HOSPITAL AS A SYSTEM in Health Care Management Services

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BCKGROUND OF THE ARTICLES :

Introduction : In India health care system one of the essential services to the society , individual and community in physical, mental, social, emotional and spiritual aspect of health for all . Hospital services is always plan for the quality of patient care and safety of patient services. The health care system is comprised of institutions, agencies, policies, payment of plans, providers, clients, families and care givers . health care is provided within many different part of facilities to meet the needs of the people. In simple form hospital is an institution where sick and injured patients are treated as in patients. **Aim :** To improve the patient care system in proper channel**. Objectives** : To maintain the chain of units and subunits ,to Obtain inputs from its internal and external environment to process the output of system.**Type of system**: it incudes the Input, Process and Output ,expected outcomes. **Results** : better management, quality of patient care system. **Application**: in hospital, clinics, nursing homes, medical coleges, institutions, etc.

INTRODUCTION:

Hospital is an organization that mobilizes the skills and efforts of widely divergent groups of professionals , semi professionals and non professionals so as to provide highly personalized services to individual patients .this warrants a systemic functioning of hospital as an institutions.hospital is an iteraction point between the hospital, staff and the staff patients and his relatives, attendant etc. onn arrival of the patients , group of people from inside the hospital as well as from out side engage themselves for his care and early recovery. There fore hospital is an open system.

HOSPITAL

 A hospital is a residential establishment which provides short term and long term medical care consisting of observational , diagnostic , therapeutic and rehabilitative services for persons suffering or suspected to be suffering from a disease or injury and for parturients . It may or may not also provide services for ambulatory patients or an out patient basis.

MEANING OFHOSPITAL

- ❖ Latin word" HOSPILE"-Hospital, hostel, hotel, all are derived from same source ,Used in different sense,
- ❖ Basically the meaning of the word is the samei.e. to provide the service and care to their client.
- ❖ The term hospital means an establishment,temporary space occupied by sick or injuredpeople.

CLASSIFICATION OF HOSPITALS

Hospitals are classified into primary, secondary and tertiary based on bed capacity.

1.Primary hospital

1. Primary hospital is typically a hospital that contains less than 100 beds They are tasked with providing preventive care, minimal health care and rehabilitation services.
2. They are a basic level of contact between individuals and families with the healthy system
3. They include general practitioners, family physicians and physiotherapist .The basic services provided by them are immunization, maternal and child health services, curative care services and prevention of diseases are provided by PHC.
4. The staff in PHC includes a medical officer, a staff nurse and paramedical support staff

2. Secondary hospital

➢ Secondary hospitals are preferred with a medium size city, country or district and contain more than 100 beds but less than 500.
➢ They are responsible for providing complete health services and medical education and also conduct research on regional basis.
➢ These hospitals include cardiologists, urologists, dermatologists and other such specialists. The services are provided by medical specialists.
➢ The services include acute care, short period stay in hospital emergency department for brief but serious illness.
➢ There may be providers who remain in contact but do not work in hospitals such as psychiatrists, physiotherapists, respiratory therapists etc.
➢ District hospitals and community health centres at the block level are the examples of secondary hospital

3) Tertiary hospitals

➢ These are comprehensive or general hospitals of the city at national or provincial level with the bed capacity exceeding 500.
➢ They are responsible for providing specialist health services and play a vital role with regard to medical education and scientific research and they also serve as a medical hub providing care to multiple regions.
➢ The Patients are admitted into these centres on a referral from primary or secondary health professionals.
➢ They offer personnel facility as well as facilities for advanced medical investigation and treatment.
➢ They provide advanced diagnostic support services, specialized intensive care and special services such as neurosurgery, cancer management, cardiac surgery etc that cannot be provided by primary and secondary health centres.
➢ The examples of tertiary hospitals include 3 medical colleges and advanced medical research institutes

DEFINITION OFHOSPITAL

A **hospital** is an institution for health care providing patient treatment by specialized staff and equipment, and often, but not always providing for longer-term patient stays.

According to WHO, Hospital is an integral part of asocial and medical organization, the function of which is to provide for the population complete health care, both curative and preventive, and whose out-patient services reach out to the family and its home environment, the hospital is also a centre for the training of health worker and for biosocial research.

SYSTEM: INTRODUCTION

A system is a collection of parts (or subsystems) integrated to accomplish an overall goal (a system of people is an organization). There are numerous types of systems. For example, biological systems (cardiovascular, etc.), mechanical systems (thermostat, etc.), human/mechanical systems(riding a bicycle, etc.), ecological systems (predator/prey, etc.), and social systems (groups, supply and demand, friendship, etc.).
A pile of sand is not a system. However, a functioning car is a system.


The Concept of Systems

Scholars in various disciplines who are concerned about the tendency toward the fragmentation of knowledge and the increasing complexity of phenomena have sought a unifying approach to knowledge. Luduring von Bertalanlfy, a biologist, developed a general systems thereby that applied to any arrangement of elements such as cells, people, societies or even planets. Norbert Wiener, a mathematician observed that information and communications provides connecting links for unifying fragments or elements, His systems concept of information theory, which shows the parallel between the functioning of human beings and electronic systems, laid the foundation for today's computer systems. Herbert A. Simon, a political scientist, related the systems concept to the study of organizations by viewing an ongoing system as a processor of information for making decisions.

Systems analysis and information systems were founded in general systems theory, which emphasizes a close look at all parts of a system. Too often analysts focus on only one component and over look other

equally important component. General systems theory is concerned with "developing a systematic, the theoretical framework upon which to make decisions'. It discourages thinking in a vacuum and encourages consideration of all the activities of the organization and its external environment. Pioneering work in general systems theory emphasized that organizations be viewed as total systems. The idea of systems has become most practical and necessary in conceptualizing the interrelationships and integration of operations, especially when using computers. Thus a system is a way of thinking about organizations and their problems. It also involves a set of techniques that helps in solving problems.
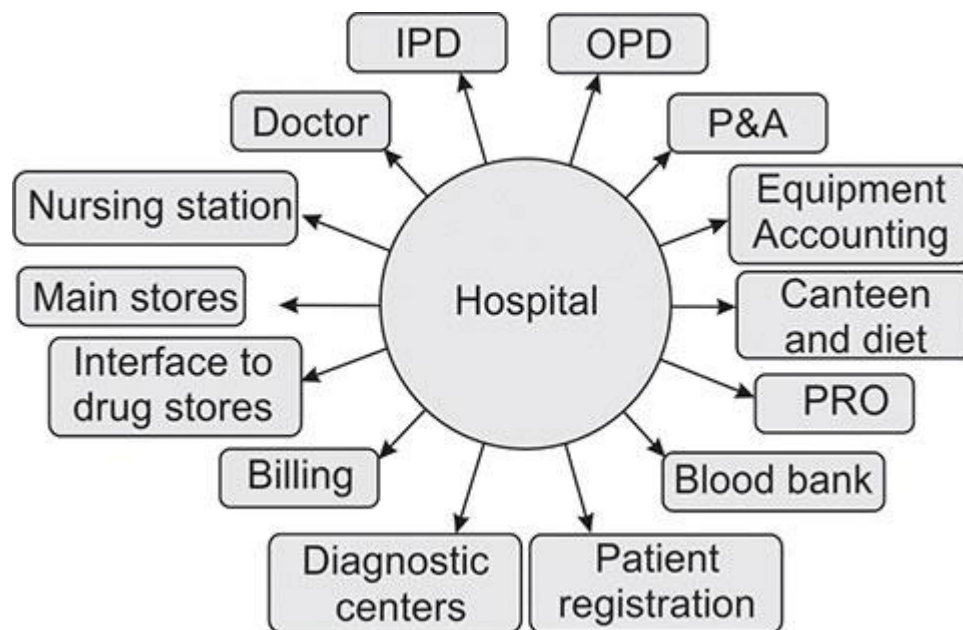
Definition of a System

The term system is derived from the Greek word systema, which means an organized relationship among functioning units or components. A system exists because it is designed to achieve one or more objectives. We come into daily contact with the transportation system, the telephone system etc. Similarly we talk of the business system and of the organization as a system consisting of interrelated departments such as production, sales, personnel.

There are more than a hundred definitions of the word system but most seem to have a common thread that suggests that a system is an orderly grouping of interdependent components linked together according to a plan to achieve a specific objective. The word component may refer to physical parts or a subsystem in a multilevel structure. The components may be simple or complex, basic or advanced. They may be a single computer with a keyboard, memory and printer or a series of intelligent terminals linked to a mainframe. In either case each component is part of the total system and has to do its share to work for the system to achieve the intended goal. This orientation requires an orderly grouping of the components for design for a successful system.

The study of systems concept, has three basic implications:

- ❖ A system must be designed to achieve a predetermined objective.
- ❖ Interrelationship and interdependence must exist among the components.
- ❖ The objectives of the organization as a whole have higher priority that the objectives of its subsystems.

Characteristics of a System

Here are some important characteristics that are present in all systems: organization, interaction, inter dependences, interaction and central objective.

- ❖ **Organization**: Organization implies structure and order. It is the arrangement of components that helps to achieve objectives. In the design of a business system, for example, the hierarchical relationship starting with president on top and leading downward to the blue-collar workers represents the organization structure. Such an arrangement portrays a system subsystem relationship, defines the authority structure, specifies the formal flow of communication and formalizes the chain of command. Likewise a computer system is designed around an input device, a central processing unit, and output device and one or more storage units.
- ❖ **Interaction**: Interaction refers to the manner in which each component functions with other components of the system. In an organization, for example, purchasing must interact with production, advertising with sales, and payroll with personnel. In a computer system the central processing unit must interact with input device to solve a problem. In turn, the main memory holds programs and data that the arithmetic unit uses for computation. The interrelationship between these components enables the computer to perform.
- ❖ **Interdependence:** Interdependence means that parts of the organization or computer system depend on one another. They are coordinated and linked together according to a plan. Our subsystem depends on the input of another subsystem for proper functioning i.e. the output of one subsystem is the required input for another subsystem. This interdependence is crucial in systems work.
- ❖ **Integration:** Integration refers to the holism of systems. Synthesis follows analysis to achieve the central objective of the organization. Integration is concerned with how a system is tied together. It is more than sharing a physical part or location. It means that parts of the system work together within the system even though each part performs a unique function.
- ❖ **Central Objective**: The last characteristics of a system is its central objective. Objective may be real or stated. Although a stated objective may be the real objective, it is not uncommon for an organization to state one objective and operate to achieve another. The important point is that users must known the central objective of a computer application early in the analysis for a successful design and conversion.

Types of Systems

Systems have been classified in different ways. Common classifications are:

- ❖ Physical or abstract systems
- ❖ Open or closed systems
- ❖ Deterministic or probabilistic systems
- ❖ Man-made information systems

Physical or Abstract Systems: Physical systems are tangible entities that may be static or dynamic in operation. Abstract systems are conceptual or non-physical entities which may be as straightforward as formulas of relationships among sets of variables or models – the abstract conceptualization of physical situations.

Open or Closed Systems: An open system continually interacts with its environments. It receives inputs from and delivers output to the outside. An information system belongs to this category, since it must adapt to the changing demands of the user. In contrast, a closed system is isolated from environmental influences. In reality completely closed systems are rare.

Deterministic or Probabilistic Systems: A deterministic system is one in which the occurrence of all events is perfectly predictable. If we get the description of the system state at a particular time, the next state can be easily predicted. An example of such a system is a numerically controlled machine tool. Probabilistic system is one in which the occurrence of events cannot be perfectly predicted. An example of such a system is a warehouse and its contents.

Man-made Information Systems: It is generally believed that information reduces uncertainty about a state or event. For example, information that the wind is calm reduces the uncertainty that a trip by boat will be enjoyable. An information system is the basis for interaction between the user and the analyst. It determines the nature of relationship among decision makers. In fact, it may be viewed as a decision centre for personnel at all levels. From this basis, an information system may be defined as a set of devices, procedures and operating systems designed around user-based criteria to produce information and communicate it to the user for planning, control and performance. Many practitioners fail to recognize that a business has several information systems; each is designed for a specific purpose.

The major information systems are:

- ❖ formal information systems
- ❖ informal information systems
- ❖ computer based information systems

A Formal information system is based on the organisation represented by the organization chart. The chart is a map of positions and their authority relationships, indicated by boxes and connected by straight lines. It is concerned with the pattern of authority, communication and work flow.

An Informal information system is an employee-based system designed to meet personnel and vocational needs and to help in the solution of work-related problems. It also funnels information upward through indirect channels. In this way, it is considered to be a useful system because it works within the framework of the business and its stated policies.

Third category of information system depends mainly on the computer for handling business applications. Systems analysts develop several different types of information systems to meet a variety of business needs. There is a class of systems known collectively as Computer Based Information Systems. As we have different types of transportation systems such as highway systems, railway systems and airline systems, computer based information systems are of too many types.
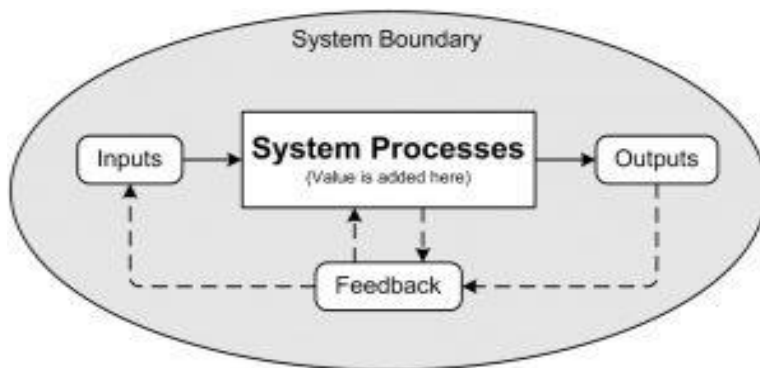
They are classified as:

- ❖ Transaction Processing Systems (TPS)
- ❖ Management Information Systems (MIS)
- ❖ Decision Support Systems (DSS)
- ❖ Office Automation Systems (OAS)
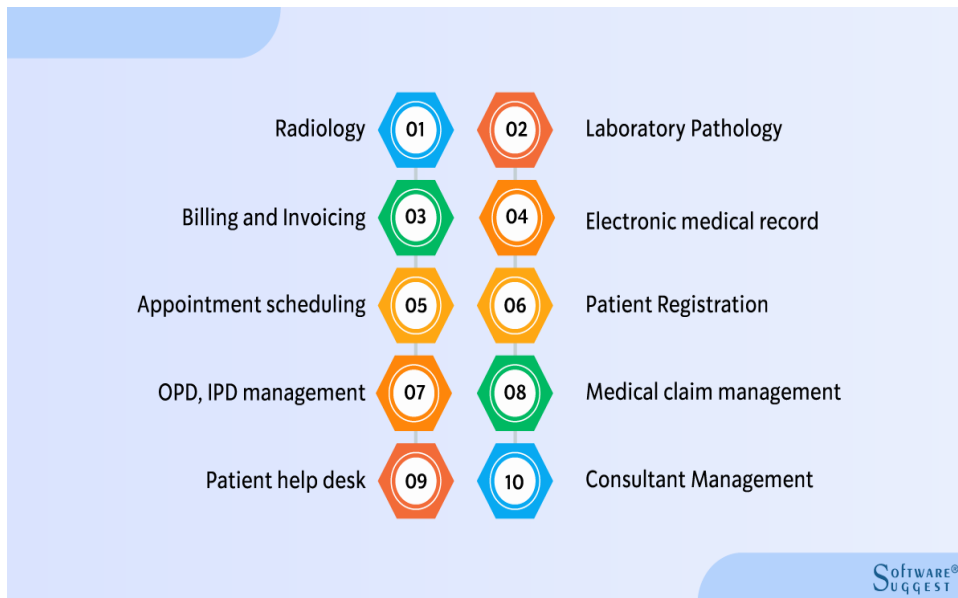
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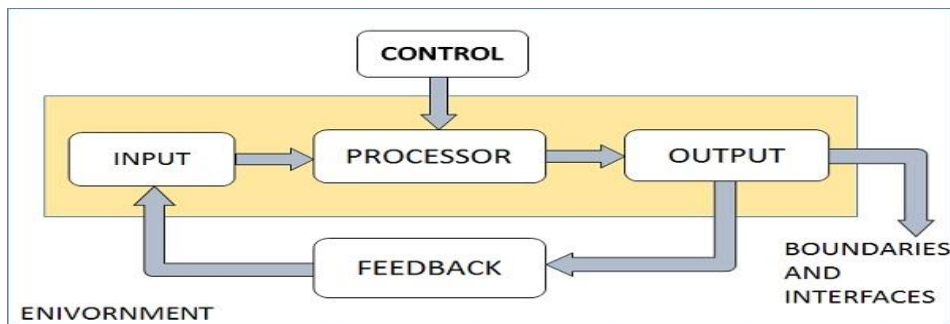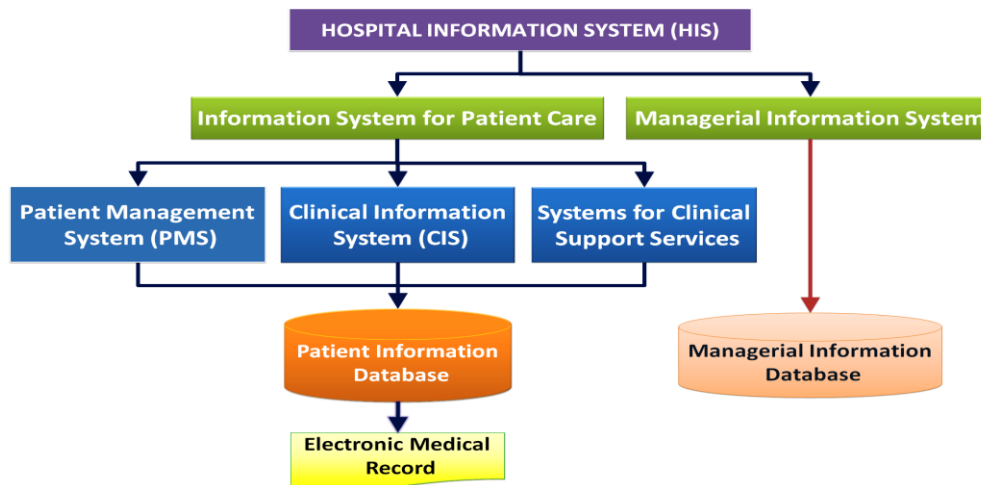

Elements of a System

The important elements of a system are;

- ❖ Output and Inputs
- ❖ Processor(s)
- ❖ Control
- ❖ Feedback
- ❖ Environment
- ❖ Boundaries and Interface

Outputs and Inputs

A major objective of a system is to produce an output that has value to its user. Whatever the nature of the output, it must be within the line with the explanations of the intended user. Inputs are the elements that enter the system for processing. Output is the outcome of processing. A system feeds on input to produce output in much the same way that a business brings in human financial, and material resources to produce goods and services. It is important to point out here that determining the output is a first step in specifying the nature, amount and regularity of the input needed to operate a system. For example in systems analysis, the first concern is to determine the user's requirements of a proposed commuter system — that is specification of the output that the computer is expected to provide for meeting user requirements. Input and processing design follow:

Processor(s)

The processor is the element of a system that involves the actual transformation of input into output. It is the operational component of the system. Processor may modify the input totally or personally, depending on the specifications of the output. This means that as the output specifications change so does the processing. In some cases, input is also modified to enable the processor to handle the transformation.

Control

The control element guides the system. It is the decision — making sub-system that controls the pattern of activities governing input, processing and output. In an organizational context, management as a decision making body controls the inflow handling and outflow of activities that affects the welfare of the business. Output specification determine, what and how much input is needed to keep the system in balance.

In system analysis, knowing the attitudes of the individuals who control the area for which a computer is being considered can make a difference between the success and the failure of the installation. Management support is required for securing control and supporting the objective of the proposed change.

Feedback

Control in a dynamic system is achieved by feedback. Feedback measures output against standard in some form. After the output is compared against performance standards, changes can result in the input or processing and consequently, the output.

Feedback may be positive or negative, routine or informational. Positive feedback reinforces the performance provides the controller with information for action. In system analysis, feedback is important in different ways. During analysis, the user may specify that the problems in a given application, and justify the need for change. Another form of feedback comes after the system is implemented. The user informs the analyst about the performance of the new installation. This feedback often results in enhancements to meet the user's requirements.
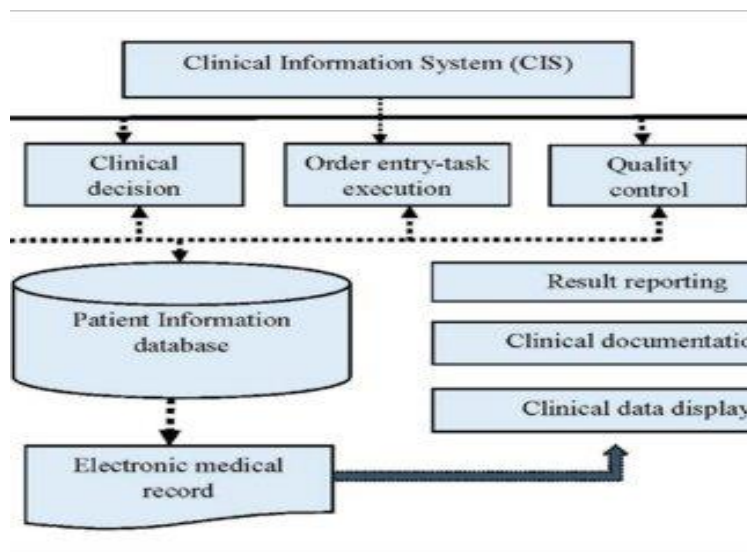
Environment

The environment is the "super system" within which an organization operates. It is the source of external elements that unhinge on the system. In fact, it often determines how a system must function. The organization's environment, consisting of vendors, competitions and others, may provide constraints and consequently influence the actual performance of the business

Boundaries and Interface

A system should be defined by its boundaries — the limits that identify its components, processes and interrelationships and interfaces with another system. For example, a teller system in a commercial bank is restricted to the deposits, withdrawals and related activities of customers checking and savings accounts. It may exclude mortgage foreclosures, trust activities and the like.

Each system has boundaries that determine its sphere of influence and control. Although in an integrated banking computer system design, a customer who has a mortgage and a checking account with the same bank may write a check through the "teller system" to pay the premium that is latter processed by the "mortgage loan system". Recently system design has been successful in allowing the automatic transfer of funds from the bank account to pay bills and other obligations to creditors, regardless of distance or location. This means that in systems analysis, knowledge of the boundaries of given system is crucial in determining the nature of its interface with other system for successful design.

Types of Human Resource Information Systems (HRIS)

Operational HRIS

Operational human resource information systems provide the manager with data to support routine and repetitive human resource decisions. Several operational-level information systems collect and report human resource data. These systems include information about the organization's positions and employees and about governmental regulations.

1. Employee Information Systems

The human resource department must maintain information on each of the organization's employees for a variety of decision and reporting purposes. One part of this **employee information system** is a set of human resource profile records. An employee profile usually contains personal and organization-related information, such as name, address, sex, minority status, marital status, citizenship, years of service or seniority data, education and training, previous experience, employment history within the organization, salary rate, salary or wage grade, and retirement and health plan choices. The employee inventory may also contain data about employee preferences for geographical locations and work shifts. Another part of an employee information system is an employee skills inventory. The skills inventory contains information about every employee, such as work experience, work preferences, test scores, interests, and special skills or proficiencies.

2. Position Control Systems

A job is usually defined as a group of identical positions. A position, on the other hand, consists of tasks performed by one worker. The purpose of a position control system is to identify each position in the organization, the job title within which the position is classified, and the employee currently assigned to the position. Reference to the position control system allows a human resource manager to identify the details about unfilled positions.

3. Applicant Selection and Placement Information Systems

After jobs and the employee requirements for those jobs have been identified and after a suitable pool of job candidates has been recruited, the candidates must be screened, evaluated, selected, and placed in the positions that are open. The primary purpose of the applicant selection and placement information system is to assist human resource staff in these tasks.

4. Performance Management Information Systems

Performance Management Information Systems include performance appraisal data and productivity information data. Performance management information systems data is frequently used as evidence in employee grievance matters. Careful documentation of employee performance and of how the performance was measured and reported is critical to acceptance of appraisal information in grievance

hearings. Performance management information can lead to a number of decisions beyond merely supporting the operational decision to retain, promote, transfer, or terminate a single employee.

5. Government Reporting and Compliance Information Systems

Government Reporting and Compliance Information Systems provide information needed both to maintain compliance with government regulations and to improve productivity and reduce costs associated with employees.

Tactical HRIS

Tactical human resource information systems provide managers with support for decisions that emphasize the allocation of resources. Within the human resource management area, these decisions include recruitment decisions; job analysis and design decisions, training and development decisions, and employee compensation plan decisions.

1. Job Analysis and Design Information Systems

The information inputs to the job analysis and design information system include data from interviews with supervisors and workers and affirmative action guidelines. Inputs also include information from sources external to the firm, such as labor unions, competitors, and government from sources external to the firm, such as labor unions, competitors, and government agencies. The outputs of the job analysis information system are job descriptions and job specifications. These outputs provide managers with the basis for many tactical human resource decisions.

2. Recruiting Information Systems

To direct the recruiting function, the organization needs to develop a recruiting plan. The plan specifies the positions to be filled and the skills required of the employees for these positions. To develop the plan and to monitor its success, a recruiting information system is necessary to collect and process the many different types of information needed to construct the plan, including a list of unfilled positions; the duties and requirements of these positions; lists of planned employee retirements, transfers, or terminations; information about the skills and preferences of current employees; and summaries of employee appraisals. Other inputs to the recruiting plan include data about turnover rates and about the success of past placements.

3. Compensation and Benefits Information Systems

The Compensation and Benefits Information Systems may support a variety of tactical human resource decisions, especially when compensation and benefits information is related to information from internal and external sources. Compensation and benefit plans can play an important part in improving an organization's productivity. Tying employee productivity to pay or encouraging increased productivity with incentive pay plans can often improve an organization's productivity substantially.

4. Employee Training and Development Systems

The training offered by the employee training and development systems must meet the needs of jobs available in the organization as identified through the position control system and the job analysis and design system. The training should also be directed at those persons interested and capable of benefiting from it, as identified by the skills inventory and human resource files.

Strategic HRIS

1. Information Systems Supporting Workforce Planning

Organization involved in long-term strategic planning, such as those planning to expand into new market areas, construct factories or offices in new locations, or add new products, will need information about the quantity and quality of the available workforce to achieve their goals. Information systems that support workforce planning serve this purpose.

2. Information Systems Supporting Labor Negotiations

Negotiating with craft, maintenance, office, and factory unions requires information gathered from many of the human resource information systems. The human resource team completing the negotiating needs to be able to obtain numerous ad hoc reports that analyze the organization's and union's positions within the framework of both the industry and the current economic situation. It is also important that the negotiating team be able to receive ad hoc reports on a very timely basis because additional questions and tactics will occur to the team while they are conducting labor negotiations.

3. Specialized Human Resource Information Systems Software

A great deal of software has been specifically designed for the human resource function. This software is available for all types and sizes of computers, including microcomputers. Software specifically designed for the human resource management function can be divided into two basic categories: comprehensive human resource information systems software and limited-function packages that support one or a few human resource activities.

Comprehensive HRIS

In the last few years, the software industry has produced several products that organize the various human resource information systems into integrated software referred to as human resource information systems or HRIS software.

In general, the computerization of HRIS has resulted in an integrated database of human resource files. Position files, employee files, skills inventory files, job analysis and design files, affirmative action files, occupational health and safety files, and many other human resource files are constructed in a coordinated

manner using database management systems software so that application programs can produce reports from any or all of the files. Thus, the human resource management director can produce reports listing likely internal candidates for open positions by running an application program that queries position files, job requirements files, and skills inventory files.

Limited-Function HRIS

Numerous commercial software packages are sold for use on mainframes, minicomputers, and microcomputers that are designed to handle one or a small number of human resource functions. Microcomputer versions of these single-function software packages are relatively inexpensive and easy to operate and allow the human resource manager to automate a function quickly and easily.

1. Training Software

Many training software packages are available for all types and sizes of computers to provide on-line training for employees. They include

- ❖ Management training software
- ❖ Sales training software
- ❖ Microcomputer training software
- ❖ Word processing training software

These software packages can be used in computer-based training programs designed by human resource department for training specific employees in-group and independent study programs. Computer-based training aids often simplify the trainer's job and allow the trainer to individualize instruction more easily than in traditional, group-based training classes.

Components of an Information System

A system is a set of components (subsystems) that operate together to achieve certain objectives. The objectives of a system are realized in its outputs. An information system is a system that accepts data resources as input and processes them into information products as output.

An information system depends on the resources of people (end users and IS specialists), hardware (machines and media), software (programs and procedures), data (data and knowledge basis), and networks (communications media and network support) to perform input, processing, output, storage, and control activities that convert data resources into information products.

This information system model highlights the relationships among the components and activities of information systems. It provides a framework that emphasizes four major concepts that can be applied to all types of information systems:

- ❖ People, hardware, software, data, and networks are the five basic resources of information systems.
- ❖ People resources include end users and IS specialists, hardware resources consist of machines and media, software resources include both programs and procedures, data resources can include data and knowledge bases, and network resources include communications media and networks.
- ❖ Data resources are transformed by information processing activities into a variety of information products for end users.
- ❖ Information processing consists of input, processing, output, storage, and control activities.

Information System Resources

1. People Resources

People are required for the operation of all information systems. These people resources include end users and IS specialists.

- ➕ **End users** (also called users or clients) are people who use an information system or the information it produces. They can be accountants, salespersons, engineers, clerks, customers, or managers. Most of us are information system end users.
- ➕ **IS Specialists** are people who develop and operate information systems. They include systems analysts, programmers, computer operators, and other managerial technical, and clerical IS personnel. Briefly, systems analysts design information systems based on the information requirements of end uses, programmers prepare computer programs based on the specifications of systems analysts, and computer operators operate large computer systems.

2. Hardware Resources

The concept of Hardware resources includes all physical devices and materials used in information processing. Specially, it includes not only machines, such as computers and other equipment, but also all data media, that is, all tangible objects on which data is recorded, from sheets of paper to magnetic disks. Example of hardware in computer-based information systems are:

- ➕ **Computer systems,** which consist of central processing units containing microprocessors, and variety of interconnected peripheral devices. Examples are microcomputer systems, midrange computer systems, and large mainframe computer systems.
- ➕ **Computer peripherals,** which are devices such as a keyboard or electronic mouse for input of data and commands, a video screen or printer for output of information, and magnetic or optical disks for storage of data resources.

3. Software Resources

The concept of Software Resources includes all sets of information processing instructions. This generic concept of software includes not only the sets of operating instructions called programs, which direct and

control computer hardware, but also the sets of information processing instructions needed by people, called procedures.

It is important to understand that even information systems that don't use computers have a software resource component. This is true even for the information systems of ancient times, or the manual and machine-supported information systems still used in the world today. They all require software resources in the form of information processing instructions and procedures in order to properly capture, process, and disseminate information to their users.

The following are the examples of software resources:

- **System Software,** such as an operating system program, which con controls and supports the operations of a computer system.
- **Application Software,** which are programs that direct processing for a particular use of computers by end users. Examples are a sales analysis program, a payroll program, and a work processing program.
- **Procedures,** which are operating instructions for the people who will use an information system. Examples are instructions for filling out a paper form or using a software package.

4. Data Resources

Data is more than the raw material of information systems. The concept of data resources has been broadened by managers and information systems professionals. They realize that data constitutes a valuable organization resource. Thus, you should view data as data resources that must be managed effectively to benefit all end users in an organization.

Data can take many forms, including traditional alphanumeric data, composed of numbers and alphabetical and other characters that describe business transactions and other events and entities. Text data, consisting of sentences and paragraphs used in written communications; image data, such as graphic shapes and figures; and audio data, the human voice and other sounds, are also important forms of data.

The data resources of information systems are typically organized into:

- Database that hold processed and organized data.
- Knowledge bases that hold knowledge in variety of forms such as facts, rules, and case examples about successful business practices.

For example, data about sales transactions may be accumulated and stored in a sales database for subsequent processing that yields daily, weekly, and monthly sales analysis reports for management. Knowledge bases are used by knowledge management systems and expert systems to share knowledge and give expert advice on specific subjects.

Data Vs Information: The word data is the plural of datum, though data commonly represents both singular and plural forms. Data are raw facts or observations, typically about physical phenomena or

business transactions. For example, a spacecraft launch or the sale of an automobile would generate a lot of data describing those events. More specifically, data are objective measurements of the attributes (the characteristics) of entities (such as people, places, things, and events).

Example: A spacecraft launch generates vast amounts of data. Electronic transmissions of data (telemetry) form thousands of sensors are converted to numeric and text data by computers. Voice and image data are also captured through video and radio monitoring of the launch by mission controllers. Of course, buying a car or an airline ticket also produces a lot of data. Just think of the hundreds of facts needed to describe the characteristics of the car you want and its financing, or the details for even the simplest airline reservation.

Peoples often use the terms data and information interchangeably. However, it is better to view data as raw material resources that are processed into finished information products. Then we can define information as data that have been converted into a meaningful and useful context for specific end users. Thus, data are usually subjected to a value-added process (we call data processing or information processing) where (1) its form is aggregated, manipulated, and organized; (2) its content is analyzed and view information as processed data placed in a context for human user. So you should view information as processed data placed in a context that gives it value for specific end users.

Example: Names, quantities, and dollar amounts recorded on sales forms represent data about sales transactions. However, a sales manager may not regard these as information. Only after such facts are properly organized and manipulated can meaningful sales information be furnished, specifying, for example, the amount of sales by product type, sales territory, or sales persons.

5. Network Resources

Telecommunications networks like the Internet, intranets, and extranets have become essential to the successful operations of all types of organizations and their computer-based information systems. Telecommunications networks consist of computers, communications processors, and other devices interconnected by communications media and controlled by communications software. The concept of Network resources emphasizes that communications networks are a fundamental resource component of all information systems. Network resources include:

- **Communication media,** Examples include twisted pair wire, coaxial cable, fiber-optic cable, microwave systems, and communication satellite systems.
- **Network Support,** This generic category includes all of the people, hardware, software, and data resources that directly support the operation and use of a communications network. Examples include communications control software such as network operating systems and Internet packages.

In summary, these five components together make up the five component framework, which are the five fundamental **components of an information system**. First you will need the hardware in order to start off your system. Then you must use the software in order to run you hardware. After you have set up your hardware and loaded up the software to run it, you will need data to input into your hardware. Once you have your data ready you will need procedures set in play to properly store your data within the system, and last you will need people in order to put in the data and keep the system up and running properly at all times.

As you can see, you will need every component in order to ensure that you have a functional running information system.

Types of Hospital Management Systems

- **Operational** to order financial information, medical equipment, and hospitalization reservation

- **Administrative** to manage the interactions between patients and doctors

- **Subject-based** to store EMRs or EHRs

- **Task-based** to prioritize and distribute tasks between hospital staff

- **Billing** to manage the finances of all the hospital departments
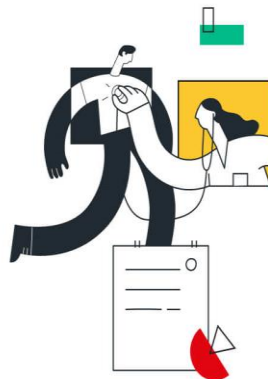
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SYSTEM THEORY: IN ORGANIZATION

An organization is a system, which is partly economic, partly technical, partly social.
1.It consists of parts, each of which is a sub-system.
2.The organization is itself, part of a larger system- the environment, society, government, and so on.
3.There are inter-relationships among the parts of each system so that a change in one part leads to change in an system
4.It is the function of management to bring about the integration of Different parts of each sub-system.
The different sub-systems with the organization, Among the different sub-systems themselves
Between the system and its environment.

Input

HOSPITAL VIEWED AS A SYSTEM

A hospital can be variously described as a factory, an office building, a hotel, an eating establishment, a medical care agency, a laboratory, a university, a social service institution and a business institution.

The major hospital embraces multiple goals, chiefly patientcare, teaching, and research.

Hospitals are among the most complex organizations in modern society, characterized by extremely fine division of labor and an exquisite repertory of technical skill. Because the institution's work is so specialized, staffed by a variety of professional and technical personnel, there are very important problems of co-ordination and authority

Process-Transformation
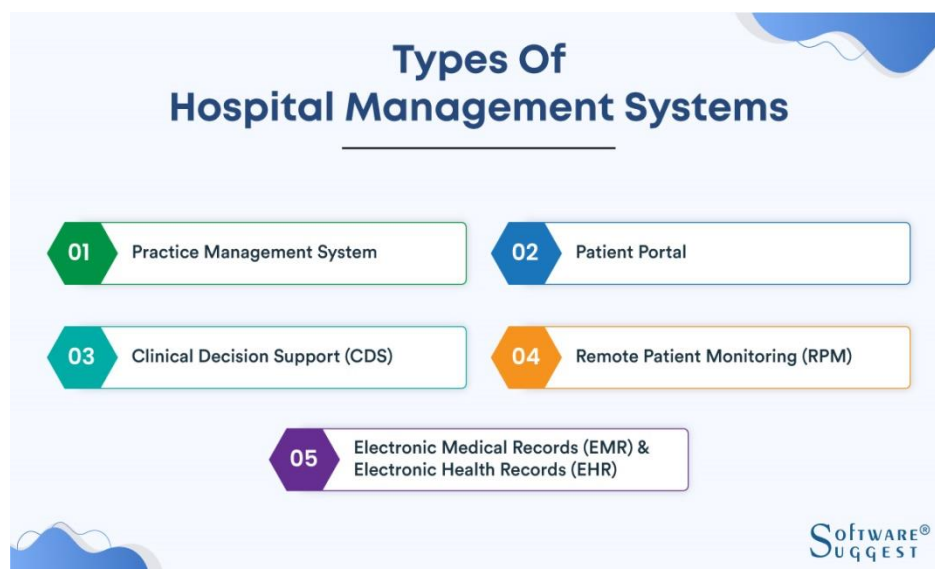
People

- A. S t a f f
- ➢ Physician
- ➢ Nurses
- ➢ Paramedical
- ➢ Supportive
- B.   Patients their attendants

Material
- ➢ Drugs and chemicals
- ➢ Equipments
- ➢ Diet

Money
 To maintain staff, facilities and procure materials

Communication between

- ➢ Physicians and patients
- ➢ Nurses/ paramedical staff and patients
- ➢ Physicians and nurses
- ➢ Physicians/ nurses and paramedical staff
- ➢ Physician/ nurse/ paramedical staff and administrators
- ➢ Administrator and community

Decision Making
- ➢ Cure: Diagnosis, treatment
- ➢ Care: Creation of comfort to the patient, diet
- ➢ Procurement of materials in the right places at the right time.

Action
- ➢ Putting decisions in to practice
- ➢ Balance mix of communication, decision making
- ➢ Efficient patient care
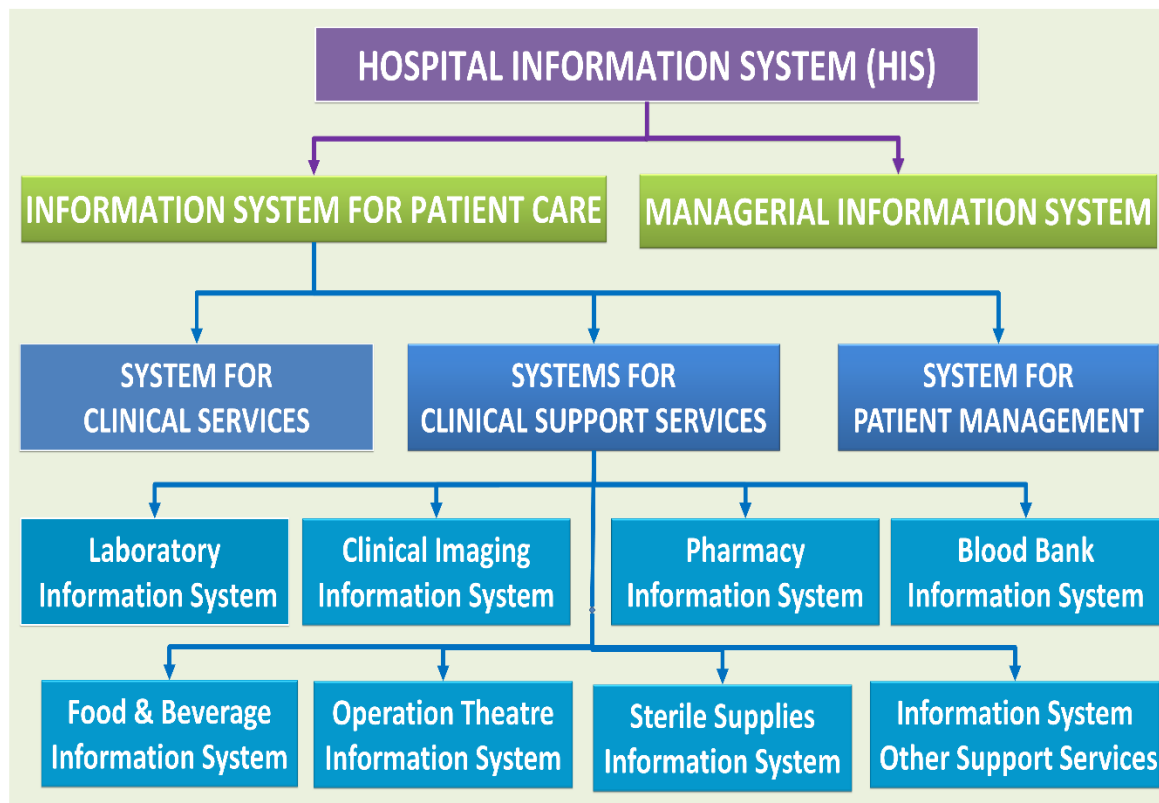
PECULIARITIES OF HOSPITAL SYSTEM

- A hospital system is more than the sum of its parts.
- Open system
- The boundaries separating the hospital system from other systems are not clear but fuzzy.
- The output of a hospital is not clearly measurable.
- It remain in a dynamic equilibrium with the wider social system.
- It must function, as a part of the larger health care system, not as a end.
- A hospital system like other open social systems tends towards elaboration and differentiation.

HOSPITAL AS A SOCIAL SYSTEM

- Sociologists have considered hospital as a social system based on bureaucracy, hierarchy and super-ordination and sub-ordination.
- In order to continue in a orderly fashion, every social system has to fulfill the functional needs of that system, viz. the need for adaptation, for goal attainment and integration.
- In a hospital system, the patients' needs determine the interactions with in the system.
- There is considerable restriction in communication among people in the hospital.
- In the course of interaction among the various units of a hospital social system, tensions and conflicts emerge.
- One occupational group can not be promoted to the other group, e.g. laboratory technician can not become a nurse and nurse can not become a doctor.

➢ Achieving their goals through reliance upon such structural devices as systems of division of labour, an elaborate hierarchy of authority, formal channels of communication and sets of policies, rules and regulations.

➢ The two lines of authority (viz. administrative and professional) come into conflict.

Function of hospital :

❖ Advertisement of scope of services
❖ Registration
❖ IPD services
❖ OPD services
❖ Radiological services
❖ Medicine services
❖ Surgical services
❖ Urology services
❖ Neurology services
❖ Critical care services
❖ Neonatal critical care services
❖ Pediatric critical care services
❖ Cardio vascular thoracic services
❖ ENT services
❖ Eye services
❖ Skin/dermatological services
❖ Forensic services
❖ Medical record services
❖ Dietary services
❖ Linen management services
❖ Infection control services
❖ 24 hours emergency services
❖ 24 hours blood bank services
❖ 24 hours OBG/GYN services
❖ 24 hours laboratory services
❖ 24 operation theatre services
❖ Bio medical devices services
❖ Maintenance services
❖ House keeping services

Role of system

Stewardship role	Tools or key elements
Strategy	SMART goals (specific, measurable, assignable, reachable, time-bound) Engagement and communication process Project management infrastructure
Intersectoral collaboration	Role statements of different organizations Quality councils Intersectoral coordination bodies Donor coordination councils
Governance and accountability	Public reporting Community accountability mechanisms Quality assurance mechanisms Special recognition programs Appointment process for boards Financial/contractual agreements
System design	Decision support tools Quality improvement collaboratives Quality skills training Task-shifting models of care Coordination at transitions of care Supply chain management
Policy, regulation	Remuneration policies to encourage quality Regulations on health professions (scope of practice, training, and licensure) Privacy and confidentiality, disclosure of harm policies
Health information/ evidence	Facility surveys Population surveys—patient experience, population health Disease registries Hospital discharge database Clinical vignettes Agencies for information on quality

Summary

Hospital can be viewed as an open system having various subsystems, all those interacting with each other to achieve a common goal Like other system, hospital has also input, process and output. The input comes from environment and output also reaches to the environment. This approach can be utilized to identify the factors affecting any hospital activities. This knowledge guide the manager while planning the program and activities of it.

References :

1. Jesse Frederick Steiner, "Community Organization," p. 395, New York, Century Company, 1925.
2. Bert W. Caldwell, M. D. (Unpublished address delivered before Rotary Club, Atlantic City, New Jersey, 1928.)
3. Asa A. Bacon, "The Hospital's Contribution to Public Welfare," *Transactions of the American Hospital Association, 32:336,* Chicago, American Hospital Association, 1930.4 Id., 1937.
4. Malcolm T. MacEachern, M. D., "Hospital Organization and Management," pp. 26, 77, Chicago, Physicians' Record Company, 1935.
5. System Theory, Available at,http://en.wikipedia.org/wiki/Systems_theory, Retrieved on 15 thMarch, 2010
6. file:///f:/New%20Folder/New%20Folder/org_sytm.htm, Retrievedon 15 th March, 15th March, 2010
7. Hospital as a social system,http://www.jstor.org/pss/1032618,Retrieved on 15th March, 2010
8. Hospital, Available athttp://en.wikipedia.org/wiki/Hospital,Retrieved on 15th March, 2010
9. System Theory,http://en.wikibooks.org/wiki/Systems_Theory/Inputs-Outputs,Retrieved on 15th March, 2010
10. http://www.online-pr.com/Strategic%20Comm%20Course/Input- Output%20Diagram.htm, Retrieved on 15thMarch, 2010
11. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2781730/,Retrieved on 15th March, 2010