Guidance Note On Cost Management In Healthcare Sector

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FOREWORD TO THE 2ND EDITION

I am very happy with the tremendous response that has been generated by the Asian Summit on Healthcare Cost Management held during 12th and 13th March 2015. The first edition of the Manual of Health Care Costs which got released during the summit, has evoked very good response from various users of the manual. It could also been seen that the practical approach that has been adopted in the manual, has enabled many healthcare service providers, specially belonging to small and medium sized hospitals has enabled them to test the cost template internally and fine tune the cost systems they are following.

The frequent interactions by the medical fraternity with the Institute has also enabled a vital communication connect with the users of the cost systems which shows the recognition for the cost and management accounting profession in the healthcare sector. I feel that this is very important from the long term perspective, as cost systems should be aligned to the business process and be practically useful to the key stakeholders. The adoption of Clinical Establishment Act, in many states and the increasing demand for transparency in health care price discovery mechanism has dictated the need for a uniform and principle based approach in cost determination.

I am very happy that the demand for the Second Edition has come so soon, which showcases that a practical down to earth approach in developing cost systems, will find many takers, specially amongst the small and medium sector.

CMA Dr. A. S. Durgaprasad
President
The Institute of Cost Accountants India

Dated: 2nd June, 2015

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PREFACE TO THE 2ND EDITION

It is heartening to note that the fast pace with which the first edition of the manual got exhausted, showcases the demand for a very demanding subject, which is of vital importance to various stakeholders.

The second edition takes into account the feed back from the Asian Summit on Healthcare Cost Management held during 12th and 13th March 2015, which was a roaring success with a plethora of experts sharing their wide practical experiences on fine tuning the healthcare cost management systems in the healthcare sector.

The technical team of the Institute was also exposed to some hospitals and tested the system with actual live data. This has enabled the team to make further value additions so as to have a seamless alignment from the start to the business process that is followed by the hospitals.

In addition, the Institute also got feedback from practitioners, who were able to fill in some gaps in the first edition. The Institute also thanks the Directorate General of health Services, Government of India, who had also spelt out the requirements of the Government on determination of Health care costs.

On behalf of the Cost & Management Accounting Committee, I thank all the experts and stakeholders who have responded for providing some value additions to the second edition.

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

Dated: 2nd June, 2015

FOREWORD TO THE FIRST EDITION

The challenge for a country around the world today is to keep good health for it's 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 like 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 manage 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 view- increasing 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 economies of scale required 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 Dewan, 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. Durgaprasad
President
The Institute of Cost Accountants India

New Delhi
Dated: 5th March, 2015

PREFACE TO THE FIRST EDITION

Accomplishment by a professional body comes from issuing guiding principle 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 understand the conceptual approach to get them updated with contemporary changes experienced by users.

As "Change is inevitable", we often see introduction of new technology and research in medical science creating tremendous cost pressures on health care. The healthcare professional and cost & management accountant, working together can plan to optimise the cost to provide healthcare at affordable prices. This should also have an access to the appropriate facilities and technology, which provide the cutting edge of hospital care and research.

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. It offers a reasonably contemporary knowledge on hospital cost structure and management methods. It also deals with cost management approach, costing techniques, identification, assignment, allocation and absorption of overhead costs on the medical, medical support and non-medical services rendered in hospitals and gives an insight about hospital operations.

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. Durgaprasad 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. S. Manivannan, Managing Director, Parama Healthcare, Chennai and M/s Rao Murthy & associates Cost accountants –Bangalore, CMC hospital representative Mr Cheziyan -Vellore –Tamil Nadu, and Appolo 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

New Delhi
Dated: 4th March, 2015

Chairman, Cost & Management Accounting Committee
The Institute of Cost Accountants of India

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1. INTRODUCTION

One of the important objectives of Government to improve in 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 comprises organizations with 'non profit motive' and also others with 'profit motive. 'The "not for- profit "health sector consists of various health care service providers such as "Non-Government Organizations (NGO's), charitable institutions, trusts, etc.

Health care services in "for-profit" segment consists of 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 peripherals. Providing good and health is a State & Union subject 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 time in these hospital is very long. Further, the Government hospitals are often understaffed, however the cost of care is significantly less as compared to private hospitals. On the other hand, the private hospitals offer a high standard 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 service 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 of a 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 in 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 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:

- Estimate 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.
- Define the Health care delivery value chain.
- Determine the fees or tariffs for goods and services.
- Estimate 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:

Pricing of health care services requires a balance between the patient's concern for affordability and the industry's concern for adequate returns on investment for growth

and sustainability. 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 pricing process has to start with understanding the activities involved in such health care service. The cost of medicines used are governed by National Pharmaceutical and pricing authority(NPPA). However, an approach on similar lines would be justifiable for price determination with regard to a list of essential diagnostics and equipments. This is essential on account of reimbursement by Governments for certain critical health procedures as well as requirement by Medical Insurance Regulators for a more transparent price discovery process based on cost of providing such services.

ICD 10 (International Statistical Classifications of diseases -version 10)

In the context of pricing of Health care services , following stakeholders would also be interested namely

- Citizens
- Health care providers, doctors, researchers in this field
- Payers, i.e., insurance companies including TPA
- Education, research institutions and investigators
- Government departments and institutions including law enforcement and courts of law
- Policy makers,
- Public health agencies and NGOs
- Pharmaceutical industry and medical device makers
- Telemedicine institutions
- Software and hardware vendors

Due to variety of stakeholders as above there is a possibility that there could be a diverse understanding of the medical systems, procedures and nomenclatures. In order to harmonise the same for better understanding of the health care medical process,medical

classification/codification is used to describe such diagnosis and treatments, determine costs and reimbursements, and relate one disease or drug to another.

The Medical classification is brought out in the form of codification mechanism called as ICD10**(International Statistical Classifications of diseases version 10)It is used for a variety of applications in medicine, public health and medical informatics, such as

- statistical analysis of diseases and therapeutic actions
- reimbursement; e.g., based on diagnosis-related groups
- knowledge-based and decision support systems like double check of the patient bills or negotiate lower pricing for healthcare services.

**ICD means International Statistical Classifications Diseases. It is an alphanumeric designations given to every diagnosis, description of symptoms and cause of death attributed to human beings.

The codification is developed in the structure of main codes and sub code form and the no of codes has grown to an extent of about 40000 to 45000 codes. It is quite likely that it can be extended to many more as and when time passes and when the treatment and procedures gets branched out.

Ministry of health and family welfare in order to harmonise the entire chain of activities in a health care sector has brought out a mandate that all services in a HC sector shall be identifiable via ICD codes only.

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 who 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, 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: i.e. 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 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 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. This industry is a 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 faced by this sector are substantial such as 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 lac 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.

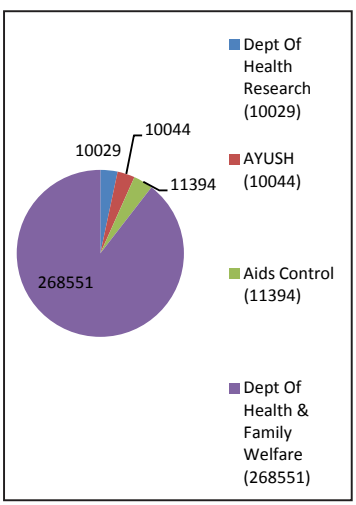
4. In union Budget 2014-15, The Finance Minister announced following facilities to build

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

b. 15 Modern rural health research centres to be set up for research on local health issues.

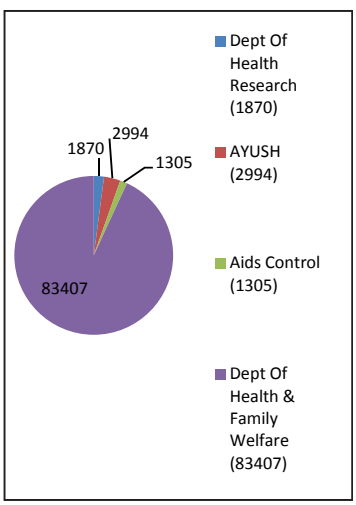
In Budget 2014-15, the Government's focus is firmly on rural health. Many rural regions lack even basic healthcare, putting a burden on the overall economy

Budget Allocation in Ministry of Health & welfare under 12th Five Year Plan (Rs in Crores)



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

Budget Allocation in Ministry of Health & welfare under 11th 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.

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 National Health Policy of 1983 and the National Health Policy of 2002 have served well, in guiding the approach for the health sector in the Five-Year Plans and for different schemes. Now 13 years after the last health policy, National Health Policy, 2015 is being evolved. The primary aim of this policy is to inform, clarify, strengthen and prioritize the role of the Government in shaping health systems in all its dimensions such as - investment in health, organization, financing of healthcare services, prevention of diseases and promotion of good health across all section of society, access to technologies, developing human resources, encouraging medical pluralism, building the knowledge base required for better health, financial protection strategies and regulation and legislation for health. The context of 2015 policy (from earlier policies) has changed on following four counts

- Health priorities are changing
- This sector is growing @15 % CAGR (this is two times growth rate of service sector all put together)
- Natural calamity is one of primary reason to poverty and thus need for HC has grown high

– Economic growth has increased and this ensures more fiscal capacity available for this sector

This 2015 year Policy is being developed with following key policy principles

- **Equity:** Making the availability of services to all sections of society irrespective of differences among social strata minimizing disparity on account of gender, poverty, caste, disability, other forms of social exclusion and geographical barriers
- **Universality:** Systems and services are designed to cater to the entire population-not only a targeted sub-group. Care to be taken to prevent exclusions on social or economic grounds.
- **Patient Centered & Quality of Care:** Health Care services would be effective, safe, and convenient, provided with dignity and confidentiality with all facilities across all sectors being assessed, certified and incentivized to maintain quality of care.
- **Inclusive Partnerships:** The task of providing health care for all cannot be undertaken by Government, acting alone. It would also require the participation of communities – who view this participation as a means and a goal, as a right and as a duty. It would also require the widest level of partnerships with academic institutions, not for profit agencies and with the commercial private sector and health care industry to achieve these goals.
- **Pluralism:** Patients who so choose and when appropriate, would have access to AYUSH care providers based on validated local health traditions.
- **Subsidiarity:** For ensuring responsiveness and greater participation, increasing transfer of decision making to as decentralized a level as is consistent with practical considerations and institutional capacity would be promoted. (Nothing should be done by a larger and more complex organization which can be done as well by a smaller and simpler organization).
- **Accountability:** Financial and performance accountability, transparency in decision making, and elimination of corruption in health care systems, both in the public systems and in the private health care industry, would be essential.
- **Professionalism, Integrity and Ethics:** Health workers and managers shall perform their work with the highest level of professionalism, integrity and trust and be supported by a systems and regulatory environment that enables this.

- **Learning and Adaptive System:** constantly improving dynamic organization of health care which is knowledge and evidence based, reflective and learning from the communities they serve, the experience of implementation itself, and from national and international knowledge partners.
- **Affordability:** As costs of care rise, affordability, as distinct from equity, requires emphasis. Health care costs of a household exceeding 10% of its total monthly consumption expenditures or 40% of its non-food consumption expenditure- is designated catastrophic health expenditures- and is declared as an unacceptable level of health care costs. Impoverishment due to health care costs is of course, even more unacceptable.

Following are the major policy initiatives in the year 2015 contemplated by present government.

- To ensure adequate investment in Health care sector
- To increase the % GDP spend on Health care
- To make a road map for preventive and promotional health
- To adequately fund above policies via
    - o Special tax policies
    - o From corporate as CSR spend
    - o Encouraging private sectors to play a significant role

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

Below Chart showing % of spending on Health care by various 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 govt 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 by 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 will be 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 for medical procedures and treatments.

Following are the major weaknesses of Indian Health care system

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

b) **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.

c) **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 result in a 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.

d) The above weakness can be overcome by implementing the following reforms that are needed in the hospital administration

- Making health care facility affordable by common man
- Availability of emergency care
- Identifying Well trained and qualified doctors
- Providing all facilities under one roof
- Providing / enabling Quick service
- Ensuring cleanliness and hygiene

- o Availability of latest technical medical equipment
- o Providing adequate infrastructure
- o Good post hospitalization services
- o Friendly attitude towards patients
- o Training of paramedical staff
- o Providing all types of medicines
- o Simplified administrative process
- o Timely repair of faulty medical instruments
- o Faster appointment of skilled doctors
- o All employees of hospital to have adequate technical / medical knowledge

Reasons for rising healthcare costs in India :

a) 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, Overdependence on technology has become the norm instead of dependency on the skill of the doctors. Earlier doctors prescribed tests only if the patient's illness was of serious nature. However a bunch of complex tests are advised now by the same doctor.

b) Medical negligence cases are being experienced nowadays and are being viewed seriously by consumer courts. So doctors practices defensive strategies and ask for test reports even 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 prescribe numerous diagnostic tests which are unnecessary in many cases.

c) 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.

d) 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.

e) 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.

f) The sustained expansion of healthcare insurance coverage also push the hospitalization costs.

g) Demand for health care from patients abroad in the form of medical tourism. Physical boundaries no longer restrict people to get the best services at most competitive prices from any part of the earth. Medical treatment is one such service for which patients frequently travel to countries where they can get the best values, for money. Thus originated the term "medical tourism "commonly used to describe people travelling outside their home country for medical treatment. This medical tourism is a world wide phenomenon that is expected to grow substantially in the coming decade. The primary reason for foreign patients flocking to India is a huge cost saving in medical treatment. The rule of thumb shows that the treatment cost in India is about 20% of the cost in USA. Below table shows illustrative list of the cost of Health care in india vs USA

TREATMENT	COST IN USA/ US DOLLAR	COST IN INDIA / US DOLLAR	INDIA CHEAPER BY (%)
Total Knee Replacement	50000	5700	88 %
Total hip joint replacement	41000	6250	85 %
Shoulder reconstruction	36000	8300	77 %
Spinal Disc Replacement	50000	7350	83 %
Laparoscopic Sleeve gastrectomy	28700	5700	80 %
Breast Cancer	18200	4200	77 %
Prostate Cancer	35000	5000	86 %
Intestine Cancer	48000	6900	86 %
Kidney transplant	260000	12000	95 %
Coronary angiography	6688	700	90 %
Coronary angioplasty	19110	7000	63 %

Coronary artery bypass grafting	34500	8000	77 %
Single bypass + valve replacement	36300	11000	70 %

The primary reasons associated with such high costs abroad are ,more advancements in medical technology such as

- Better ICU
- Well qualified Drs
- Availability of latest technology such as CT, MRI, Ultras
- Availability of life saving drugs
- More medical awareness
- Medical insurance
- Bio transplants
- Use of Robots in operations
- Very advanced operation methods such as without scissors
- Above all e -revolution

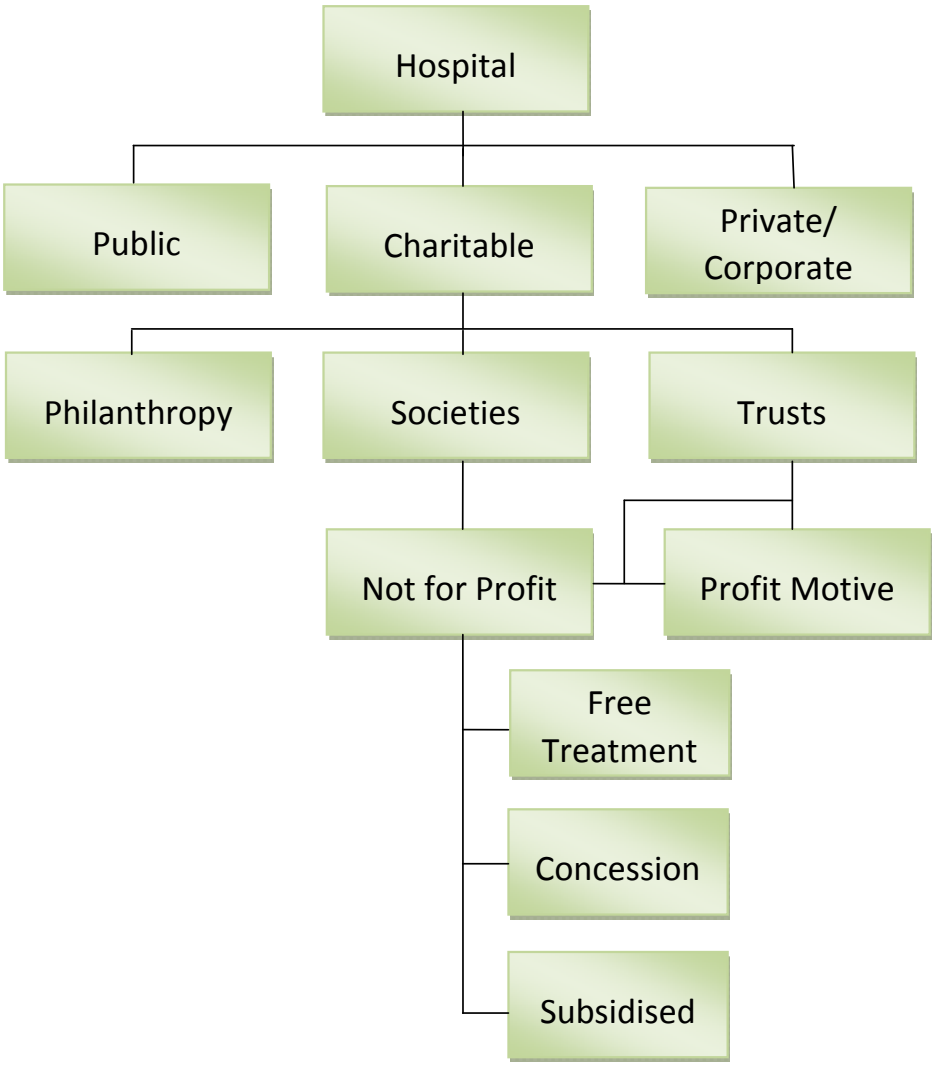
Source : Trans Earth Medical Tourism (www.transearthmedicaltourism.com)

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

Even though there are several reasons for raising heath care costs as said above , there are equally overweighing benefits that are available which are worth mentioning here, such as

- Secured and safe life even after operations
- End to end hospitalization time reduced
- Most of operations take very less time due to advancement in technology
- All activities /procedures under one roof
- Improved hygiene
- Opportunities for employment & public service

Broad Business Model of Hospitals in India



Public Hospital

These hospitals in today's context refer to the government hospitals run by govt that 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 such hospitals are through the State Treasury or through Grants, Donations and from well wishers. These hospitals are mainly run 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.

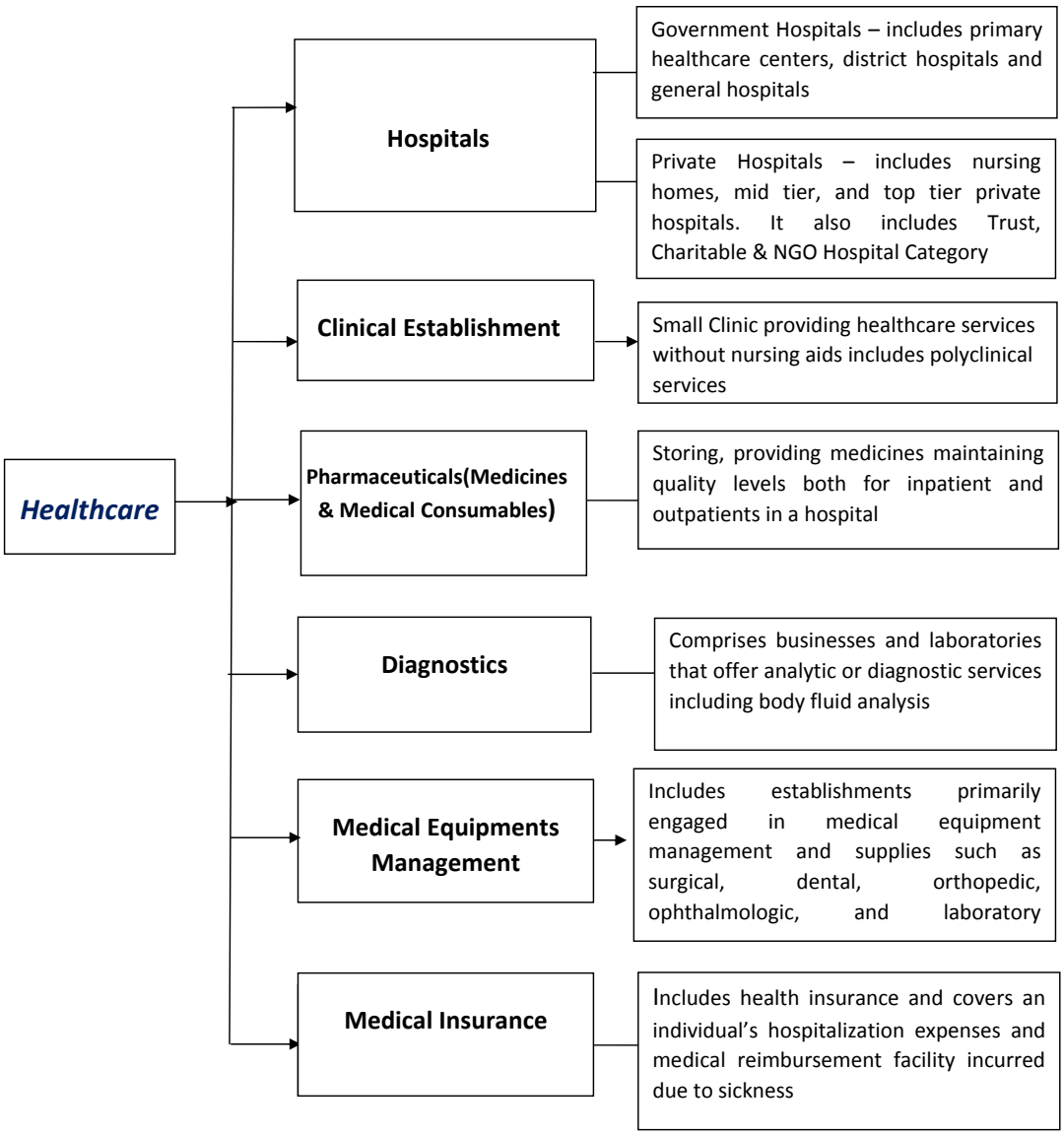
In most hospitals, the money collected for treatment would be very nominal say few thousand rupees. These hospitals usually undertake promotional programs to create awareness among the community. Usually Research Institutes are associated with such hospitals. Such hospitals look towards the Trust / Society 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 paying interest to 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 to above streams , Hospitals are also grouped based on nature of service they provide

1. **Primary Care hospital:** A primary care provider (PCP) is a doctor who see the patient first and checkups health problems. If the patient have 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 hospital:** A Nursing care provider generally refers to procedures or medication which are solely or primarily aimed at providing comfort to a patient or alleviating that person's pain, symptom or distress, and includes the offer of oral nutrition and simple medication
3. **Telemedicine hospital:** It is a practice of giving medical advice to patients by doctors on medicine through telephone. It provides services through the use of advanced telecommunication devices to exchange health status information and provides health care services across geographic locations. Nowadays people situated in different geographical location may connect to hospitals through tele communications to take advice or prescription based on his case history. It provides facilities for exchanging the test report as well.
4. **Drug Therapy hospital:** 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 hospital:** In this type of hospitals, special equipments /techniques are used to find the nature of disease. Such techniques are used to determine the cause of illness or disorder. The equipments provide healthcare practitioner with information about the presence, severity and causes of diseases in patient. Subsequently, health care providers advise appropriate treatment to the patient, reducing the patient's mortality and morbidity levels. Following methods are used in this type of hospitals
    a. X-rays
    b. Blood Tests
    c. ECG
    d. Echocardiography

e. Liver function test

f. Urine & Stool Routine

g. Urine Pregnancy Test

6. **Specialty Care hospitals:** These are hospitals that provide specialized services such as

a. Allergy and asthma services

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. Physio 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, Computarised 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

w. Anaesthetic procedures

x. Blood transfusions

y. Bone marrow transplants

z. Treatment of Cancer(Brachy therapy)

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. Illustrative list of clinical Health care practices and procedures that are provided by various departments in a hospital, 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 unit(NICU)

e. Pediatric Intensive care Unit(PICU)

f. Special care baby unit(SCBU)

g. Other specialist such as Intensive therapy /treatment Unit

h. Procedure done in Critical care Unit are as follows

i. Arterial line or intra-arterial catheter or Art line.

ii. Intra-Aortic Balloon (Counter pulsation) Pump or IABP or Balloon Pump.

iii. Bi-level Positive Airways Pressure (BiPAP)

iv. Non-invasive ventilation (NIV)

v. Continuous Positive Airways Pressure or (CPAP)

vi. Bronchoscopy

vii. Central Venous Catheter (CVC)

viii. Haemodialysis

ix. Extra Corporeal Membrane Oxygenation (ECMO)

x. Nasogastric or NG Feeding / Orogastric or OG Feeding

xi. External Ventricular Drain (EVD)

xii. Intercostals catheter (ICC)

xiii. Inotropes

xiv. Intravenous cannula / IV Cannula / Drip

xv. Intubation / Insertion of a breathing tube
(an endo-tracheal tube, ET-tube or ETT)

xvi. Lumbar Puncture (LP)

xvii. Swan Ganz catheter / Pulmonary artery catheter

xviii. Trans-Esophageal Echo (TOE)

xix. Tracheotomy

xx. Urinary Catheter

2. Diagnostic services

a. Gait Laboratory

b. Medical photography

c. Neurophysiology – eg EEGs

d. Physiological measurement tests – eg ECGs, Echo cardiograph tests, BP monitoring

e. Other – i.e. lung function tests

3. Radiology and Imaging services

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 services

a. Birthing operations

b. Delivery room/labour ward

c. Obstetric operating theatres

6. Operating theatres services

a. Operating theatres including sterile service department

b. Operations preparations and emergency activity during operations

7. Wards services

a. Admission /discharge facilities

b. Home care

c. General patient care wards

8. Pharmacy

a. Supply of Medicines both for Inpatients and out patients

b. Sale of medicines to walk inpatients

9. Special procedures-operations

a. Angioplasty

b. Angiography

c. Endoscopy

d. Interventional imaging

e. Lithotripsy

f. Renal dialysis

g. Dentals operations of higher order

h. Coronary

10. Special treatment rooms

a. Dressing rooms

b. Hyperbaric chamber

c. Plaster rooms

11. Therapies

a. Radiotherapy treatment (external beam and brachytherapy)

b. Diabetic educator

c. Dietetics

d. Neuropsychology

e. Occupational therapy

f. Orthotics

g. Physiotherapy

h. Play therapy

i. Podiatry (including therapy services)

j. Psychology

k. Speech and language therapy

12. Laboratory

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. Phlebotomy

l. Serology

m. Toxicology

n. Virology

13. Blood bank

a. Blood transfusions

b. Blood products

c. Blood storage/bank management

14. Others

a. Audiology

b. Dental

c. Interpreters

d. Optometry

e. Orthotics

f. Outpatient clinics, including outreach (extended) clinics

g. Palliative care unit

h. Social work

15. 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. Specimen collection

g. Sterile services

h. Clinical Training for nurses ,OT supporting staffs

16. Bio medical waste management

a. Waste collection & Segregation

b. Recycling and Disposals

17. Mortuary Management

a. Records management in mortuary

b. Storage management in mortuary

c. Disposal management in mortuary

d. Compliance on regulatory requirements of all above

5. CRITICAL ACTIVITIES IN HEALTH CARE SERVICES

A Critical activities in a hospital means an activity that is very fundamental and vital for the treatment of a patient and will run in sequence as depicted pictorially in a patient flow chart at the end of this chapter. All those activities that are fundamental in a typical hospital and that are unique in health care sector are classified as technical activity. All those activities that are fundamental for a business entity are classified as non technical Again technical activities shall fall under medical deptt. and medical support deptt. Non technical activities shall fall under non medical services deptt. Medical and medical support departments can be termed as profit centers and semi profit centers. However, non medical service departments can be termed as cost centers. All technical services costs can be attributable /traceable to the medical service /medical procedures and hence can be called as direct costs.

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

The following are the Technical activities that fall under medical departments and medical support departments.

1. Medical department technical activities
    a. All clinical activities mentioned under critical care in previous chapter
2. Medical support department technical activities
    a. Diagnosis activities
    b. Pharmacy and medical support services management
    c. Treatment of Inpatient or outpatients
    d. Operation theatre management
    e. Ward management
    f. ICU management

g. Laboratories and Research Activities

h. Rehabilitation Activities

i. Statistics on treatment practices and bio behaviour statistics

j. Mortuary and disposal management.

k. Ancillary Medical services like ambulance services.

l. Other Allied Services incidental to main technical deptt.

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

a) Accounts & Finance

b) MIS and Costing

c) HR deptt.

d) Information technology department

e) Administration department specific to hospitals such as

a. Reception activities

b. Patient admissions

c. Office management

f) Procurement cum stores

g) Central sterile services division(CSSD)

h) Medical records management

i) Bio Medical waste management

j) Medical furniture maintenance and Equipments Maintenance department

k) Security department

l) Transport department including ambulance vehicle management

m) Safety department

n) Hospital and estate main

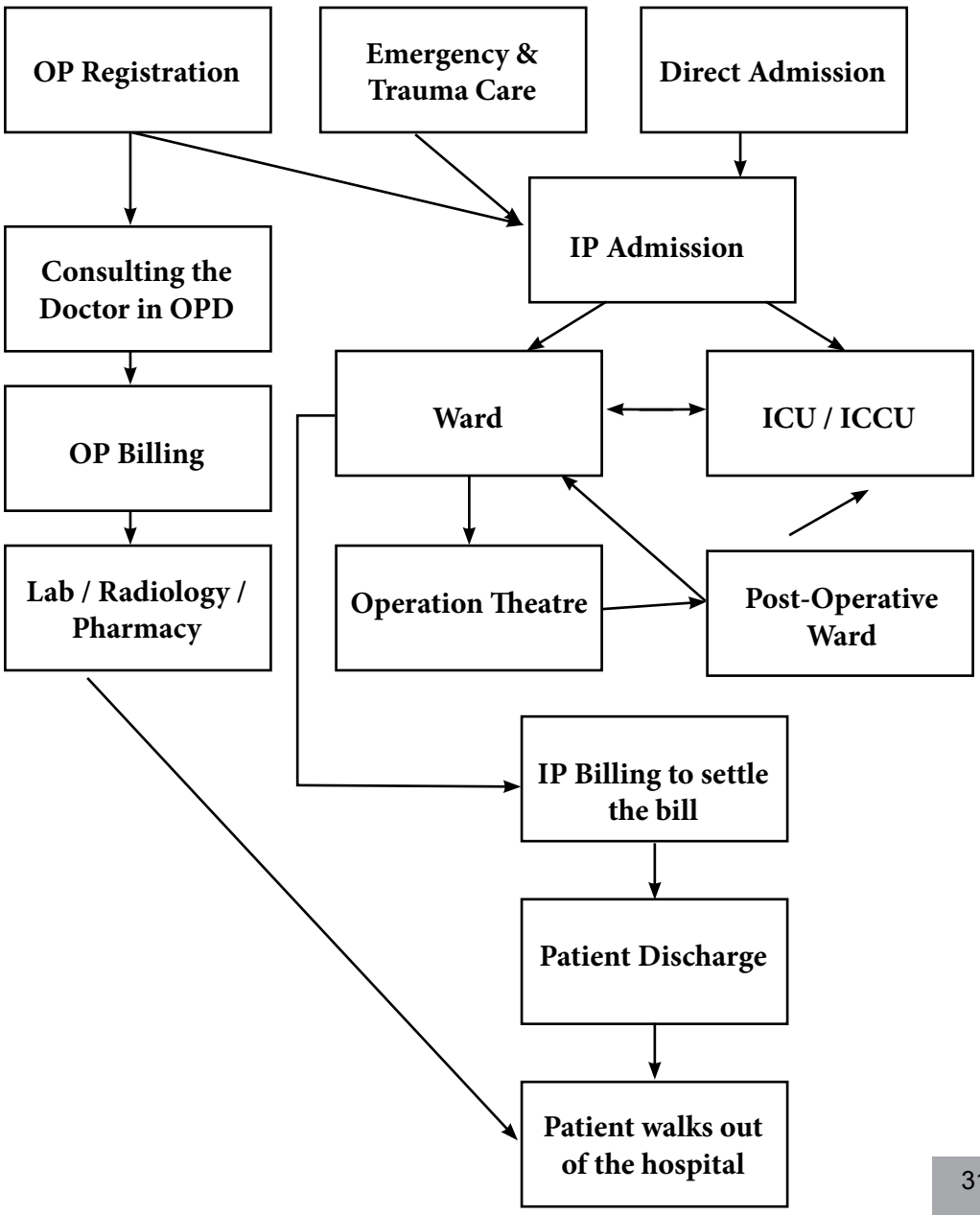
o) tenance department

p) Canteen

q) Utilities

Flow Chart for Patient service

Out-Patient **In-Patient**



6. REVENUE STREAMS IN HOSPITAL SECTOR

The source of income in a typical hospital would be from Direct medical services and from medical support services such as from blood bank, radiology deptt., pharmacy deptt. etc. Each of the above source is further classified as, from outpatient channel or serving inpatient channel. Whatever be the source, each source is influenced by a variety of complex qualitative and quantitative factors as follows :

Qualitative Factors

a) Usage of Advanced medial Equipments'
b) Complexities of Critical Cases
c) Types of services hospital offers
d) Frequency of services
e) Quality of employees(such as Drs, nurses)
f) Management policies on patient handling

Quantitative Factors

a) No. of patient
b) No. of beds
c) Capacity occupancy level
d) Infra structure availability
e) No of back up facilities

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

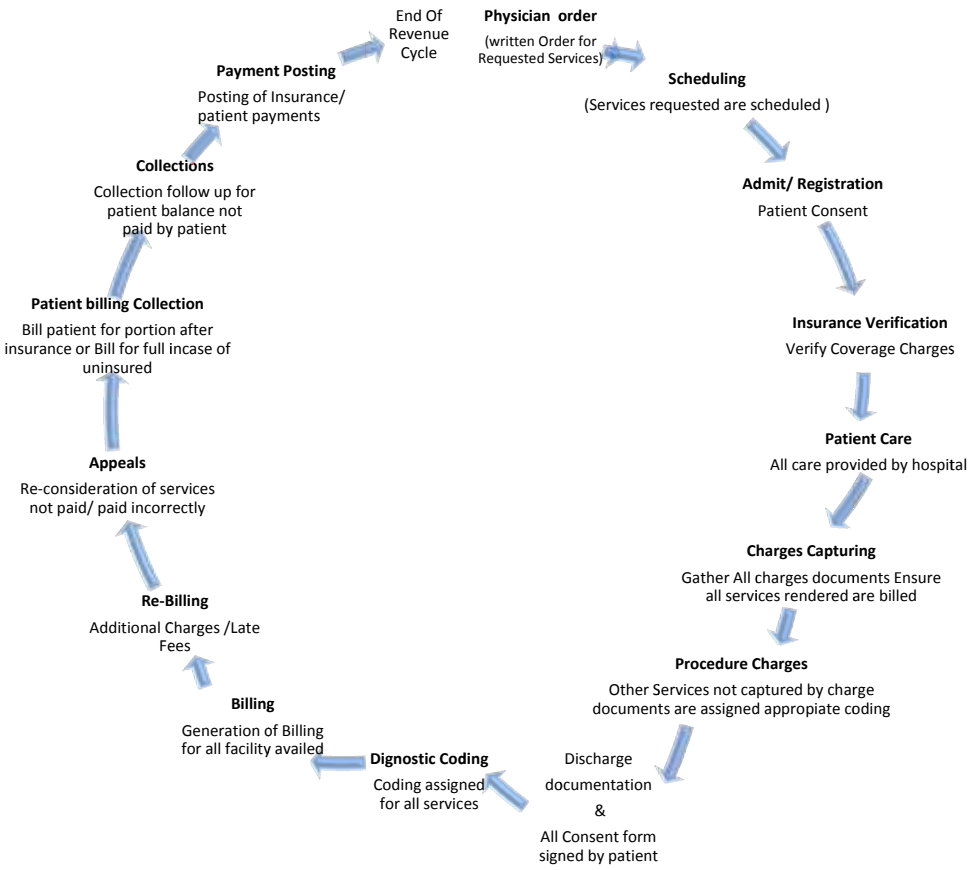
A) Medical Services
- Doctor's Fee
- Surgeon Fee's
- Neurology Services
- Surgeon Charges
- Operation Theatre Charges
- Anaesthecian Charges
- Baby Cradle Charges
- Implants Charges
- ICU Charges
- Room rent charges
- Special Nursing Charges
- Nursing Charges

B) Medical Support Services
- Admission & Documentation
- Lab Services
- Radiology Services
- 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
- Admission charges
- Outsourced Pharmacy
- Outsourced Lab
- Infrastructure (IFS) Charges
- Telemedicine Consultancy
- R&D income on assignment basis

Overview of Billing Cycle in a Hospital



Step by Step Billing process flow

1. Patient is admitted on advise of particular doctor and doctor s linked to speciality.
2. Each IP/OP patient needs to register as an unique number is generated and card filled in like Name, address, admitting doctor, self payee or corporate or TPA patient or Indigent or weaker section patient
3. When the patient is admitted as per the class of his choice an IP number is generated and through out his stay all the documentation & reports will be based on this IP number. So is the case with OP number
4. Without generation of the request none of the services can be availed be it medical or non medical nature.

5. In OP the patient have to pay first for services.
6. There is detail rate master for all medical services for IP & OP separately. Each service has charge code and it appears in detail in patient bill
7. There is a fixed discharge time and if patient is advice to take discharge maximum up to that time should take to discharge beyond that next day bed charges will be charged
8. The final bill is not raised till all the request are not posted
9. Once bill is ready patient is informed to settle the bill and surrender the visiting cards
10. Once the patient is satisfied with the detail bill and settled the amount discharge slip is given
11. On presenting discharge slip at the ward patient can take physical discharge
12. On leaving hospital he gives one copy to security confirming he is out if hospital.

Some of the terminologies used in above revenue stream :

a. **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

b. **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.

c. **Anaesthesia means** "Loss of Sensation". Medication that causes anaesthesia are 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

d. **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.

e. **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.

f. **Dialysis** Services is a form of 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 – Haemodialysis and Peritoneal Dialysis.

g. **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.

h. **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.

i. **Medical Counselling is** a process of interaction by which a patient or a person either layman or formally trained ones, who 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.

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

k. **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.

l. **Medical Record / Documentation charge is** a nominal amount charged by hospital for maintenance of Medical record and case history of the patient.

m. **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.

n. **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.

o. **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

p. **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.

q. **Trauma centre 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.

7. EXPENDITURE STREAMS IN A HEALTH CARE SECTOR

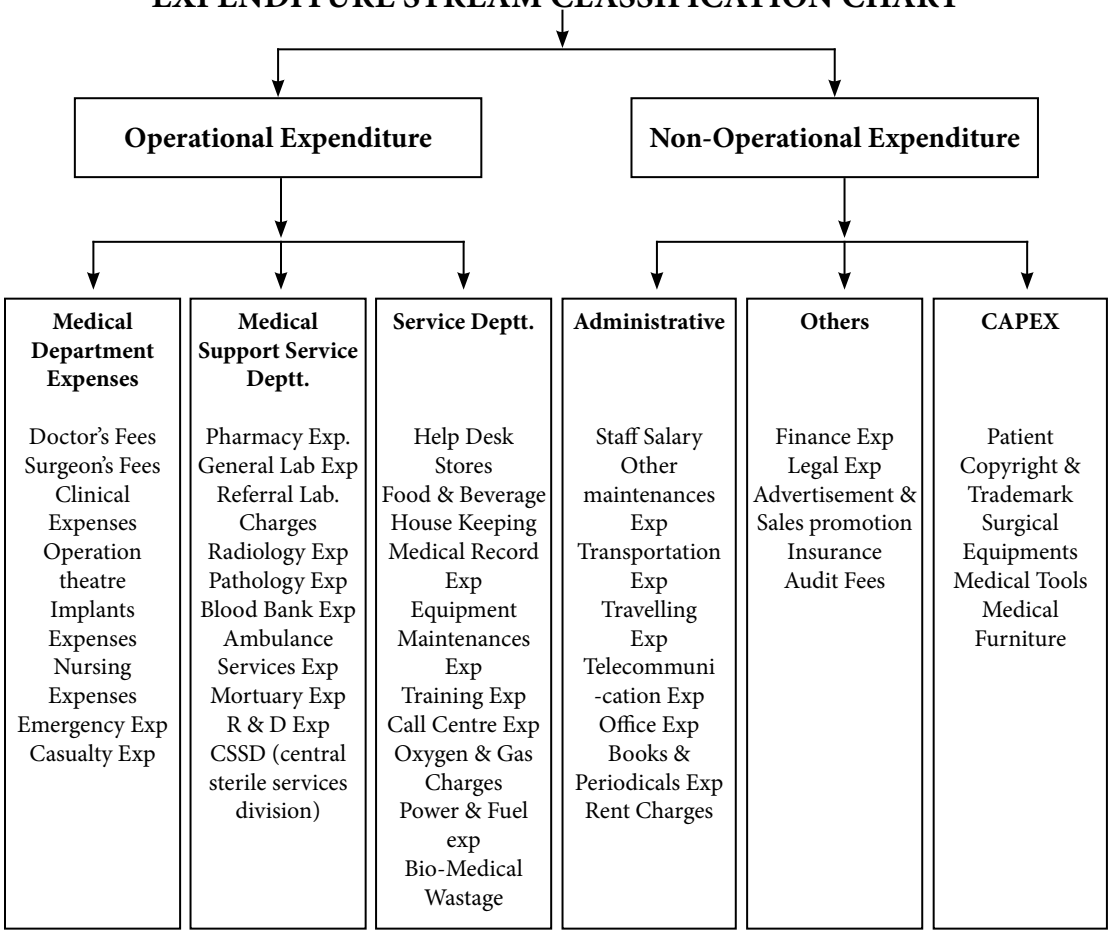
The expenditure stream refers to consumption of resources (Cash or kind) that is charged to expenses as soon as resources are consumed. By doing so, a hospital uses the matching principal to link the expenses incurred to revenue generated in the same period. In hospitals ,expenses incurred in following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

(I) Medical departments

(II) Medical Support s Department

(III) Service Departments

EXPENDITURE STREAM CLASSIFICATION CHART



Some of the terminologies used in above expenditure stream

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

b. **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

c. **Call Centre services** are provided as a one stop solution to patient and generally call centre 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 centre Expenses.

d. **CSSD:** This is Central Sterile Services Division. Used and contaminated articles, equipments are sent from various deptt. to this deptt. These are collected at one place, cleaned, sterilised, stored in sterile condition till it is supplied to user deptt. In this division , all medical devices /instruments and usable shall undergo sterile treatment. This is one of the vital deptt. 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 deptt.

e. **Consumables are**

   a. 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).

   b. Surgical consumable used and billed to the patient are also grouped under consumables.

   c. This does not includes and material received on consignment basis like stents, catheters and implants.

f. **House Keeping Expenses:** If only the labour activities of this department is outsourced, entire expenses relating to this department are booked under the respective accounts (Like cleaning materials, 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. However ,if entire activity of this deptt. is outsourced including labour, investments(inside the hospital premises) to the contractor , then House Keeping Department costs are reimbursed to such outside contractor and the entire expenses incurred for House Keeping is booked under respective outsourcing account head.

g. **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.

h. **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.

i. **Mortuary** is a very important component of hospital temporarily preserves the dead bodies for a period. Post mortem and Autopsy are the major functions of Mortuary in Hospital. It involves al- together different sources of expenses which are specifically for mortuary.

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

k. **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.

l. **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.

m. **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.

8. MODEL INCOME & EXPENDITURE STATEMENT

MODEL FINANCIAL REPORT OF A HOSPITAL
XYZ HOSPITAL
INCOME & EXPENDITURE STATEMENT FOR THE PERIOD

(Amount in Rupees)

	Particulars	Note No.	Current period	Previous period
	A. Revenue			
1	Revenue from operations	1		
2	Other Income	2		
	Total Revenue (A)			
3	**B. EXPENDITURE:-**			
	Hospital Operative Expenses	3		
	Cost of Medicines and consumables Supplied	4		
	Employees Benefit Expenses	5		
	Finance Cost	6		
	Depreciation and Amortization Expenses			
	Other Expenses	7		
	Total Expenditure (B)			
4	**Profit/(Loss) Before Tax**			

Details of respective line item of above is given as Notes as below

Note 1 Income from operations (connectivity to billing is to be ensured)	**(Amount in Rs.)**	**(Amount in Rs.)**
	Current period	**Previous period**
Particulars		
Admission /Registration charges		
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 Telemedicince Consultancy		
Total		

Note 2		
	(Amount in Rs.)	**(Amount in Rs.)**
Other income	Current period	Previous period
Particulars		
Research and development income from special assignments		
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		
	(Amount in Rs.)	**(Amount in Rs.)**
Hospital Operating expenses	**Current period**	**Previous period**
Particulars		
Doctor's Visiting Fees		
Surgeon's Visiting Fees		

Medical Consultancy Charges (Outsourced)		
Referral Labotory 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 & Maintance		
Rent		
Insurance - Buliding & Medical Equipments		
Other Operative Expenses		
Total		

Note 4		
	(Amount in Rs.)	**(Amount in Rs.)**
Cost of Medicines Sold/Traded Goods	**Current period**	**Previous period**
Particulars		
Implants		
Medicine		
Eye Care & Optical Goods		
Medical Equipments		
Diagnostic Goods		
Total		

Note 5		
	(Amount in Rs.)	**(Amount in Rs.)**
Employee benefits expenses	**Current period**	**Previous period**
Particulars		
Salaries, wages & incentives		
- Surgeon's Salaries		
- Doctor's Salaries		
- Nurses's Salaries		
- Support Staff Salaries		
- Adminstrative & other Staff Salaries		
Contribution to provident fund and other funds		
Staff welfare expenses		
Keyman Insurance		
Total		

Note 6		
	(Amount in Rs.)	**(Amount in Rs.)**
Finance Cost	**Current period**	**Previous period**
Particulars		
Interest		
on Loans - Medical & Surgical Equipments		
- Land & Building		
- Vehicles		
on working capital		
Others		
Total Interest		
Other borrowing cost & Finacial Charges		
Foreign exchange fluctuation loss		
Total		

Note 7		
	(Amount in Rs.)	**(Amount in Rs.)**
Other expenses	**Current period**	**Previous period**
Particulars		
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		

9. COSTING APPROACH IN HEALTHCARE SECTOR

Overview of cost management in hospitals

For bringing healthcare of ideal standards within the reach of every individual, there is a need to provide healthcare services at affordable costs, so that individuals from various economic status 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

(d) The purpose of establishing a total cost management system in a hospital would be to serve the following purposes also

a) To comply with Cost accounting record and audit rules 2014 (CARR)and to submit product-wise cost sheets to Ministry of company affairs (MCA).

b) To use cost data for internal management such as calculation of cost/profit ,center-wise conversion cost based on direct cost and total cost approach

c) Calculation of procedure-wise cost based on direct cost and total cost.

d) To prepare product/activity-wise cost statement showing, total cost, sales realization & margin for submission to MCA & for internal management for management decision making.

e) In health care sector product cost statements can be prepared in two ways –

- Patient-wise (in a way, separately for each bill)
- Procedure-wise & ward-wise (separately for IPD & OPD) but not patient-wise

f) In case of first alternative above , number of cost sheets will be equal to number of patient bill raised during the year. It may run into thousands of bills (IPD & OPD) in case of hospital depending on No of patient beds capacity. Hence, it may not be practicable to prepare patient-wise actual cost sheets. However, a standard operating cost for each activity for a patient can be established based on past datas and the same can be compared to the billing price to arrive at estimated cost for a bill

Therefore, it is suggested that the costing system should be developed leading to calculation of procedure-wise & ward-wise,,activity wise cost as per cost template provided in subsequent chapter in this guidance note.

Further, it may be used for calculation of patient-wise cost, as & when required.

Therefore 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 deptt. Costs, Medical support deptt. costs, and non medical services deptt. 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 deptt. shall discount the intensity of services in respective deptt.(Instead this can be managed by giving weightage age to the deptt.)However ABC method would be the most appropriate method of identifying the cost to respective deptt.

Capacity % 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 % can be

worked out for each resource. However, overall capacity used % 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 deptt. 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 non medical services deptt.

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) Direct/Variable Cost approach: Here all variable costs are traced to respective procedures /operations via accounting process namely cost center model. This is for both medical and medical support deptt. 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 deptt.) 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. Some of the examples of medical packages are

a) Cardiac Treatment

b) Cataract treatment

c) Hospital master health check up

d) Corporate customised package

e) Package for visa applications clearances

f) Dialysis package

g) Specific organ transplantation package

h) Therapy package

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 drive

The actionable points for above cost models are narrated below.

The first step is: to identify the following

1. Main medicals deptt. such as General medicine, Gynaecology, Cardiology Ortho, etc.

2. Medical support deptt. such as Operation theatre, laboratory, blood bank, pharmacy, radiology etc., etc.
3. Non medical service deptt. such as Medical records deptt., Administration ,accounts and finance, IT, purchases and so on

Second step is: Each of the above deptt. 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 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 deptt.) from the service deptt.(here it is medical support deptt. and non medical service deptt. 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
2. Cost per patient.
3. Cost of each department (cost collectible from respective cost centre 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 centre) medical support(secondary cost centre) and Non medical (ie) service departments(tertiary cost centres). 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) deptt. wherein they play a dual role of both a profit centre as well as cost centre. Eg Scanning, blood bank This is because, medical support deptt. 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 criss cross 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 Weightages to each type of specialty for the length of stay of the patient Assigning Resource Intensity Weightages to the basis will even out the differences during apportionment process

b) Selection of Time Horizon.

Selection of time horizon for 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 patient

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 Medical Package Costing and Costing Procedures.

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

e) Important aspects in micro costing to be considered.

2) 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.

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

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

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

6) Trace patient specific direct costs.

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

8) Finding Capacity utilisation for following indicative areas

   a) Labs and diagnostic divisions.

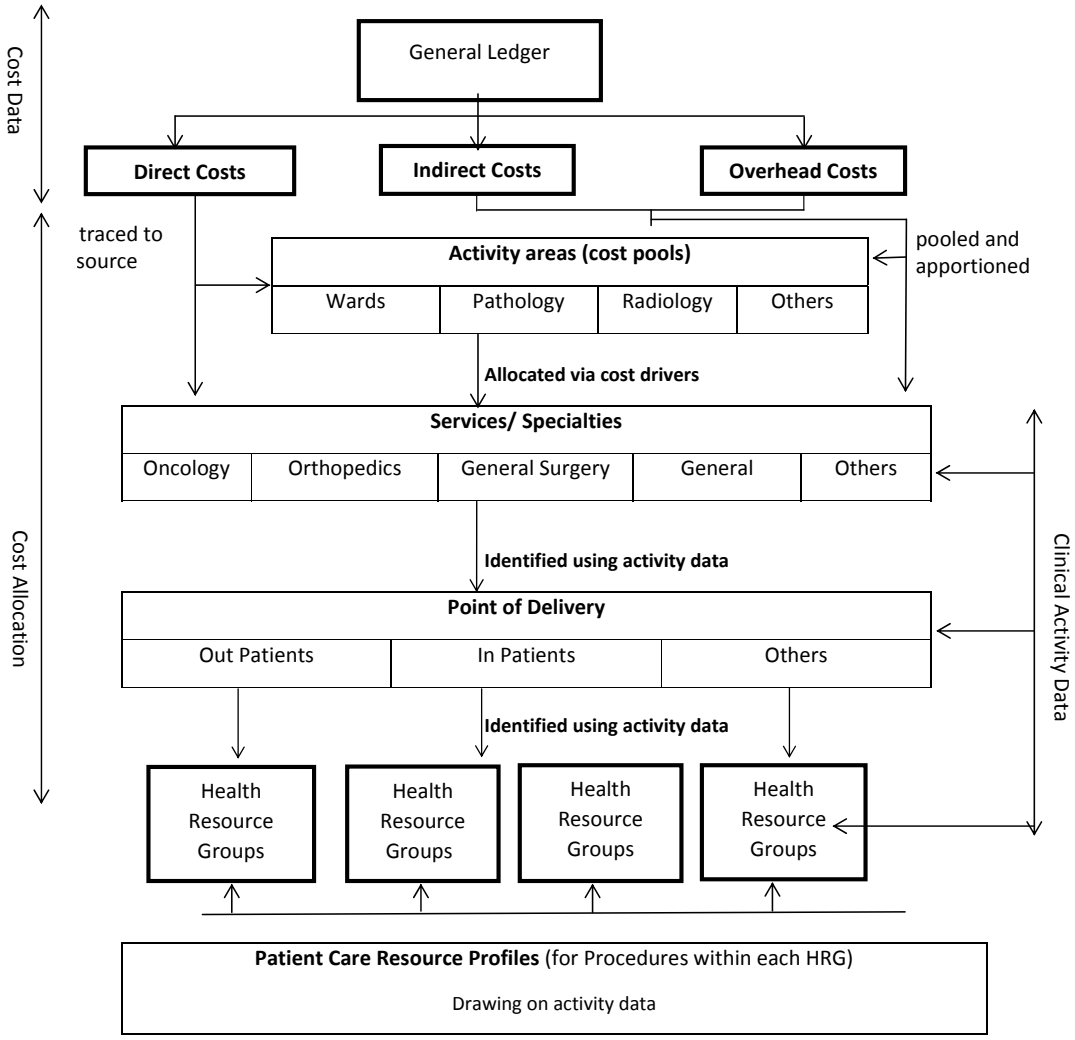
   b) OT complex.

   c) Wards.

   d) Utilities like laundry and air-conditioning etc.

   e) All other medical equipments

10. A SIMPLE FLOW CHART OF COST DATAS



Cost data capturing mechanism in above flow chart

1. **Posting screen** in the accounting IT package has to capture each of the expenses identified to several variables parameters as mentioned below in a separate field. As and when the expenses are incurred , the same is to be identified /traced to the following filed and then posted in books of accounts in respective field on the screen

a. Location

b. Account /code or description

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

d. Work centre (e.g. 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 (e.g. dressing/, consultancy/diagnosis/curing /observation)

h. Employee/employee gr/vendor/vendor gr/location

i. Work order (e.g. procedure or procedure gr)

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

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

Above are only a few examples in a typical hospital. However, depending on the size, complexity and information need of the hospital, the list can be extended.

2. **Account heads (General ledger)**. The following account heads can be opened for respective cost elements and can be grouped as direct costs and indirect costs groups.

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

b. Medical consumables and implants

c. Direct utilities such as

i. Oxygen

ii. Nitrogen

iii. Nitrous oxide gas

iv. Others life saving gases

d. Power and fuel

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

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

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

3. **Cost centre or profit center** identification Once an expense item is identified for account head as above, then it is to be identified for which cost center it is expended and to be posted in that cost center as follows.

a. For medical deptt. (one cost centre for each medical deptt.) called as primary cost centers

i. Cardiology deptt.

ii. ENT deptt.

iii. Coronary care deptt.

iv. Paediatric deptt.

v. Neuro deptt.

vi. Gynaecology

vii. Pathology

b. For Medical support deptt. (secondary cost centres). Here revenue bookings also happens due to dual role of such cost centre)

i. Pharmacy

ii. Laboratory

iii. Wards

iv. Imaging

v. Blood bank

vi. Operation theatre with various categories of OTs

vii. CSSD (central sterile services deptt.)

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

c. For Service deptt. (Tertiary cost centres or service cost centres) After the costs are collected , then it is apportioned to respective cost centre on suitable basis – Illustrative basis is explained in allocation practices table given in this guidance note elsewhere. Following service cost centres are illustrative

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

4. The datas captured in (a) above is to be identified to one of the following procedures in primary cost center. Examples of few procedures for various deptt. (medical primary and secondary cost centres) are as follows:

a. Cardiology medical deptt. (as one cost center)

b. Aortic endarterectomy

c. Insertion of automatic implantable cardioverter

d. Insertion/replacement of pacemaker

e. Coronary artery bypass grafts and angiogram

f. Valve surgery

g. Valve replacement

h. Open heart surgery

i. Neurology deptt. (another medical cost centre)

j. Cervical procedure

k. Thoracic procedure

l. Lumbar procedure

m. Imaging (as medical support cost centre)

n. Scanning procedures

o. Ultra sound procedures

p. Intravenous treatment cum scanning procedures

5. Final stage after all above process

Once all the costs are captured as above, then it is grouped/assembles/collected / summarised, it can be tabulated in a matrix format with several dimensions such as cost centre wise/job wise/ patient wise/activity wise /work centre wise /and then considered for apportionment on suitable basis for respective cost object. In addition, from the above data base, informations can be arrived at from other various dimensions for control perspective also.

The above stages are summarised as follows

1. Direct Costs (such as medicines, pharmacy stores, consumables,oxygen etc) incurred are collected in respective primary cost centers such as medical deptt. and also to secondary cost centers namely Medical services deptt. 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 deptt./ 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 deptt. 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, weightage 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 weightage) 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.

6) Illustrative List Cost Records to be maintained

1. Surgical/Pharmacy Supply consumption-department wise (from surgical material ledger)
2. Hospitals will have main store, many sub stores and each store to record surgical supply/consumption department wise
3. Separate ledger for items consumed on consignment basis department wise (Surgical Non Storing)
4. Each above ledger will have items billable and non billable so, separate ledger to be maintained at all the stores level.
5. Non surgical material ledger, material which is generally one main store
6. Pharmacy ledger in same fashion as above
7. Engineering items consumption ledger. For major projects job cards to be prepared so that consumption can be properly classified as revenue and capital nature cost
8. Food material consumption ledger if hospital is procuring to patient & staff
9. Record of Utilisation of Doctors hours., Full time retainer doctor hours, consultants doctor hours, Resident Medical Officer hours to be maintained
10. Department and sub department wise manpower deployed & Salaries & manpower utilisation hours, cost to be maintained.
11. Utilisation of Fixed asset, in particular medical equipment's department wise and speciality wise
12. Records of Outsourcing services (e.g. medical test, housekeeping, food, laundry etc)

13. Cost centre wise expense booking.
14. Patient count and number of studies and test done in all medical department and sub departments
15. Record of Number of surgeries, grade wise, specialty wise, operation theatre wise surgeon wise
16. Charity and concession register showing patient wise, department wise.
17. Department wise area, technical estimates of medical gas consumption and power
18. Record of bed occupancy patient class wise (single bed, double bed, common ward, special ward, deluxe room)
19. Record of Cath lab and operation theatre wise occupancy
20. Record of Inventory valuation to be obtained from all the ledger and valuation to be based on the investor policy such as LIFO, FIFO, Weighted average.

11. HEALTH CARE SERVICES COST POOL & ALLOCATION PRACTICES

Cost pooling means classification, collection of costs/resources used in respective deptt. 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 departments.

(iii) Non-medical (service) departments.

(i) Medical departments:

Department which generates income directly from the patients are called medical departments. These are also called as Profit centers. e.g. General Medicine, Gynaecology, Cardiology, Orthopaedic, Neurology, Nephrology etc. Income on CABG surgery to a patient under package will be the income of Cardiology deptt.

Income from LSCS (Lower Segment Caesarean Section) surgery to a patient will be an eg of income of Gynaecology deptt.

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

(ii) Medical support departments:

These departments generally support medical departments. These also generate revenue from patients directly and hence these are also called as profit centres. However, in addition to revenue generation since these departments render supporting to main medical departments, resources are expended in these departments and hence will remain as cost centres also. e.g. 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.

(iii) Non-medical (service)departments:

Department which do not generate income directly but supports the Medical and Medical support departments to do their services effectively are known as Non-medical (service) departments. e.g. Medical Records, Business operations & Admin, Finance & Accounts, IT, Bio-medical Engineering, Maintenance, House-keeping, Admission, HR, Purchase & Stores department etc.

Methodology of allocation/apportionment of major expenses (due weightage to be given wherever applicable)

	Type of Expenses	Basis for Allocation/ Apportionment to profit centers & ancillary centers
1	Medicines	Actual
2	Doctor Consultation Fees	Procedure-wise, Ward-wise actual / standard rate chart
3	Direct Medical Consumables	Actual
4	Direct Staff Wages and Salaries	Cost Centre - wise, category-wise actual / based on standard strength
5	Indirect Medical consumables	Technical Estimates
6	Pathological Testing Material	Direct to Pathology Deptt.
7	Air Conditioning and Power	Technical Estimates
8	Steam	Technical Estimates
9	Repairs and Maintenance (Incl. AMC)	Cost Center wise asset value
10	Property Tax	Floor area
11	Depreciation	Cost Centre-wise, Asset-wise Depreciation

Below table shows an Illustrative list of profit centers and its cost drivers (due weightage to be given wherever applicable)

	Profit Centres		Cost Driver
1	Wards		
	1.1	Intensive Care Unit	Patient Days
	1.2	Suite Class	Patient Days
	1.3	Deluxe Room	Patient Days
	1.4	Semi private (Twin sharing room)	Patient Days
	1.5	Common Class	Patient Days

2	**Operation Theatre (OT)**		
	2.1	Cardiac	Total Hrs utilised & std hrs required for each procedure
	2.2	Diabetology	Total Hrs utilised & std hrs required for each procedure
	2.3	Orthopedic	Total Hrs utilised & std hrs required for each procedure
	2.4	Others	Total Hrs utilised & std hrs required for each procedure
3	**Cath Lab - Procedure – wise**		Total Hrs utilised & std hrs required for each procedure
4	**Robot-Assisted surgery**		Total Hrs utilised & std hrs required for each procedure
5	Physiotherapy		Total Hrs utilised & std hrs required for each
6	**Radiology / Imaging**		
	6.1	CT Scan	No. of Tests done
	6.2	MRI	No. of Tests done
	6.3	2D Echo	No. of Tests done
	6.4	Stress Test	No. of Tests done
	6.5	Sonography	No. of Tests done
	6.6	X Ray	No. of Tests done
	6.7	ECG	No. of Tests done
7	**Health Check Up**		
	7.1	Basic	No. of Patients
	7.2	Cardiac	No. of Patients
	7.3	Gold	No. of Patients
	7.4	Deluxe	No. of Patients
	7.5	Platinum	No. of Patients
8	**Preventive Cardiology & Rehabilitation**		No. of Patients / Patient Hours
9	**Children's Heart Centre**		No. of Patients

10	**Pathology (Major Test-Wise)**		Major Test-wise no. of tests, and Std. Cost per test (mat. and staff cost)
11	**Casualty/ Day care**		No. of Patients (IPD and OPD separately)
12	**OPD Consultation - Category – wise**		No. of Patients

Below table shows an Illustrative list of cost centers and its cost drivers (due weightage to be given wherever applicable)

	Non Medical service cost centers	Cost Driver for reallocation to profit centers only
1	Admission	No. of Patients
2	Kitchen	Patient Days
3	Cafeteria	Patient Days
4	Laundry and Linen	Patient Days
5	Pharmacy	In the ratio of cost of medicine
6	Blood Bank	Actual use of no. of blood bottles
7	Housekeeping	Floor area
8	Maintenance	Asset value (Depreciation value)
9	AC	Technical estimates
10	Power	Technical estimates
11	Steam	Technical estimates
12	Security	Floor area
13	Residential Rooms	Manpower employment
14	Administrative Department	No of OP and IP visits & admissions (with due weightage)
15	Marketing Department	No of OP and IP visits & admissions (with due weightage)

Illustrative -Sample cost sheet for a Medical package:

Name of the medical pack --→	**Description Of The Pack (As Per Standard Description)**
Details of cost elements	Amount Rs /Pack
1. Pharmacy cost	xx
2. Consumables cost	x
3. Implants cost	xx
4. Investigation cost (with details)	x
5. Doctors and nurses fees (with details)	xx
6. Other employee costs	x
7. Accomodation costs	xx
8. Medical equipments usage costs	x
9. Maintenence cost of above	x
10. Other direct expenses	x
Total Direct costs (sum of all above)	xxxx
11. Administrative costs	x
12. Management costs	x
Total cost for the package	xxxxxx

Illustrative -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 the 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 (at patient level) is provided at the end of this guidance note.

12. COSTING SUMMARY TEMPLATE FOR SEVERAL PROCEDURES

(This is to be made for each location in the company)

Part i	**Name & type of procedures has to be as per the classification prescribed by MOH&FW and as per returns submitted** ------>		**Ortho**	**Neuro**	**Others -List to Extend**
	Statement of details required for one procedure in respective speciality deptt. (quantity and others)				
	Package as per 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			
A	OPD visits				
	-Consultation	Nos			
	-Investigations	Nos			
	-Procedure	Nos			
B	Casualty				
	-Consultation	Nos			
	-Investigations	Nos			
	-Procedure	Nos			
C	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			
D	OT details				
	-Major	Patient hrs			
	-Minor	Patient hrs			
	-Speciality lab	Patient hrs			

Part II			Ortho	Neuro	Others -List to Extend
	Cost elements for a procedure	**Reference**	**Rs./ Procedure**	**Rs./ Procedure**	**Rs./ Procedure**
1	All direct cost (sum of below three items)----->		xx		
1.1	Pharmacy costs	Schedule a	xx		
1.2	Consumables & implants	Schedule b			
1.3	Other direct costs like oxygen,nitrous oxide etc		xx		
2	Direct employees cost	Schedule c	xx		
3	Operation theatre cost	Schedule d	xx		
4	Investigations(sum of below two items)	Schedule e			
4.1	Laboratory charges		xx		
4.2	Radiology and imaging		xx		
5	Blood bank	Schedule f	xx		
6	Room /bed cost (sum of below 3 items)	Schedule g1			
6.1	For single occupancy		xx		
6.2	For double occupancy		xx		
6.3	For multiple occupancy		xx		
7	Intensive care unit icu (sum of below 4 items)	Schedule g			
7.1	Pre op ward (general/special/ daycare)		xx		
7.2	Post op ward (general/special/ daycare)		xx		
7.3	Critical care unit ccu		xx		
7.4	Others		xx		
8	Health care support (non medical) services	Schedule h	xx		

9	Hospital Administration Overheads	Schedule i	xx		
10	Other costs		xx		
	Total costs		xxx		
	Revenue --->		xx		
	Margin ---->		xx		

Schedule A		**ORTHO**	**NEURO**	**OTHERS -LIST TO EXTEND**
Particulars		**Rs/ procedure**	**Rs/ procedure**	**Rs/ procedure**
PRE OP				
Imported Material		X		
Indigenous Material		x		
POST OP				
Imported Material		x		
Indigenous Material		x		
OT				
Imported Material		x		
Indigenous Material		x		
OTHERS		x		
Imported Material		x		
Indigenous Material				
TOTAL COST				
Imported Material		xx		
Indigenous Material		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule B				
CONSUMABLES & IMPLANTS		**ORTHO**	**NEURO**	OTHERS -LIST TO EXTEND
Particulars		**Rs/ procedure**	**Rs/ procedure**	**Rs/ procedure**
PRE OP				
Imported Material		x		
Indigenous Material		x		
POST OP				
Imported Material		x		
Indigenous Material		x		
OT/CATH LAB				
Imported Material		x		
Indigenous Material		x		
TOTAL COST				
Imported Material		x		
Indigenous Material		x		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule C				
DIRECT EMPLOYEES COST		**ORTHO**	**NEURO**	OTHERS -LIST TO EXTEND
Particulars		**Rs/ procedure**	**Rs/ procedure**	**Rs/ procedure**
Super Specialist		x		
Specialist		x		
Assistant/Attending/Resident Dr Cost		x		
Others		x		
TOTAL COST		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule D				
OPERATION THEATRE COST		**ORTHO**	**NEURO**	OTHERS -LIST TO EXTEND
Particulars		**Rs/ procedure**	**Rs/ procedure**	**Rs/ procedure**
MAN POWER				
Employees				
-Nursing		x		
-Non Nursing		x		
MATERIALS				
General Consumables Eg Anesthesia		x		
MACHINERY				
Depreciation		x		
Maintenance		x		
EXPENSES & UTILITIES				
EXPENSES				
Non-Medical Furniture		x		
Ac		x		
Fumigation		x		
UTILITIES				
Building		x		
Power Consumption		x		
Others		x		
TOTAL COST		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule E				
INVESTIGATION		**ORTHO**	**NEURO**	**OTHERS -LIST TO EXTEND**
Particulars		**Rs/ procedure**	**Rs/ procedure**	**Rs/ procedure**
LAB		x		
Manpower				
MATERIALS				
Consumables & Implants		x		
Utilities		x		
Expenses		x		
Others		x		
TOTAL COST		xx		
RADIOLOGY				
Manpower		x		
Materials		x		
Utilities		x		
Expenses		x		
Others		x		
TOTAL COST		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule F				
BLOOD BANK		**ORTHO**	**NEURO**	**OTHERS -LIST TO EXTEND**
Particulars		**Rs/ procedure**	**Rs/ procedure**	**Rs/ procedure**
MANPOWER		x		
Consumables		x		
Equipments		x		
Non Medical Furnitures		x		
Power Consumption		x		
Ac		x		
Building		x		
TOTAL COST		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule G1				
ROOM /BED COSTS (TO BE MADE FOR EACH LEVEL OF OCCUPANCY SUCH AS SINGLE /DOUBLE/MULTIPLE		**ORTHO**	**NEURO**	**OTHERS -LIST TO EXTEND**
Area occupied in sq ft ----->				
Rate per sq ft ----------->				
PARTICULARS	Rs			
Nursing	x			
Ip Services	x			
Op Services	x			
Billing	x			
Inhouse	x			
Laundry	x			
Tailoring	x			
Hospital Admin.	x			
Doctors	x			
TOTAL COST	xx			
Total Ip Services Area Sft	xxxxxx			
Cost Per Day	xx			
Rate Per Sq Ft	xx			
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule G				
PREOPERATIVE& POSTOPERATIVE WARD		**ORTHO**	**NEURO**	**OTHERS -LIST TO EXTEND**
Particulars				
MAN POWER				
Employees		x		
-Nursing		x		
-Non Nursing		x		
-Duty Doctors		x		
Others		x		
MATERIALS				
Consumables		x		
Others		x		

MACHINERY				
Depreciation		x		
Maintenance		x		
Others				
EXPENSES & UTILITIES				
EXPENSES				
Non-Medical Assets		x		
Ac		x		
Food		x		
UTILITIES				
Building Cost		x		
Power Consumption		x		
Others		x		
TOTAL COST		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule H				
HEALTH CARE SUPPORT (NON MEDICAL) SERVICES		**ORTHO**	**NEURO**	**OTHERS -LIST TO EXTEND**
CSSD (Central Sterile Services Department)		x		
MRD(Medical records Deptt.)		x		
Media Co-Ordination		x		
Dietitics and Discharge		x		
Bio Medical		x		
Waste		x		
Ac Plant		x		
Security		x		
House Keeping		x		
Maintenance		x		
Genset Power Back Up		x		
Electricity		x		
Laundry		x		
Social Service Deptt. - Sapna		x		
Computerization		x		
Facility		x		
Stores		x		
CCTV		x		
Kitchen		x		

In House Training Centre		x		
Others		x		
TOTAL COST		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

Schedule I				
HOSPITAL ADMINISTRATION OVERHEADS		**ORTHO**	**NEURO**	OTHERS -LIST TO EXTEND
FINANCE & ACCOUNTS		**Rs/ procedure**	**Rs/ procedure**	**Rs/ procedure**
Parking		X		
Transport		X		
Cafeteria		X		
Operations & Administration		X		
Finance & Accounts		X		
Bio Metric		X		
Communication		X		
Building Cost		X		
Marketing		X		
Non Medical Furniture(Indirect)		X		
Solar Heating		X		
Accredition		X		
Others		X		
TOTAL COST		xx		
Note: If the nomenclature used is different, please mention the same in brackets.				

13. COSTING TEMPLATE- FOR ONE PROCEDURE

	Costing template for one medical procedure(for the period under ref)			
Part I	**Name & type of procedure has to be as per the classification prescribed by MoH&FW and as per returns submitted ------>**		**Eg. Ortho**	
	Statement details required for one procedure in respective speciality deptt. (quantity and others)			
	Package as per MoH & FW/ICD….			
	Type of procedures (which are billable to the patient shall be given.)			
	No of procedures (for the period under ref)	Nos		
	Hospital stay details (patient days)	Patient days		
A	**OPD VISITS**			
	-Consultation	Nos		
	-Investigations	Nos		
	-Procedure	Nos		
B	**CASUALTY**			
	-Consultation	Nos		
	-Investigations	Nos		
	-Procedure	Nos		
C	**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		
D	**OT DETAILS**			
	-Major	Patient hrs		
	-Minor	Patient hrs		
	-Speciality lab	Patient hrs		

Part II				
	COST ELEMENTS FOR A PROCEDURE	**Reference**	**AMOUNT IN Rs. (FOR A PERIOD)**	**COST PER PROCEDURE**
1	All Direct Costs (Sum of Below Three Items)----->		xx	
1.1	Pharmacy Costs	Schedule A	xx	
1.2	Consumables & Implants	Schedule B		
1.3	Other Direct Costs Like Oxygen,Nitrous Oxide Etc		xx	
2	Direct Employees Cost	Schedule C	xx	
3	Operation Theatre Costs	Schedule D	xx	
4	Investigations (sum of below two items)	Schedule E		
4.1	Laboratory Charges			
4.2	Radiology And Imaging		xx	
5	Blood Bank	Schedule F	xx	
6	Room /Bed Costs (sum of below 3 items)	Schedule G		
6.1	For Single Occupancy	-		
6.2	For Double Occupancy	-	x	
6.3	For Multiple Occupancy	-	xx	
7	Intensive Care Unit ICU (sum of below 4 items)	Schedule H		
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		xx	
8	Health Care Support (Non Medical) Services	Schedule I	xx	
9	Hospital Administration Overheads	Schedule J	xx	
10	Other Costs		xx	
	TOTAL COSTS		xx	
	REVENUE --->		xx	
	MARGIN ---->		xx	

Schedule A			
PHARMACY COSTS		**Eg. ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
PRE OP			
Imported material		xxxxx	x
Indigenous material		xxxxx	x
POST OP			
Imported material		xxxxx	x
Indigenous material		xxxxx	x
OT			
Imported material		xxxxx	x
Indigenous material		xxxxx	x
OTHERS			
Imported material		xxxxx	x
Indigenous material		xxxxx	x
TOTAL COST			
Imported material		xxxxxx	xx
Indigenous material		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule B			
CONSUMABLES & IMPLANTS		**Eg. ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
PRE OP			
Imported Material		xxxxx	x
Indegenous Material		xxxxx	x
POST OP			
Imported Material		xxxxx	x
Indegenous Material		xxxxx	x
OT/CATH LAB			
Imported Material		xxxxx	x
Indegenous Material		xxxxx	x

TOTAL COST			
IMPORTED MATERIAL		xxxxxx	xx
INDEGENOUS MATERIAL		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule C			
DIRECT EMPLOYEES COST		**Eg.ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
Super Specialist		xxxxx	x
Specialist		xxxxx	x
Assistant/Attending/Resident Dr. Cost		xxxxx	x
Others		xxxxx	x
TOTAL COST		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule D			
OPERATION THEATRE		Eg.ORTHO	
Particulars		AMOUNT IN Rs.	COST PER PROCEDURE
MAN POWER			
Employees		xxxxx	x
-Nursing		xxxxx	x
-Non Nursing		xxxxx	x
MATERIALS			
General Consumables e.g. Anesthesia		xxxxx	x
MACHINERY			
Depreciation		xxxxx	x
Maintenance		xxxxx	x
EXPENSES & UTILITIES			
Expenses			
Non-Medical Furniture		xxxxx	x
Ac		xxxxx	x
Fumigation		xxxxx	x

UTILITIES			
Building		xxxxx	x
Power Consumption		xxxxx	x
Others		xxxxx	x
TOTAL COST		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule E			
INVESTIGATION		**Eg.ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
LAB			
Manpower		xxxxx	x
MATERIALS			
Consumables & Implants		xxxxx	x
Utilities		xxxxx	x
Expenses		xxxxx	x
Others		xxxxx	x
TOTAL COST		xxxxxx	xx
RADIOLOGY			
Manpower		xxxxx	x
Materials		xxxxx	x
Utilities		xxxxx	x
Expenses		xxxxx	x
Others		xxxxx	x
TOTAL COST		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule F			
BLOOD BANK		**Eg. ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
Manpower		xxxxx	x
Consumables		xxxxx	x
Equipments		xxxxx	x
Non Medical Furnitures		xxxxx	x
Power Consumption		xxxxx	x
Ac		xxxxx	x

Building		xxxxx	x
TOTAL COST		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule G			
ROOM /BED COSTS (TO BE MADE FOR EACH LEVEL OF OCCUPANCY SUCH AS SINGLE /DOUBLE/MULTIPLE			
Area occupied in sq ft ---->			
Rate per sq ft ----------->		**Eg. ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
Nursing		xxxxx	x
Ip Services		xxxxx	x
Op Services		xxxxx	x
Billing		xxxxx	x
Inhouse		xxxxx	x
Laundry		xxxxx	x
Tailoring		xxxxx	x
Hospital Admin.		xxxxx	x
Doctors		xxxxx	x
TOTAL COST		xxxxxx	xx
TOTAL IP SERVICES AREA SFT		xxxxxx	x
COST PER DAY		xxxxx	x
COST PER SFT		xxxxx	x
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule H			
PREOPERATIVE& POSTOPERATIVE WARD		**Eg. ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
MAN POWER			
Employees		xxxxx	x
-Nursing		xxxxx	x
-Non Nursing		xxxxx	x
-Duty Doctors		xxxxx	x
OTHERS		xxxxx	x

MATERIALS			
Consumables		xxxxx	x
Others		xxxxx	x
MACHINERY			
Depreciation		xxxxx	x
Maintenance		xxxxx	x
Others		xxxxx	x
EXPENSES & UTILITIES			
EXPENSES			
Non-Medical Assets		xxxxx	x
Ac		xxxxx	x
Food		xxxxx	x
UTILITIES			
Building Cost		xxxxx	x
Power Consumption		xxxxx	x
Others		xxxxx	x
TOTAL COST		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule I			
HEALTH CARE SUPPORT (NON MEDICAL) SERVICES		**Eg. ORTHO**	
Particulars		AMOUNT IN Rs.	COST PER PROCEDURE
CSSD (Central Sterile Services Department)		**xxxxx**	x
MRD(Medical Records Deptt.)		xxxxx	x
Media		xxxxx	x
Co-Ordination		xxxxx	x
Dietitics and Discharge		xxxxx	x
Bio Medical		xxxxx	x
Waste		xxxxx	x
Ac Plant		xxxxx	x
Security		xxxxx	x
House Keeping		xxxxx	x
Maintenance		xxxxx	x
Genset Power Back Up		xxxxx	x

Electricity		xxxxx	x
Laundry		xxxxx	x
Social Service Deptt. - Sapna		xxxxx	x
Computerization		xxxxx	x
Facility		xxxxx	x
Stores		xxxxx	x
CCTV		xxxxx	x
Kitchen		xxxxx	x
In House Training Centre		xxxxx	x
Others		xxxxx	x
TOTAL COST		xxxxx	x
Note: If the nomenclature used is different, please mention the same in brackets.			

Schedule J			
HOSPITAL ADMINISTRATION OVERHEADS		**Eg. ORTHO**	
Particulars		**AMOUNT IN Rs.**	**COST PER PROCEDURE**
Finance & Accounts		xxxxx	x
Parking		xxxxx	x
Transport		xxxxx	x
Cafeteria		xxxxx	x
Operations & Administration		xxxxx	x
Finance & Accounts		xxxxx	x
Bio Metric		xxxxx	x
Communication		xxxxx	x
Building Cost		xxxxx	x
Marketing		xxxxx	x
Non Medical Furniture (Indirect)		xxxxx	x
Solar Heating		xxxxx	x
Accredition		xxxxx	x
Others		xxxxx	x
TOTAL COST		xxxxxx	xx
Note: If the nomenclature used is different, please mention the same in brackets.			

(To put separate table for each occupancy method such as Single/Double/Multiple Occupancies)

14. 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 criss 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 an individual cost object 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 well 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.

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 deptt. 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.

15. 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

1. 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 enquiries
- 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

2. Technical Bio management information system

This info system can be broadly classified as

1. Doctors`s 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

3. 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 information and day to day operating MIS reports would be as follows:

1. Department wise revenue for the period and variance
2. Doctor wise revenue and professional fees earned by them
3. Class wise revenue and occupancy
4. Diagnostic departments, sub department wise test and studies count
5. Patient count in OPD and IP
6. Conversion ratio of OP patient to IP patient
7. Operation theatre wise number of Surgeries
8. Investment in medical equipment and its ROI
9. Credit party wise revenue and their outstanding / ageing analysis
10. Daily revenue and daily collection of all division
11. Department wise profitability

12. Department wise charity and concession given
13. Patient wise charity and concession given
14. Contribution on trading activity (Surgical, Pharma and Drugs)
15. ABC Analysis of inventory particularly in drugs where there is expiry and near expiry dates
16. Adequacy of variance insurance and claim settlement
17. Number of hospital and corporate health check up packages and conversion ratio

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 deptt. 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 deptt. 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. Hospital 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 standalone modules (listed below- relating to healthcare industry) available in the market.

1. **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.

2. **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.

3. **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.

4. **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.

5. **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.

6. **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).

7. **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.

8. **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.

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. **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.

11. **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.

12. **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).

13. **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.

14. **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.

15. **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).

16. 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.

A) At Profitability level :

1. Departmental profitability

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

2. 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 in reviewing, rationalizing the tariff.

3. 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.

4. Patient segment wise profitability

The profitability of each patient segment like Cash, Insurance, Corporate can be analyzed, once the hospital is ready with patient level costing. Other grouping of customers like geography, age, etc also is possible at this stage. This will help in focusing on 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, down sizing, cross selling, etc.

5. 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.

6. 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 in arriving at the actual treatment cost of treating a patient for a given medical condition with associated complications.

7. 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.

8. 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. For eg common procedures like CABG, TKR, the standard material requirements can be formalized by comparing the procedure material requirement of various

leading consultants and their clinical outcomes regarding Theatre consumables, Pharmacy Pre op & Post op, diagnostic tests, stay duration etc.

B) At Strategic level

9. Budgeting perspective:

The cost to the patient should be measured in full, which includes the doctors' fees and pharmacy supplies. This will help in quoting for Insurance, Corporate customers, as well as offering package products for common diseases to cash patients

10. Standard vs actual perspective (ie) Variance assessment perspective.

Developing clinical pathways for all the DRG codes will help in determining the standard treatment costs for a given disease, severity and associated complications or co-morbidities. This data can be used to compare the actual cost of treatment done for patients falling into the corresponding DRG code. Variances can be analyzed and controlled, wherever there is a significant deviation.

11. Cost of Entire care cycle :

Normally, system captures the cost of the patient per admission / episode. It should be extended to data capturing for every in-patient to the OP visits prior to and after the admission(s) using the ID reference for a span of say 1 year, so that the full cost of treatment spanning across the entire cycle can be correctly understood for each DRG type.

12. Cost control perspective :

(a) Identifying areas of waste /rework that can be corrected, periodic replacement of consumables, Expansion or contraction of services, grouping or regrouping of services.

(b) Rendering in-house service or subcontracting (as outsourced one) the same.

(c) Enhancing cost-effectiveness in hospitals (e.g. comparing alternative approaches such as engaging a resident doctor on full time employment or engaging doctors on call, inhouse ambulatory vs. outsourced ones).

C) At efficiency level :

Perfomances are measured not only in terms of money, but also to be measured in terms of effectiveness of resource utilised.

1. Measuring effectiveness of treatment

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.

2. Cost of Quality

The Patient value proposition includes the quality as perceived by patient. 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 effectiveness of a 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 = $\frac{\text{The total vacant bed Days during the year}}{\text{The number of inpatient admission during the year}}$ X 100

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 = $\frac{\text{Total no. of new inpatients days during the year}}{\text{Total no. of inpatients admission during the year}}$

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 spread 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 = $\dfrac{\text{Total expenditure on diet during the year}}{\text{Total number of inpatient days.}}$

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

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

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

17. ROLE OF CMAS IN HEALTH CARE 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:

1. 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

2. 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.

3. 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.

4. 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.

5. 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.

6. Can develop Activity Based Cost Management as per the steps suggested in this booklet above under "Designing Healthcare Costing System".

7. 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 total Cost 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.

8. Designing standalone Inventory control management system;

9. 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:

10. 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;

11. Project appraisal & evaluation and project monitoring being a member of Project Implementation Team;

    a. Help the management in project financing through Financial Institutions;

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

    c. 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.

    d. After the hospital and its medical college are 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.

12. In addition to above, CMA's can render services in below mentioned areas also. Government of India has created new opportunity for CMAs in healthcare industry and the threshold limits prescribed under maintenance of cost records rules and cost audit are very low. Even trading and supply of medical devices are covered under Rule 3 (B) Non regulated sector S.No 33. In view of these rules the

CMAs may provide the following additional services to healthcare sector:

a. Maintenance of Cost Records as per companies (Cost records and Audit) rules 2014;

b. Cost Accountants can be engaged as Cost auditors by healthcare companies who meet the threshold limits under Cost Audit Rules, 2014.

c. 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 system.

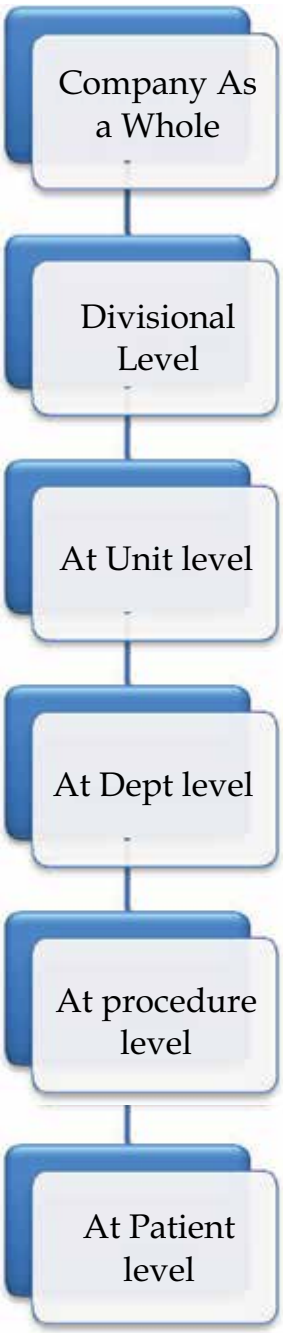
d. The Companies Act 2013 contains several opportunities for CMAs apart from maintenance of cost records under section 148(1), conduct of cost audit under section 148(2) and Internal Audit under section 138. Accordingly, CMAs can be appointed internal auditor in the healthcare sector.

e. 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.

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

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

Cost Statement is prepared at various levels and finally rolled up to company level as follows:



An illustrative patient billing /cost sheet and Radio Diagnostic Department cost statement is displayed below.

Proforma Cost Sheet – (In-Patient)

Bill No	**IP No**
Admission No	ID
Name	
Address	Sex / Age
Ward/Room	Admission Data
Consulting Doctor	Discharge Date
Tin No	
Patient Type :Cash /corporate /Insurance/reimbursement	Printed On
Room Type : Either single /deulex etc	
Name of Procedure :	
Particulars	Amt (in Rs)
o Admission charges	
o Pharmacy (medicines and consumables) charges	
o Implant charges	
o Room charges	
▸ Ward bed charges	
▸ Single Room Bed charges	
▸ Deluex room bed charges	
o Doctors charges :	
▸ Specialist Dr charges	
▸ Duty doctor charges	
▸ Resident Dr charges	
▸ Anestheist Dr charges	
▸ Dietician charges	
▸ Physiotherapist charges	
▸ Nursing charges	
o Investigation charges	

▸ Preliminary investigation charges	
Secondary investigation charges	
▸ Blood bank charges	
▸ ECG and Echo charges	
▸ Scanning (details to be provided) charges	
▸ Laboratory investigations	
▸ Radiology investigation charges	
o Operation theatre charges	
▸ Medical procedure charges	
▸ Surgery charges	
o Other administrative charges	
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.

1. **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.

2. **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.

3. **Utility cost**

   Consists of Power, Water, compressed air., etc.

4. **Administrative cost**

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

5. **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 /day The number of films to be exposed differs depending upon the type of investigation to be done.

Proforma Cost Statement in Radiology deptt.

Particulars	Amount (Rs.)
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(weightage to be given to the area or size of the film also)	
Cost per X-ray film (Rs) or cost per sq ft of the film	

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 DIAOGNOSTIC DEPARTMENT

Activity	Resources Requirements			Investigative Procedure					Suggested system Activity Cost Pool	Cost driver
	Labour	Supplies Material	Other Expenses	X ray	IVP	MCU	BS	Present System of recovery		
General Administration										
Registration	Receptionist	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost	As a part of Activity Pool, Booking & reception	No of Patients
Appointment Fixing	Secretary	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost		
Receiving the Patient	Receiving Deptt.	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost		
Typing of reports	Receptionist	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost		
Billing & Collection	Receptionist	Stationery	Equipments	Y	Y	Y	Y	As a Part of Admin Cost		
Treatment Protocol										
Patient Movement	Ward boys / Nurses	Dyes/ barium/ catheter etc.	Equipments	Y	Y	Y	Y	Not Identified	Inpatient Movement	No. of in patients
Preparation of Patient	Radiographer		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

Activity	Resources Requirements			Investigative Procedure					Suggested system Activity Cost Pool	Cost driver
	Labour	Supplies Material	Other Expenses	X ray	IVP	MCU	BS	Present System of recovery		
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 examples 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 staff should be considered as additional activity and to be costed accordingly and to be included in the cost sheet