
ADMISSION and discharge									
BIO MEDICAL WASTE									
AC PLANT									
SECURITY									
HOUSEKEEPING									
MAINTENANCE									
GENSET POWER BACK UP									
ELECTRICITY									
LAUNDRY									
SOCIAL SERVICE DEPT - SAPNA									
COMPUTERIZATION FACILITY									
STORES									
CCTV									
KITCHEN									
IN HOUSE TRAINING CENTRE									
Others									
TOTAL									

Note: If the nomenclature used is different, please mention the same in brackets.

Schedule I Hospital Administration Overheads	Rupees	Rs.Lacs/Thousands Ortho	Neuro	Trauma surgery	Poly trauma	Emergency surgery	General surgery	Others - list to extend	Total
FINANCE & ACCOUNTS									
PARKING									
TRANSPORT									
CAFETERIA									
OPERATIONS & ADMINISTRATION									
FINANCE & ACCOUNTS									
BIO METRIC									
COMMUNICATION									
BUILDING COST									
Marketing									
NON MEDICAL FURNITURE(INDIRECT)									
SOLAR HEATING									
Accredition									
Others									

Note: If the nomenclature used is different, please mention the same in brackets.

Costing Template- Procedurewise

The Name & Type of procedures has to be as per the classification prescribed by MOHFW and as per returns submitted by the Hospital

Part I	**Treatment Details (Quantity and Others)**	
	Package (MOH & FW/ICD….	
	Type of Procedure	
	No of Procedures	
	Hospital stay Details (Patient Days)	
	OPD Visits	
	-Consultation (Nos.)	
	-Investigations	
	-Procedure	
	Casualty	
	-Consultation	
	-Investigations	
	-Procedure	
	IPD Visits	
	-Ward Days (General/ Special/ Daycare)	
	-ICU/CCU Details	
	-Post Operative Ward Details	
	-Step Down Ward Days	
	OT Details	

	-Major	
	-Minor	
	-Speciality Lab	

Part II	**Cost Elements for a procedure**	**Reference**	
		Rupees	**Cost Rs per procedure**
1	All Direct Costs ----->	XXXX	x
1.1	Pharmacy Costs	Schedule A	x
1.2	Consumables & Implants	Schedule B	x
1.3	Other direct costs like oxygen etc		
2	Direct Employees Cost	Schedule C	x
3	Operation theatre costs	Schedule D	x
4	Investigations	Schedule E	x
4.1	LAB		x
4.2	Radiology and Imaging		x
5	Blood Bank	Schedule F	x
6	Room /Bed Costs	Schedule G1	
6.1	For single occupancy		x
6.2	For double occupancy		x
6.3	For multiple occupancy		x
	Intensive care Unit ICU	Schedule G	x
7.1	Pre OP Ward (General/ Special/ Daycare)	XXXX	x
7.2	Post OP Ward (General/ Special/ Daycare)	XXXX	x
7.3	Critical care Unit CCU	XXXX	x
7.4	Others	XXXX	x
8	Health Care Support (Non medical) Services	Schedule H	x
9	Hospital Administration Overheads	Schedule I	x
10	Other Costs	XXXX	x
	Total costs	xxxxxxxx	x
	Revenue --->		
	Margin --->		

Schedule A		Rupees
Pharmacy Costs		
Particulars	Procedure	Total
Pre OP		
Imported Material		
Indegenous Material		
Post OP		
Imported Material		
Indegenous Material		
OT		
Imported Material		
Indegenous Material		
Others		
Imported Material		
Indegenous Material		
Total Costs		
Imported Material		
Indegenous Material		
Note: If the nomenclature used is different, please mention the same in brackets.		

Schedule B		Rupees
Consumables & Implants		
Particulars	Procedure	Total
Pre OP		
Imported Material		
Indigenous Material		
Post OP		
Imported Material		
Indigenous Material		
OT/Cath Lab		
Imported Material		
Indigenous Material		
Total Costs		
Imported Material		
Indigenous Material		
Note: If the nomenclature used is different, please mention the same in brackets.		

Schedule C		Rupees
Direct Employees Cost		
Particulars	**Procedure**	**Total**
Super Specialist		
Specialist		
Assistant/Attending/Resident		
Others		
Total Costs		
Note: If the nomenclature used is different, please mention the same in brackets.		

Schedule D		
		Rupees
OPERATION THEATRE		
Particulars	**Procedure**	**Total**
MAN POWER		
Employees		
-Nursing		
-Non Nursing		
MATERIALS		
General Consumables		
MACHINERY		
Depreciation		
Maintenance		
EXPENSES & UTILITIES		
EXPENSES		
Non-medical Equipments		
AC		

Schedule E		
		Rupees
Investigation		
Particulars	**Procedure**	**Total**
Lab		
Manpower		
Materials		
Consumables & Implants		
Utilities		
Expenses		
Others		
Total Cost		
Radiology		
Manpower		
Materials		
Utilities		
Expenses		
Others		
TOTAL COST		
Note: If the nomenclature used is different, please mention the same in brackets.		

Schedule F		
		Rupees
BLOOD BANK		
Particulars	**Procedure**	**Total**
Manpower		
Consumables		
Equipments		
Non Medical furnitures		
Power consumption		
AC		
Building		
TOTAL COST		
Note: If the nomenclature used is different, please mention the same in brackets.		

Schedule G1			
Room /Bed costs			
No. of Patients--------->			
Particulars	**IP Services**	**OP Services**	**Amount**
Nursing			
IP Services			
OP Services			
Billing			
Inhouse			
Laundry			
Tailoring			
Hospital Admin.			
Doctors			
TOTAL			
Total IP Services Area Sft			
Cost per day			-
Cost per Sft			
Note: If the nomenclature used is different, please mention the same in brackets.			

		Rupees
Schedule G		
PreOperative& PostOperative Ward		
Particulars	**Procedure**	**Total**
MAN POWER		
Employees		
-Nursing		
-Non Nursing		
-Duty Doctors		
Others		
MATERIALS		
Consumables		
MACHINERY		
Depreciation		
Maintenance		
Others		
EXPENSES & UTILITIES		
EXPENSES		
Non-medical Assets		
AC		
Food		
UTILITIES		
Building cost		
Power consumption		
OTHERS		
TOTAL COST		
Note: If the nomenclature used is different, please mention the same in brackets.		

Schedule H		
Health Care Support (Non medical)Services		
	Rupees	
CSSD (Central Sterile Services Department)		
MRD		
MEDIA CO-ORDINATION		
DIETITICS		
ADMISSION and discharge		
BIO MEDICAL WASTE		
AC PLANT		
SECURITY		
HOUSEKEEPING		
MAINTENANCE		
GENSET POWER BACK UP		
ELECTRICITY		
LAUNDRY		
SOCIAL SERVICE DEPT - SAPNA		
COMPUTERIZATION FACILITY		
STORES		
CCTV		
KITCHEN		
IN HOUSE TRAINING CENTRE		
Others		
TOTAL		
Note: If the nomenclature used is different, please mention the same in brackets.		

Schedule I		
Hospital Administration Overheads		
	Rupees	
FINANCE & ACCOUNTS		
PARKING		
TRANSPORT		
CAFETERIA		
OPERATIONS & ADMINISTRATION		
FINANCE & ACCOUNTS		
BIO METRIC		
COMMUNICATION		
BUILDING COST		
Marketing		
NON MEDICAL FURNITURE(INDIRECT)		
SOLAR HEATING		
Accredition		
Others		
Note: If the nomenclature used is different, please mention the same in brackets.		

BASIS OF ALLOCATION OF COST HEADS

CLASSIFICATION OF DEPARTMENT	DEPARTMENT	COST COMPONENT	BASIS OF ALLOCATION
MEDICAL SUPPORT	OT	Man power	Hours of surgery
		Consumables	Cost per surgery
		Equipments	No of Surgery
		Non medical furnitures	No of Surgery
		Power consumption	Hours of surgery
		AC	Hours of surgery
		Building	No of Surgery
	POST OPERATIVE WARD	Man power	No of days Stay
		Consumables	Cost per surgery
		Equipments	No of days Stay
		Non medical furnitures	Per day per bed
		Power consumption	No of days Stay
		AC	No of days Stay
		Building	No of days Stay
	LAB	Man power	Number of investigation in each department within the lab. Wherever technicians are dedicated, cost is allocated to that department
		Consumables	Number of investigation in each department within the lab. Wherever kits are used, based on number of tests per kit
		Equipments	Number of investigations done
		Non medical furnitures	Specifically identified & number of investigations done
		Power consumption	specific output calculation and number of hours for which the equipments are used
		AC	Number of hours for which AC is working & number of investigations
		Building	Proportionate area and calculation of common area
	RADIOLOGY	Man power	Number of procedures in each department within radiology. Wherever technicians are dedicated, cost is allocated to that department
		Consumables	Number of procedures in each department within radiology. Wherever materials are particular to a machine, cost allocated to procedures from such machine.
		Equipments	Number of procedures done
		Non medical furnitures	Specifically identified & number of investigations done
		Power consumption	specific output calculation and number of hours for which the equipments are used
		AC	Number of hours for which AC is working & number of investigations
		Building	Proportionate area and calculation of common area
	PHYSIOTHERAPHY	Man power	number of sessions per patient
		Consumables	Generally does not arise
		Equipments	Not applicable for this surgery though there are equipments in the department
		Non medical furnitures	Specifically identified & number of investigations done
		Power consumption	specific output calculation and number of hours for which the equipments are used. Only normal electrical fittings and appliances are considered for this surgery
		AC	Number of hours for which AC is working & number of sessions
		Building	Proportionate area and calculation of common area
	BLOOD BANK	Man power	number of bags
		Consumables	number of bags
		Equipments	cost allocated by number of bags
		Non medical furnitures	specifically identified & number of bags
		Power consumption	specific output calculation and number of bags
		AC	number of hours for which Ac is working and number of bags
		Building	Proportionate area and calculation of common area

CLASSIFICATION OF DEPARTMENT	DEPARTMENT	COST COMPONENT	BASIS OF ALLOCATION
	PHARMACY	Man power	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		AC	Cost per day per bed
		Building	Cost per day per bed
	WARD	Man power	No of days stay
		Consumables	No of days stay
		Non medical furnitures	No of days Stay
		Building	No of days Stay
SERVICES INHOUSE	ADMISSION	Man power	Cost per admission per day
	CSSD	Man power	Cost per hour
		Material	Cost per hour
		Equipments	Cost per hour
		Power consumption	Cost per hour
		Non medical furnitures	Cost per hour
		Building	Cost per hour
	CCTV	Man power	Cost per day per bed
		Equipments	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		Power consumption	Cost per day per bed
	IT	Man power	Cost per day per bed
		Materials	Cost per day per bed
		Equipments	Cost per day per bed
		Power consumption	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		Building	Cost per day per bed
		Ac	Cost per day per bed
	FIRE SAFETY	Man power	Cost per day per bed
		Machinery	Cost per day per bed
		Non medical furnitures	Cost per day per bed
	FINANCE & ACCOUNTS	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		Building	Cost per day per bed
	OPERATIONS & ADMIN	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		Ac	Cost per day per bed
		Building	Cost per day per bed
	MAINTENANCE	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical furnitures	Cost per day per bed
	PURCHASE & STORES	Man power	Cost per day per bed
		Material	Cost per day per bed
		Equipments	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		Building	Cost per day per bed
	HUMAN RESOURCE	Man power	Cost per day per bed
		Material	Cost per day per bed
		Non medical furnitures	Cost per day per bed
	MRD	Man power	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		Building	Cost per day per bed
	HOUSEKEEPING	Man power	Cost per day per bed
		Materials	Cost per day per bed
		Equipments	Cost per day per bed
		Non medical furnitures	Cost per day per bed
		Building	Cost per day per bed
	COMMUNICATION EXPENSES	Communication Exp	Cost per day per bed
		Equipments	Cost per day per bed
SERVICES OUTSOURCED	DIETICS	Man power, materials, equipments, expenses	Cost per day per bed
	LAUNDRY	Man power, materials, equipments, expenses	Cost per day per Bed
	SECURITY	Man power, materials, equipments, expenses	Cost per day per bed
INDIRECT COST	UPS	Man power, materials, equipments, expenses	Cost per day per bed
	GENSET POWER BACKUP	Man power, materials, equipments, expenses	Cost per day per bed
	SOLAR HEATING	Man power, materials, equipments, expenses	Cost per day per bed
	BIO MEDICAL WASTE	Man power, materials, equipments, expenses	Cost per day per bed
	WATER UTILIZATION	Man power, materials, equipments, expenses	Cost per day per bed
	BIO METRICS	Man power, materials, equipments, expenses	Cost per day per bed
	BUILDING COST	Man power, materials, equipments, expenses	Cost per day per bed
	NON MEDICAL FURNITURE	Man power, materials, equipments, expenses	Cost per day per bed

9. REVENUE STREAMS IN A HOSPITAL INDUSTRY

Revenue stream refer specifically to the individual methods by which income flows into a hospitals. Revenue stream may be characterized on the basis of Volatility, predictability, risk and return. The hospital is business concerned with revenue like any other business. The flow of revenue affects shown in Figure given below not only how patient care is delivered but also the financial and market health of the hospital itself. There are qualitative and quantitative factors which play very influential role in revenue generation stream as mentioned below.

Quantitative Factors		Quantitative Factors	
a)	Degree of Advanced medial Equipments'	a)	No. of patient
b)	Compliances of Critical Cases	b)	No. of beds
c)	Types of services hospital offers	c)	Capacity occupancy level per day
d)	Frequency of Use of services	d)	Capital Cost

Hospital Revenue are broadly classified into the following groups and hence Revenue center& cost pools are also classified in the same manner:

(I) Medical Services (Revenue stream –Profit centres)

(II) Medical support service departments. (Partly revenue (profit center) and partly expense stream (cost center))

Revenue Generation Stream Chart

Out Patient Revenue

A) Medical Services

- Consultation Fee
- Cardiology Services
- Injection & Immunization Charges
- Neurology
- Casualty
- Day Care
- Master Health Check-up
- Diabetology
- Ambulatory Care
- Dialysis
- ENT Services
- Endoscopy
- Colonoscopy& Etc.

B) Medical Support Services

- OP Registration Charges
- Lab Services
- Radiology Services
- Blood Bank services
- Diet Counseling
- Physiotherapy
- Ambulance Services

In-Patient Revenue

A) Medical Services

- Doctor's Fee
- Surgeon Fee's
- Neurology Services
- Surgeon Charges
- Operation Theatre Charges
- Anaesthecian Charges
- Baby Cradle Charges
- Implants Charges
- ICU Charges
- Special Nursing Charges
- Nursing Charges

B) Medical Support Services

- Admission & Documentation
- Lab Services
- Radiology Services
- Room Rent Charges
- Medical Counselling
- Medical legal Charges
- Blood Bank Charge
- Oxygen Charges
- Mortuary Charges
- Surgery / Procedure Charges
- Medical & Surgical Consumables

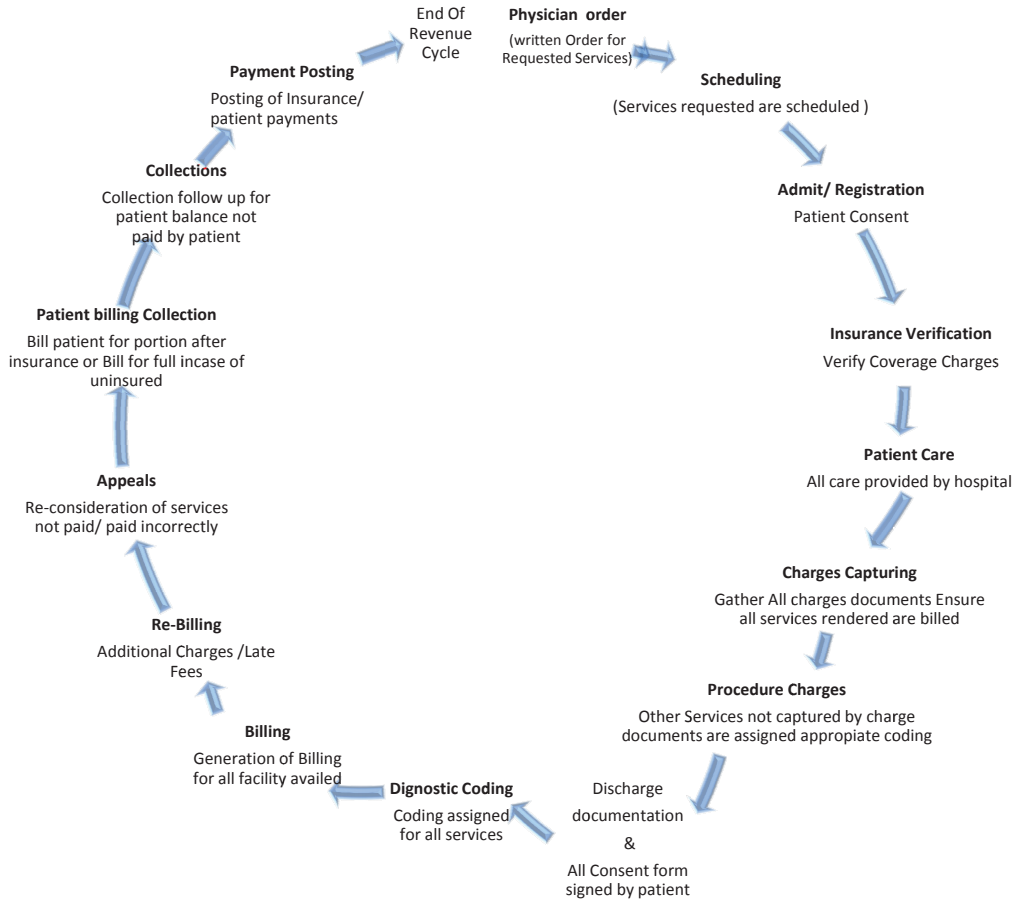
Pharmacy Income

- Out-Patient (O.P.) Pharmacy
- In-Patient (I.P) Pharmacy
- Trauma Center Pharmacy
- Rehabilitation Center Pharmacy

Other Operational Income

- Outsourced Pharmacy
- Outsourced Lab
- Infrastructure (IFS) Charges
- Telemedicine Consultancy

Overview of Billing Cycle in a Hospital



Inpatient means that the procedure requires the patient to be admitted to the hospital, primarily so that he or she can be closely monitored during the procedures and afterwards during recovery. Physician and hospital follow a specific set of clinical criteria (severity of illness and intensity of services needed to diagnose and treatment) that assist in determining whether a patient meets medical necessity for an "inpatient" status in hospital.

Outpatient means that the procedures does not require hospital admission and may also be performed outside the premises of hospital. It is commonly referred to patients who typically go to an outpatient department such as laboratory, radiology or the emergency department for diagnostic services.

Casualty is the part of hospital where people who are hurt in accidents or suddenly become ill are taken for urgent treatment. It is commonly known as Emergency.

Diagnostic services are a broad range of tests that are essential to the basis management of patient care, allowing physician to detect disease earlier, make diagnoses, prescribe therapies, and monitor patient result. Ultrasound, Biopsy, Cultural Test, Tonometry, etc.

Radiology services are the medical specialty that uses imaging to diagnose and treat diseases seen within the body. Radiologists use a variety of imaging techniques such as X-ray, radiography, magnetic resonance imaging (MRI), Computed tomography (CT scan), etc.

Anaesthesia means "Loss of Sensation". Medication that causes anaesthesia is called anaesthetics. It is used during tests and surgical operations to induce sleep, which prevents pain and discomfort and enables a wide range of medical procedures to be performed. Local anaesthetics and general anaesthetics are two commonly used types of anaesthetics.

Trauma center services are a hospital equipped and staffed to provide comprehensive emergency medical services to patients suffering from traumatic injuries. Traumatic injury is a disease process unto itself requiring specialized and experienced multidisciplinary treatment and specialized resources.

Rehabilitation services are designed to facilitate the process of recovery from injury. Illness or disease to as normal condition as possible. The purpose of rehabilitation is to restore some or all of the patient's physical, sensory, mental capabilities that were lost. It includes assisting the patient to compensate for deficit that cannot be reversed medically.

Ambulatory Care service is a personal health care consultation, treatment, or intervention using advanced medical technology or procedures delivered on outpatient basis. Many medical investigation and treatment for acute illness and preventive health care can be performed on an ambulatory basis including minor surgical and medical procedure.

Dialysis Services is a form treatment that replicates many of kidney's functions. It's often used to treat advanced chronic kidney disease (Kidney failure), where the kidney have lost most or all of their abilities. There are two types of dialysis – Haemodialys is and Peritoneal Dialysis.

Medical Counselling is a process or interaction by which a patient or person either lay or formally trained, helps one or more other persons help themselves and pro-actively or reactively changes their lives, often through introspective dialogues. Common types of medical counselling are genetic counselling, Lactation Counselling, Nutritional Counselling, Sexual counselling, preconception counselling.

Medical and Surgical Consumables is used for therapeutic treatment and cure purpose in hospital. These are not a pharmaceuticals and not re-usable.

OP Registration charges are levied when a patient comes to a hospital for the first time (New patient), he/she has to register his name with address and other basic particulars in the hospital. This process is called as Registration and allots a Registration Number (Hospital ID/UHID) to the patient. This Registration Number is required for easy retrieval of Medical Records of the patient in future. For this registration process, the hospital will charge a nominal amount as OP Registration charges.

Medical Legal Charges is a nominal amount is charged to the patients coming under medical legal cases (Like Road accident, Suicide, Murder/attempted to murder, Bitten by poisonous animal etc) in order to meet the court expenses.

Admission charges is charged when a patient is admitted as In-Patient for further course of treatment, the hospital will charge a nominal amount as Admission charges.

Medical Record/Documentation charges are a nominal amount charged by hospital for maintenance of Medical record and case history of the patient.

Infrastructure (IFS) charges are levied by certain hospitals at a % on the doctor fee payable to the visiting consultants towards the cost of providing infrastructure for consultation.

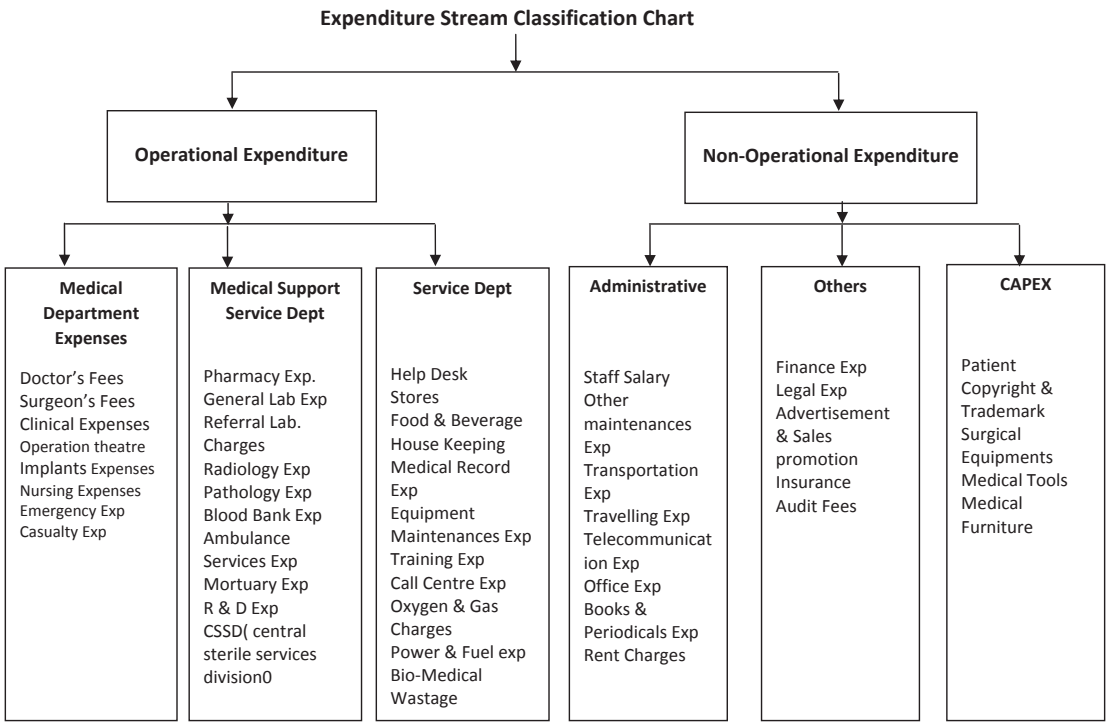
10. EXPENDITURE STREAMS IN A HOSPITAL INDUSTRY

The expenditure stream refers to incurrence of resources (Cash or kind)that is charged to expenses as soon as resources are consumed. By doing so, a hospital uses the matching principal to link the expenses incurred to revenue generated in the same period. In hospitals majorly expenses incurred in following departments:

(I) Medical Departments

(II) Medical Support Service Department

(III) Service Departments



Implants Charges are the charges incurred for the purchase of Implant or Implants Material for the In-house production of Implants used in Hospitals. An implant is a medical device manufactured to replace a missing biological structure, support a damaged biological structure, or enhance an existing biological structure. Medical implants are man-made devices.

R & D Expenses are spent by hospital in either medical science or engineering or the social sciences for humanities development with primarily "patient care" objectives. The expenses involved in such activities are called research and development expenditure.

Call Center services are provided as a one stop solution to patient and generally call center diagnoses and consult patient through telecommunication. Such services are also known as "Telemedicine" in modern science. The expenses involved in providing such services are call center Expenses.

Mortuary is a very important component of hospital temporarily preserves the dead bodies for a period. Postmortem and Autopsy are the major functions of Mortuary in Hospital. It involves altogether different sources of expenses which are specifically for mortuary.

Referral Laboratory Charges are incurred in Few lab tests (which are not available in the hospital/ for confirmation) may be sent to outside labs or as per the Doctor's instruction. Lab charges paid to such lab as per agreement are called Referral Lab Charges.

Consumables are 1. General store which are used by the hospital staff in ward and various department, It also includes material common to all patients but not billable (Used quantity are generally negligible or not measurable). 2. Surgical consumable used and billed to the patient are also grouped under consumables. 3. This does not include and material received on consignment basis like stents, catheters and implants.

Repair & Maintenance of building, Plant and Machinery, Medical Equipment, Vehicles, Non-Medical assets, this includes amount paid for Annual Maintenance Contract (AMC) for any asset mentioned above.

House Keeping Expenses: If the department is outsourced, entire expenses relating to department are booked under the respective accounts (Like consumables, depreciation, Electricity, Utility, etc.) in the books of the hospitals. Retainer Fees is paid to the outsourced agency depending on the agreement to manage the department. If outsourced agency runs the House Keeping Department with its investments inside the hospital premises, the hospital may reimburse the entire expenses incurred by the House Keeping and Retainer Fee is paid to the Agency depending on the agreement to manage department.

Oxygen, Life saving and other medical Gases expenses are incurred in purchase of such gases used for patient in Operation theatre or wards.

Blood Bank charges are incurred in purchase of blood from outside bank or in house blood bank running expenses and billed the patient as per protocol. Amount of such expenses are booked in this Account Head.

Medical Record and Scanning Charges are incurred to take soft copy of medical reports and other related documents of the patients as part of maintaining Electronic Medical Records (EMR) or medical case histories.

Ambulance expenses are incurred in running of ambulance or providing ambulatory care to out-patient.

CSSD: This is Central Sterile Services Division. Used and contaminated articles, equipments are sent from various depts. to this dept. These are collected at one place, cleaned, sterilised, stored in sterile condition till it is supplied to user dept In this division, all medical devices /instruments and usable shall undergo sterile treatment. This is one of the vital dept in hospital. It caters to the sterilisation needs of wards, operation theatre, and a host of other units. This CSSD is equipped with auto claves, gas sterilisers, Hot air ovens and other sterilising equipments. Steam from central boiler section is supplied to this CSSD for sterilisation purpose. One fourth of steam generated in a hospital will be consumed in this CSSD and also the steam cost is the major cost element in this dept.

11. MODEL INCOME & EXPENDITURE STATEMENT

(This is made at location wise and then finally rolled up to company level)

XYZ HOSPITAL

INCOME & EXPENDITURE STATEMENT FOR THE PERIOD ……

(Amount in Rupees)

	Particulars	Note No.	Current Year	Previous Year
	A. Revenue			
1	Revenue from operations	1		
2	Other Income	2		
	Total Revenue (A)			
3	**B. EXPENDITURE:**			
	Hospital Operative Expenses	3		
	Cost of Material Supplied	4		
	Employees Benefit Expenses	5		
	Finance Cost	6		
	Depreciation and Amortisation Expenses			
	Other Expenses	7		
	TOTAL EXPENDITURE (B)			
4	**Profit/(Loss) Before Tax (C)**	C=A-B		
5	**Tax Expenses**			
	a) Current Tax			
	b) Deferred Tax			
	Total Tax (D)	D		
6	**Profit/(Loss) after Tax**	C-D		

Notes forming part of financial statements 1-7

For and on Behalf of Board of Director

Chairman & Managing Director Director

Note 1
Income from Operations

(Amount in Rs.)

Particulars	Current Year	Previous Year
Out Patient (O.P.) Billing Income		
OPD Registration & Procedure Charges		
Treatment & Day Care Charges		
Doctor's Consultation Charges		
Casualty Charges		
Master Health Check-up Charges		
In- Patient (I.P.) Billing Income		
Treatment & Day Care Charges		
Doctor's Consultation Charges		
Operation Theatre Charges		
Intensive Care Unit Charges (I.C.U)		
Nursing Charges		
Emergency Charges		
Ambulance Charges		
Mortuary Charges		
Package revenue		
In- Patient (I.P.) Billing Income		
Out Patient (O.P.) Billing Income		
Trauma Centre Income		
Intensive Critical Care Unit Charges (I.C.C.U)		
Rehabilitation Charges		
Implants Charges		
Treatment & Day Care Charges		
Surgeon's Consultation Charges		
Operation Theatre Charges		
Nursing Charges		
Mortuary Charges		
Pharmacy Income		
Out-Patient (O.P) Pharmacy income		
In-Patient (I.P) Pharmacy income		
Trauma Centre Pharmacy Income		
Income from supply of Medicine		

Blood Bank Unit		
Out-Patient (O.P) Supply income		
In-Patient (I.P) Supplies income		
Trauma Centre Supplies Income		
Diagnostic Centre		
Out-Patient (O.P) Testing & Report Charges		
In-Patient (I.P) Testing & Report Charges		
Trauma Centre Patient Testing & Report Charges		
Traded Goods		
Income from supply of Implants Material		
Income from Eye Care & Optical Goods		
Income from supply of Medical Equipments		
Income from supply of Diagnostic Goods		
Other Operational Income:		
Income from outsourced Pharmacy		
Income from outsourced lab		
Income from Telemedicine Consultancy		
Total	-	-

Note 2
Other income (Amount in Rs.)

Particulars	Current Year	Previous Year
Income from Lease Medical & Surgical equipment		
Rent Income from operating Lease		
Training Charges		
Know-How Charges		
Infrastructure (IFS) Charges		
Food & Beverage income		
Car parking charges		
Interest Income		
Total	-	-

Note 3
Hospital Operating expenses

(Amount in Rs.)

Particulars	**Current Year**	**Previous Year**
Doctor's Visiting Fees	-	-
Surgeon's Visiting Fees	-	-
Medical Consultancy Charges (Outsourced)	-	-
Referral Laboratory Charges	-	-
Clinical Expenses	-	-
Medicines consumed	-	-
Oxygen & other Medical Gas Charges	-	-
Medical & Surgical Material Consumed	-	-
Purchase of Blood Bags	-	-
Pharmacy Expenses	-	-
Lab running Expenses		
Power & Fuel Expenses	-	-
Water Supply Charges	-	-
Lease rentals- Medical Equipments	-	-
Ambulance Running Charges		
Research & Development Expenses	-	-
Repairs to plant and medical equipment		
House Keeping Charges	-	-
Food & Brewage Charges	-	-
Repairs &Maintenance		
Rent		
Insurance - Building& Medical Equipments		
Other Operative Expenses		
Total		

Note 4

Cost of Material supplied /Traded Goods

(Amount in Rs.)

Particulars	Current Year	Previous Year
Implants	-	-
Medicine	-	-
Eye Care & Optical Goods	-	-
Medical Equipments	-	-
Diagnostic Goods	-	-
Total		

Note 5

Employee benefits expenses

(Amount in Rs.)

Particulars	Current Year	Previous Year
Salaries, wages & incentives - Surgeon's Salaries - Doctor's Salaries - Nurses' Salaries - Support Staff Salaries - Administrative & other Staff Salaries	-	-
Contribution to provident fund and other funds	-	-
Staff welfare expenses	-	-
Key man Insurance		
Total	-	-

Note 6

Finance Cost **(Amount in Rs.)**

Particulars	Current Year	Previous Year
Interest on Loans - Medical & Surgical Equipments - Land & Building - Vehicles	-	-
on working capital	-	-

Others	-	-
Total Interest	-	-
Other borrowing cost & Financial Charges	-	-
Foreign exchange fluctuation loss	-	-
Total	**-**	**-**

Note 7

Other Expenses **(Amount in Rs.)**

Particulars	**Current Year**	**Previous Year**
Travelling & conveyance	-	-
Rent – others	-	-
Audit Fees	-	-
Other repairs	-	-
Advertisement & sales promotion	-	-
Communication	-	-
Insurance others	-	-
IT expenses	-	-
Legal & professional fees	-	-
Training, recruitment and conference	-	-
Printing & stationery	-	-
Loss on sale of fixed assets	-	-
Fixed Assets written off	-	-
Provision for Doubtful Debts	-	-
Bank Charges	-	-
Miscellaneous	-	-
Total	-	-

Note: In practice, The Model Income & Expenditure Statement must be aligned with the requirement of Companies Act, 2013

13. INTEGRATING FINANCE AND COST ACCOUNTING SYSTEM IN HOSPITALS

The Financial Accounting info system Module deals with Cash/Bank, Receipt/Payments, Journal Voucher and General Ledger etc. Books like Cashbook, Bankbook and Ledger book can be generated. This module generates reports like Trail Balance, Balance Sheet and Profit and Loss statement. The Financial Accounting Screens describe about the Account Payable, Account Receivable and General Ledger. Also describe the activities related to IP, OP, Bank related activities and provision to clearing the Supplier Invoice and keep track of the Account Receivable and Revenue related activities. The services that are covered by the sponsor companies, Insurance Agencies, Family Accounts, Individual Accounts, sponsorship details of the patient, Health Care Insurance are recorded in the system.

In a hospital, the data flows are seamless and shall remain connected in a cris cross way among all departments. Hence the design of books of accounts shall be in such as way the data's shall be made available in all directions for any an individual or group of cost object and cost centres.

Two fundamental items of financial data needed by a hospital manager are allocated costs by cost centre (a program or department within a hospital) and the unit cost of hospital services. A unit of hospital services may be as small as one meal, or as broad as an entire inpatient stay.

A designed integrated accounting pack should enable the users and explains how to allocate costs by cost centre and how to compute unit costs. To perform these calculations precisely, the hospital needs an accurate and comprehensive financial and cost accounting system. In many hospitals, however, existing accounting systems have gaps, such as excluding some costs or lacking the data to relate the costs to specific cost centres. In such cases, estimates are needed. It is organized based on seven steps for computing unit costs, analysis of distinct health service costs and financing. The steps are:

1. Define the final service/product name as a revenue centre/cost centre.
2. Define revenue /cost centres. What all will be captured in each such revenue centre /cost centre

3. Identify the full cost for each input.
4. Assign inputs to cost centres.
5. Allocate all costs to final cost centres.
6. Compute total and unit cost for each final cost centre.
7. Reporting the results.

The best way to make this happen is the integration of data via ERP module. Accounting system in a hospital captures all those costs that are directly related to the medical and medical support services and non medical services. These costs are directly billable to the service users. The data capturing mechanism would be through cost centers, work centers and activities. The costs so collected shall become the total costs for a billable service. However, when the entire costs are summed and compared with that of financial statements -they may not get equated in total hence there always lies a gap between the two. Some of the reasons that are identifiable for the gap are listed below:

1. Litigation expenses of the hospital-not captured in costing.
2. Mortuary dept management costs.
3. Abnormal expenses- for repeated activities – this may happen due to incompletion and insufficient service levels.
4. Unabsorbed expenses in costs /billed services.
5. Unabsorbed Financing costs.
6. Abnormal items are that are not part of billable services
7. Prior period costs
8. Provisions that are not captured under cost heading such as provision for litigation contingencies
9. Loss on sale or purchase of assets
10. Bad debts

More than Cost & financial books integration, the Key performance indicators integration as shown in figure below is more essential to achieve desired goals in cost management accounting. It creates a sound management system for any organization to become Competitive, Profitable & Sustainable.

13. HOSPITAL MANAGEMENT INFORMATION SYSTEM

All information systems in a hospital can be grouped under

1. Administrative information system
2. Technical information system
3. Financial information system

Administrative Information System:

This encompasses all those information that are required to manage day to day administration of the hospital. However, statistical report of all this information are maintained in every hospital for various other info management aspects as well as for legal compliance related aspects. An illustrative list of Administrative info systems is as follows:

- Patient Registration Details
- Inpatient and Outpatient Registration
- Medical Alerts Details
- Appointment Scheduling (Patient / Doctor wise)
- Doctor's Schedule Summary
- Doctors Daily Schedule List
- Patient Visit History
- Medical Record Movements
- Appointments for Radiology tests and Operation Theatre
- Patient Visit Slip
- Sponsorship Details
- Patient related enquirers
- Bed Allotment
- Admission Details
- Demographic Details

- Payment Details and
- Discharge Details.
- Doctor related enquiries
- Availability Details
- OP Clinic Details
- Appointment Schedules
- Operation Schedules and
- Charge Details

Technical information system

This info system can be broadly classified as

1. Doctors' Management information system
2. Patient and related bio management info system
3. OPD and IPD management info system
4. Medicine stock management info system
5. Medical equipment performance measurement management
6. Utility information management

In addition to above classification, this system encompasses all those information that are required for a patient and patient related bio management such as

1. Patient Search with Various Search Strings
2. Patient Demographic Viewing
3. Previous Visit Details
4. Medical History of the Patient
5. Billing Details of Patient
6. Medical Alerts Details
7. Consultation Duty Roster

8. Diagnosis Details
9. Patient's Appointments
10. Daily / Weekly Schedule Summary
11. Appointment Scheduling / Rescheduling Facility
12. Outpatient Medical Observation Details
13. Investigation / Treatment History
14. Clinical Service Details
15. Doctor's Diagnosis Statistics

Financial information system.

This deals with all those information that are relevant for revenue streams and expense streams that are applicable to a hospital. In addition, this financial information system covers all those information that enable the management the best use of all resources such as fixed assets, inventory, employees, debtors and creditors and all other medical resources such as pharmacy, medical services departments. In addition to above, other Illustrative list of the accounting info system includes the following:

- Payment Modes / Details
- Sponsorship Conditions Details
- Patient Billing Details
- Package Installment
- Approval from Sponsor
- Company Sponsorship Details
- Package Registration
- Sponsor Verification
- Retroactive Processing
- User-defined Billing cycle
- Automatic Room and Board charges

- Recurring Ancillary charge capability
- Auto-generated Codes and Billing Criteria
- Provision for Pre-billing
- Extensive third-party billing

The inventory information system covers all financial data's on such inventory that enable the management to minimize the inventory without affecting the quality of stocks such as medicines ,consumables etc.

Each main Medical procedure function is dependent on medical support and in turn each of above are dependent on the infra structure services being provided by the service depts. Thus almost all the functions in a hospital are completely interwoven and remain integrated in the overall output/services of the hospital. The data flow remains seamless and hence capturing the data remains a big challenge to accountant in a hospital. Data availability and integrity plays a key role finding the sustainability of a hospital. Hence there is a necessity for a hospital to have a robust data collection centres such as accounts and statistics dept .Normally the accounting system provides the information. However, each information has to be read/interpreted in conjunction with the activities rendered and along with the cost implication and hence there arises a necessity for an integrated approach to the accounting function in a hospital.

Hospitals need very good accounting practices to address multi-discipline angles related to hospital management and services, doctors, patients etc. Speed and efficiency with quality delivery is the motto in each and every hospital.

The hospital management system integrates different sub systems used in hospitals such as financial management, inventory management and other important systems. The integration of all systems leads to availability of updated information at one desk. Information about appointments, bed availability, and schedules of doctor, specialized services, and treatments is easily available to the person sitting in the front desk. There are many software companies who design the "Hospital Management Information System" integrated with Activity Based Costing with a view to reduce operational costs of serving patients by removing operational inefficiencies and improving the quality of health care. Hospitals Management Information System also reduces the workload of hospital employees and improves their efficiency. Further, if majority of the clinical

processes are automated then it would make available to hospital staff more time to devote in providing quality patient care. It would also streamline personnel management of nurses, clinical specialists, physicians and other health care professionals to provide highest quality care, 24x7. ERP also gives complete in-sight of project related data in a structured manner. The ERP system integrates projects with procurement, fixed assets and stocks. Further, the ERP system plays an important role in creating centralized storage of data, and its easy access helps the management to take timely informed decisions. There are many integrated ERP modules relating to healthcare industry which is available in the market such as:

1. **Reception/Cashier:** This module may have several sub-modules enabling staff to provide the information relating to Appointments (showing dash board for information relating to Today appointment, scheduling, re-scheduling appointments, history of earlier appointments), Doctor Directory, Cash Desk of collection of payments, Reports, Billing, Refund etc

2. **OPD Consulting:** This module may have several sub-modules covering the services such as: Appointments, Patient History, and Doctor Corner, Prescription, Investigation, Follow-up appointments, Symptoms, Diagnosis Tracking, and Last Visit Details etc.

3. **IPD Consulting:** This module may have several sub-modules covering the services such as: Cost Estimation (initial estimate prepared for patient depending on ward/surgery chosen) Admission Request, Transfer Details (transfer from ICU/shifting across wards can be done), Doctor Notes (updating of status of patient during every doctor visit), Nursing Notes (updating of status of patient by nurses tracking different patient parameters), Drug Request (indenting of drugs by nurses patient-wise as per advice by doctor), Discharge Summary, Refund Management, Scroll management (daily cash/credit card/ corporate/ insurance/ TPA tracking).

4. **Wards:** This module may have several sub-modules covering the services such as: Ward Allocation, Ward Shifting, Ward Master, Occupancy Dashboard, Consent Form, Record Management, Label Generation (automated label generation for patient as well as patient files), Inpatient Registration, Payee/Company/Insurance (input details of self-paying/corporate/ insurance/TPA/package).

5. **Operation Theatre (OT):** This module may have several sub-modules covering the services such as: OT Allocation (booking of OT on particular date/time with OT team), OT Master (different type of surgeries with class/ speciality/grade/ ward/price master), Surgery Master, Surgery Class Type (different types of class to be included), Doctor/Anaesthetist Booking, OT Status (utilization of OT daily/ weekly/monthly/ annual), OT Tool Details (booking of OT tools for particular operation), OT Reports, OT Inventory Management (charging of consumables/ special services during an operations).

6. **Nursing:** This module may have several sub-modules covering the services such as: Patient Record Updation(updation of status of patient parameters), Physical Examination Module, Drug Indent, Drug Returns, Drug Transfer (drug transferred across wards/location depend, Drug Re-Order (automatic reorder depending on nursing indent requirement), Investigation Management, Procedure Management, and Diagnostics Management.

7. **Billing:** This module may have several sub-modules covering the services such as: Payment Module (tracking of cash/credit card/corporate credit/TPA credit), Patient Billing Details, Automatic Room Charges, Provision for Pre-Billing, Posting of Charges for Services, Insurance Module/TPA (interlinking of corporate with respective insurance/TPA), Maker Checker Module (provision for checking of bills generated by cashier), Billing Scroll summary (details of daily/weekly/ monthly collections for cash/credit card), and Advance/Refund Management.

8. **Pharmacy:** This module may have several sub-modules covering the services such as: Billing (billing for both OPD and IPD), Drug Inventory, Supplier Information (tracking of vendor information, delivery, and turnaround time), and Drug Issue to patient, Manage Expired Items, Goods Receipt & Stock, Minimum Stock Levels, and Re-order Quantity.

9. **Laboratory Information System:** This module may have several sub-modules covering the services such as: Equipment Integration, Sample Management, Electronic Data Exchange, Patient Data Management, Patient Data Analysis, Report Generation, Barcode Generation, Equipment Maintenance, and Quality assurance.

10. **Investigation:** This module may have several sub-modules covering the services such as: Investigation Master, Package Master, Respective Doctor Master,

Investigation Service Billing, Investigation Dashboard, Investigation Reference, Sample Collection, and Investigation Reporting.

11. **Electronic Medical Records (EMR):** This module may have several sub-modules covering the services such as: Patient Information Retrieval, Instant Information (data available for both online and offline instantly), Analysis (analysis of various record of similar diseases available to doctor), Evaluation (tracking of different types of treatment on various diseases), Accuracy of Information, Treatment Analysis, Drug Taken, History Availability, and Ancillary Services.

12. **Administration:** This module may have several sub-modules covering the services such as: OPD Master, IPD Master, Investigation Master, Package Master, Doctor Master, User Master, Announcement Master (ticker running continuously giving announcements, any major changes), OT Master, and Ward Master.

13. **Insurance:** This module may have several sub-modules covering the services such as: Initial Estimate, Insurance Master, TPA Master, Package Master, Outstanding Report (tracking of outstanding of corporate/ insurance/TPA), Advance/Refund Management, Actual Cost, and Billing.

14. **Dietician:** This module may have several sub-modules covering the services such as: Diet Management, BMI (immediate calculation of body mass index as per patient), Calorie Management, Food Ordering, Raw Material Indenting, Diet Sheet, Quality Check, and Cost of Services and Billing of Special Services.

15. **Engineering Services:** This module may have several sub-modules covering the services such as: Asset Management, AMC Services, Spares Management, Contract Labour Management, Vendor Management, Stores, Consumable Tracking, Scrap Management, and Repair & Maintenance.

PERFORMANCE APPRAISAL SYSTEM IN A HOSPITAL

A Hospital renders services that are both tangible and intangible and hence the performance of a hospital can be measured both in qualitative and quantitative factors. Qualitative factors are more medical oriented and quantitative factors are more business /commercial oriented. This guidance note covers the quantitative aspects of the performance only

The performance of a hospital can be done by analyzing the income streams and expenditure streams separately and also in comparison to each other. (i.e.) the performance of each medical and medical support services are related to each other and hence performance of a hospital are dependent on several interdependent variables

This chapter discusses uses of cost data within a hospital; and therefore aims to show managers and hospital administrators how costing can help improve their performance.

This chapter is structured around Profitability level, Strategic level, efficiency levels performance.

At Profitability level:

Departmental profitability

Cost & Revenue should be split by different departments like Labs, Radiology, OT, Blood bank, Wards, Emergency, Gastro, and Cardio. Profitability should be calculated for each department and reconciled with P&L. This report will help us in budgeting for the expenses and fixing the responsibility for achieving budgets on the HODs.

Service level profitability

Cost should be ascertained for each lab test, radiology investigation, room type etc. and the departmental costs should be further split for each service. The revenue from each service should be compared with such costs and profitability for each tariff code should be ascertained. This report will guide us in reviewing, rationalizing the tariff.

Patient Level profitability

The revenue from each patient should be broken down to the service elements like

individual lab tests, etc and the costs of each service should be matched and aggregated at the patient level. This will help us arrive at the profitability at the Patient level

Customer segment wise Profitability

The profitability of each customer segment like Cash, Insurance, Corporate can be analyzed, once we are ready with Patient level costing. Other grouping of customers like geography, age, etc also is possible at this stage. This will help us in focusing our marketing efforts on those segments where the profitability is good. Also, the areas where the margins are low can be targeted for corrective action like re-pricing, hiving off, downsizing, cross selling, etc.

Specialty wise, Doctor wise profitability

The patient level profitability can be summed up by primary consultant and then by the medical specialty. This will help us in understanding the profit generated by each specialty and the relative performance of each doctor.

Disease wise Profitability Analysis using Diagnosis Related Group (DRG)

Each IP patient is assigned a disease / treatment code. The patient level cost data should be summarized by this DRG code. This will help us in arriving at the actual treatment cost of treating a patient for a given medical condition with associated complications

Measurement using Current Cost Accounting & Imputed Costs – Beyond P&L

Though the costs are captured from the reported financials on actual basis, there should be a provision to enable factoring the historical costs to current market value. Especially the real estate which is not revalued in the books and which is worth many times that of the historical costs.

Similarly, the cost of equity which is not reflected in books owing to established accounting conventions should be imputed as a notional cost, for arriving at the profitability.

Cost Reduction - (Kaizen, Lean Six Sigma)

Comparing best practices across locations, implementing uniform protocols to optimize

costs are other few cost reduction and performance measurement areas.

At Strategic level

Budgeting perspective

Variance assessment perspective

Operational perspective : Identifying areas of waste /rework that can be corrected, pricing policy, and other health financing and policy concerns (e.g., insurance, contracting services vs. in-house services, and projecting future cost),

Expansion or contraction of services, or grouping of activities

Contracting outside services or rendering in-house service, and

Enhancing cost-effectiveness in hospitals (e.g. comparing alternative approaches such as ambulatory vs. inpatient surgery to controlling a given medical condition).

(a) On Capacity utilization perspective

(b) Bed occupancy ratio

(c) Dr : patient ratio

(d) Dr : patient: paramedical staffs ratio

(e) Patient: Land area ratio

(f) Productivity efficiency perspective :

  i. Average time taken for an activity after giving due weight age for the nature of service

  ii. Average resource employed to perform an activity during given time.

(g) Inventory ratios

(h) Debtors ratio

(i) Creditors ratio

(j) Fixed assets to revenue ratio

(k) Expense ratio

At efficiency level : Illustrative list of non cost Performance measures in a Hospital

Costs are measured not only in terms of money, but also to be measured in terms of its effect on allocation of scarce resources (i.e.) identification of resource utilised is an essential prelude to providing better health care.

1. Measuring effectiveness of treatment
2. The effectiveness can be measured using suitable parameters like Patient survival rate, treatment effectiveness, back to normal life, re-admission for same disease. The cost of treatment of a particular patient or disease should be read along with effectiveness measure to ascertain the true cost and value.
3. Cost of Quality

   The customer value proposition includes the quality as perceived by customer. Quality is contributed by two factors

   a. Clinical efficiency

      This is measured by various parameters such as Hospital acquired infections, patient fall, wrong medication, wrong diagnosis are examples of factors affecting clinical efficiency.

      Actions are taken for correcting low scoring parameters. The cost of such actions can be summed up as a cost of quality.

   (b) Operational efficiency

      This is measured by 'Patient satisfaction Index'. Delay in discharges, billing disputes, food quality, nursing attention, noise level, room ambience, AC are examples of factors affecting operational efficiency.

Other suggested indices for measuring the efficiency of hospital are as follows

1. Referral Index:

(a) Proportion of referred cases verses total patients.

(b) Time lag between initial diagnosis and referral to various level of set up

(c) Proportion of referrals — where adequate two way referral Information made available.

2. Bed occupancy ratio = $\frac{\text{Number of Patient days during the year}}{\text{Number of Bed-days during the year}}$ X 100

This ratio indicates as to how for the available bed capacity has been utilised. A value equal to 100 would be ideal. A value less than 100 shows the unutilised capacity and a value more than 100 show overcrowding.

3. Turn over Interval = $\frac{\text{The total vacant bed Days during the year}}{\text{The number of inpatient admission during the year}}$

The index shows the number of days on an average per patient for which a bed has remained vacant; In case of a large hospital it will be worthwhile to work out this index for individual departments or wards.

4. Average duration of illness = $\frac{\text{Total no. of new –in-patients days during the year}}{\text{Total no. of inpatients admission during the year}}$

The index is complementary to the other index "average turnover interval." This is more useful if computed for individual diseases.

5. Average daily out - Patient admissions= $\frac{\text{Total no. of new outpatient admission during the year}}{\text{Total no. of working days during the year}}$

The index shows the average work load on O.P.D

6. The average outpatient attendances per patient= $\frac{\text{Total no. of new outpatient attendance During the year}}{\text{Total no. of new outpatient admission During the year}}$

This shows the average during of a spell of illness treated in the outpatient department.

7. Average cost of medicines for a patient = $\frac{\text{Total cost of medicines for in- patients for the year}}{\text{Total number of inpatient admission}}$

The index should be computed separately for individual diseases.

8. Cost of daily diet = $\frac{\text{Total expenditure on diet during the year}}{\text{Total number of inpatient days.}}$

9. Fatality Rate = $\frac{\text{No. of inpatient deaths during a specific period}}{\text{No. of discharges during the same period}} \times 100$

10. Anaesthesia death rate = $\frac{\text{No. of deaths due to Anaesthesia}}{\text{No. of Patients anaesthetized during the period}} \times 100$

11. Post operative death rate = $\frac{\text{Post operative deaths}}{\text{Total operation during a given period}} \times 100$

15. ROLE OF CMA's IN HEALTHCARE SECTOR

CMA's can play a key catalytic role in framing business solution from cost management perspective. CMA's can enable to solve the difficulties faced by the hospital industry in following ways Some of the difficulties faced by this industry would be:

- The hospital charges to patients vary widely from hospital to hospital across the country. The necessity for near uniform charge/structure is felt by all stake holders and here the CMA's shall facilitate for uniform costing/pricing structure.
- In a highly populated country like India, Government of India wish to provide free medical services or at subsidized prices through hospitals. However due to diversity and interplay of various forces central Government and a few state government is bringing in a system of public private partnership method in providing such services uniformly /consistently to all users. In this context CMA's play a key role of enabling the Public private business Model to workout successfully in near uniform pricing model.
- CMA's can play a bridging role between Third party insurance companies (for reimbursement of expenses incurred by a patient) and the hospital in working out the correct costs that need to be charged to patients
- On many instances, the stakeholders remain clueless on what is or has to be the ideal/correct costs of medical services. Government is trying to standardize the key procedure costs /cost of rendering the services. Keeping this as an important area on scope for improvement, CMA's can render justice to the health care system in proving an authenticated cost details to stakeholders
- In the context of above narrated difficulties faced by the hospital and stake holders, it is felt that enormous opportunities are available to CMA's in the hospital industry
- In addition to above CMA's can render services in below mentioned areas as well As mentioned above, Government of India has created new opportunity for CMAs in healthcare industry and the threshold limits prescribed under Rule 3(C) (a) (x) and Rule 3(D)(a) for maintenance of cost records and cost audit are very low. Even trading and supply of medical devices have been covered under Rule 3(D) (a). In view of these rules the CMAs may provide the following services to healthcare sector:

1. Maintenance of Cost Records as per companies (Cost records and Audit) rules 2014;
2. Cost Accountants can be engaged as Costing auditors by healthcare companies who meet the threshold limits under Rule 3C(a)(x) and Rule 3(D) aforesaid;
3. Designing of Costing Accounting System keeping in view requirement of companies (cost records and Audit) rules 2014, Generally Accepted Cost Accounting Principles (GACAP), Cost Accounting Standards (CAS)and Cost Auditing Assurance Standards (CAAS); Designing of Integrated Costing Accounting and
4. ERP System based on Activity Based Cost Management as per the steps suggested in this article above under "Designing Healthcare Costing System".
5. Fixation of charges for various services provided by the healthcare industry using latest costing concepts and methodologies e.g. opportunity cost, joint costing principles and based amongst other on Total Costing Method, Activity Based Costing Method, and Marginal Costing Method etc.; Managing cash activities, billing, finances, Finance & Accounts activities, Budgeting, Budgetary Control, Inventory Control, and Finance Management and Costing Systems etc.
6. Designing standalone Inventory control management system;
7. As per estimate India requires about 2000 medical colleges with 500 bedded hospitals immediately to meet with the requirement of the country. This also present enormous opportunities to CMAs who may provide their expert services in the following areas:

    a) Preparation of Project Reports following the norms prescribed under "Establishment of Medical College Regulations, 1999" by Medical Council of India for establishing a Medical College & Hospitals;

    (b) Project appraisal & evaluation and project monitoring being a member of Project Implementation Team;

    (c) Help the management in project financing through Financial Institutions;

(d) Tendering, evaluation of tenders of civil & electrical and other works, Procurement of equipment, furniture& fixture etc. and helping management in award of various works;

(e) Monitoring day to day project activities through MIS system, Reports may comprise of the Comparative Statements for Projected Costs of Activities/ Actual Costs, cost over-runs, payment of Bills, evaluation of extra and substituted items, escalation & other claims etc.

(f) After the hospital and college established, designing a costing systems for hospital as suggested above and for medical college, helping in establishing a costing system which may enable it to fix the fees for various courses offered by it, examination fee, hostel charges and charges for various services rendered by medical college.

8. The Companies Act 2013 contains several opportunities for CMAs apart from maintenance of cost records under section 148(1), conduct of cost audit under section 148(2) and Internal Audit under section 138. Accordingly, CMAs can be appointed internal auditor in the healthcare sector.

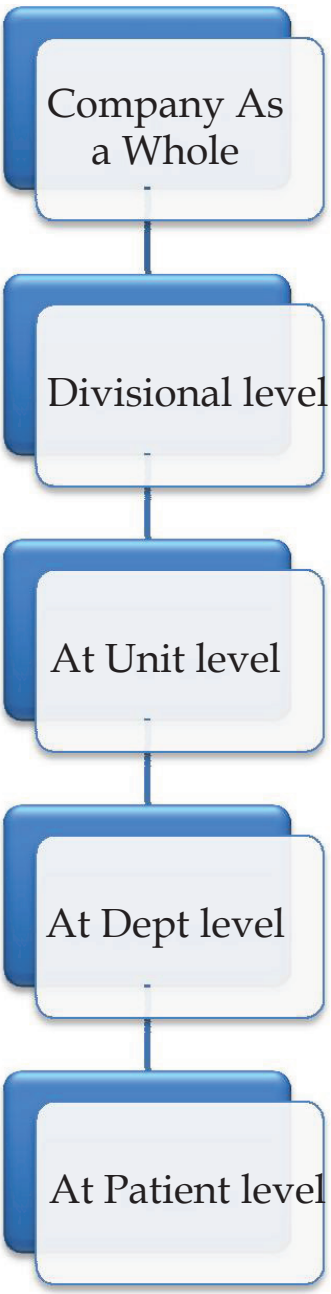
9. In view of provision of internal audit in the Companies Act 2013, the Ministry of Health & Family Welfare vide its letter dated 19.5.2014 informed the Institute that the National Health Mission (NHM) will empanel the cost accountants also for internal audit & concurrent audit.

CMAs can design the Internal Control system in a Health Care Industry and also prepare Internal Audit Manual for them.

10. Reporting of compliance of laws to various Governmental Agencies etc

Appendix

Cost Statement is prepared at various levels and finally rolled up to company level. Details are



An illustrative patient cost sheet and Radio Diagnostic Department cost statement is detailed below.

Proformae Cost Sheet – In-Patient

BILL NO	IP No
Admission No	UHID
Name	
Address	Sex / Age
Ward/Room	Admission Data
Consulting Doctor	Discharge Date
Tin No	LT. No
Patient Type	Printed On

Sl. No	Particulars	Amount (in Rs)
	Admission Charges	
1	Duty Doctor Charges	
2	Service / Nursing Charges	
3	Bed Charges	
4	Preliminary Investigation Chargeds	
5	Blood Bank Charges	
6	ECHO Charges	
7	ECG Charges	
8	Laboratory Investigations	
9	Medical Procedure Charges	
10	Drugs and Disposables	
11	Radiology Investigations	
12	Other Administrative Charges	
13		
	Total	

COST ASCERTAINMENT IN RADIO DIAGNOSTIC DEPARTMENT (An illustration)

Background:

Radiology department is a diagnostic investigation department and is an essential part of any hospital. It is a revenue earning department and nearly 30% - 40% of patients are subjected to x-ray investigation out of the total number of patients who are visiting the hospital. The different categories of patients who visit the hospital for whom the x-ray service is rendered are Outpatients, Inpatients, Casualties, and Patients referred for x-ray by private practitioners.

The function of Radio diagnostic department covers Radiography, ultrasound, and special procedures like IVP, MCU, and Barium swallow. The x-ray service is more essential for orthopaedic patients for whom x-rays are taken repeatedly for assessing the progress of improvement.

The charges for different treatments for different category of patients differ and they are Market driven. Hence the need for cost differentiation to assess the adequacy of the charges.

Present practices:

The cost ascertainment in the present system has the following components.

Material Cost

Consists of the cost of the film and cost of the Developer and mixer. While a cost of the film depends on size of the film cost of the developer and fixer is based on estimated number of films that can be developed in one time mix of the solution.

Labour Cost

Consists of fee payable to the Radiologist fees and the salary paid to the Radiographer whereas the charge of Radiographer's fees is based on piece rate system. Radiographer's salary & other perquisites are related to a standard output of films exposed per days.

Utility Cost

Consists of Power, Water etc.

Administration Cost

It is recovered as a percentage on direct cost (material and labour).

Other Expenses

These are expenses like equipment depreciation, maintenance charges of buildings and equipments, interest on capital and other annual expenditure are allocated first on a technical estimate based on time and in turn related to standard output of exposed films per day.

The number of films to be exposed differs depending upon the type of investigation to be done.

Proformae Cost Statement

Particulars	Amount (Rs/L)
Personnel Expenses (Radiographer)	
Material/ Consumables	
- Dyes /Catheter	
- Films	
- Chemicals	
Power	
Other Expenses	
General Administrative Overhead	
Depreciation	
Total Cost of Operation	
No of X-ray films during the Year	
Cost per X-ray film (Rs)	

Activity analysis:

Detailed activity analysis, resources involved for each type of activity and mode of

recovery and the suggested activity pool is placed in annexure.

It may be seen that the present practice can be further refined by adopting the activity based approach and forming activity cost pools with a distinct cost driver to ascertain more realistic cost. The activity based ascertainment of cost serve as a guide to fix the charges to the patient reasonably.

An approach to ABC Management

An Illustrative analysis of activities of Radio diagnostic department

An approach to ABC Management

An Illustrative analysis of activities of Radiodiognostic department

Activity	Labour	Resources Requirements			Investigative Procedure				Suggested system	Cost driver
		Supplies Material	Other Expense	X ray	IVP	MCU	BS	Present System of recovery	Activity Cost Pool	
General Administration										
Registration	Receptionist	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost		
Appointment Fixing	Secretary	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost	As a part of Activity	No of
Receiving the Patient	Receiving Dept	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost	Pool, Booking &	
Typing of reports	Receptionist	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost	reception	Patients
Billing & Collection	Receptionist	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost		
Treatment Protocol										
Patient Movement	Ward boys / Nurses		Equipments	Y	Y	Y	Y	Not Identified	Inpatient Movement	No. Of in patients
Preparation of Patient	Radiographer	Dyes/ barium/ catheter etc.	Equipments	N	Y	Y	Y	As direct labour cost based on standard output	Examination	Time
Deciding the Film Size	Radiographer		Equipments	Y	Y	Y	Y	As direct labour cost based on standard output	Examination	Time
Exposure of the Film	Radiographer	Films	Equipments	Y	Y	Y	Y	As direct labour cost based on standard output	Examination	Time
Developing & Drying the Film	Radiographer	Chemicals	Equipments	Y	Y	Y	Y	As direct labour cost based on standard output	Examination	No. Of Images
Study of the film & preparation of the report	Radiologist	Stationary	Equipments	Y	Y	Y	Y	As direct labour cost based on standard output	Examination	No. Of Images
Preservation of films & reports	Radiologist / Radiographer	Films & Stationery	Storage Racks.	Y	Y	Y	Y	As direct labour cost based on standard output	Examination	No. Of Records

All the above activities are some for both inpatient & out patient. In case these services to be rendered at the bed side of the patient the cost of the moving the equipment and the equipment and the staff should be considered as addition.