LECTURE 1

EVOLUTION OF HEALTH CARE SYSTEMS

Introduction

Medicine began as an art and over a period evolved into a science.

Medicine in Ancient Times:

Medicine has evolved over a period in stages from Curative stage (treatment of diseases) – Present day – Preventive medicine.

Initially evolved from traditional cultures evolved from biological and natural sciences – Recently – Social and behavioural Sciences.

Primitive Medicine

- Due to limited knowledge
- Diseases were due to expression of God's wrath
- Invasion of body by evil spirits
- Bad influence of stars and planets
- Belief of ancient man in super natural theory the practice of medicine was based on prayers, rituals and sacrifices in any attempt to appease the gods.
- Driving out evil spirit by witch craft (or) black magic
- Medicine in prehistoric times (around 5000 BC steeped in religion, magic and witch craft.
- Supernatural theory of medicine still believed in areas of world. Eg. Concept of mantra treatment for snake bites in India deprosy – curse for one's past sins. Primitive man has disappeared from the planet but their progeny still exist in most part of the world.

Indian Medicine

Ayurveda and Siddha System

Ayurveda means - knowledge of life – derived from Atharva veda – one of the 4 vedas – Practice of medicine was associated with Mythological figures sages and seers – Ayurveda supported by Buddhist times – Susrutha sambitha – father of Indian surgery – Medicine, pathology, anatomy, ophthalmology hygiene – Period b/w 800 BC and 600 AD was considered as Golden age of Indian Medicine – Moghul rule Ayurveda declined due to lack of state support.

Siddha System – Practiced mostly in Tamil speaking parts of South India.

Asoka established schools of medicine and public hospitals (226 BC) – Buddhist King (supported) Kanishk a Charaka – 500 drugs.

Chinese Medicine: Medical knowledge dating back at 2700 BC – Based on two principles Yang and Yin – immunization were available in Chinese system of Medicine – variolation to prevent Small Pox Acupuncture – Emphasis – hygiene, dietetics, massage and drugs.

Egyptian Medicine – dating back 2000 BC - Egyptian civilization oldest – art of picture writing – documented the happenings on papyrus – art of medicine was mingled with religion – medicine schools were existing in temple and physicians were equal to priests – no demonstration in anatomy – Preservation of human body – Zenith around 2800 BC – specialization was prevent in Egyptian times eye doctors head and tooth doctors paid by state – Egyptians excelled in – field of public health inoculation against small pox use of mosquito nets – Pride of place in world of medicine for 2500 years and was replaced by Greek Medicine.

Mesopotamian Medicine – is a part of Iraq cradle of cradle of civilization as long as 6000 years ago – Basic concept of medicine were religious – it was practiced by herb doctors, knife & spell doctors – medical astrology was written and this was written and this was flourishing in Eurasia – 2100 BC – flourishing oldest medical prescription available dating back to 2100 BC was from Mesopotamia, Babylonian code of Hammurabi contained codified laws relating to medical practice was the first such document in the world – Hammurabi – did not have scientific foundation.

Greek Medicine – 400 – 136 BC - Greeks taught people to think "How and Why" Aesculapius – leader of Greek Medicine – Medicine cure and Prevention were recognized – Greatest physician in Greek medicine.

Hippocrates - 460 - 370 BC (Father of Medicine) – introduced application of clinical methods in medicine – Epidemiology into practice of medicine – rejected supernatural theory of diseases and gave new direction to the medical though replaced by Roman civilization – separated medicine from magic and rained it to the status of science.

Roman Medicine – Roman borrowed medicine from Greeks – Practical Minded than Greeks – they had a keen sense of sanitation – Galen (130 – 205 AD) – outstanding medical teacher. He contributed field of Anatomy & Physiology ideas accepted world wide. He reported 3 factors predisposing exciting and environmental factors, it the cause of the disease.

Middle ages – Period b/w 500 – 1500 AD – with the fall of the roman empire – medical schools established in roman times also have disappeared – to progress was possible in the field of medicine – this period is called the Dark Ages of Medicines – Arabs translated Graeco – Roman Medical literature into Arabic and preserved ancient knowledge – development own system of medicine "Unani Medicine" – developed field of pharmacology – Golden age of Arabic medicine was b/w 800 – 1300 AD – during middle ages – Christianity lead to the establishment of the hospitals – first hospital record in England was established at York in 937 AD – Hospitals progressed, a chain of hospitals was established from Persia – Spain – Separate departments – various disease separate world – men & women.

During Middle Age : Monasteries – headed by Saints – Men & Women from all occupations were admitted to provide active medical and nursing care and to preserve ancient knowledge.

Era of Scientific Medicine: [1453 – 1600 AD] – Fracastorius – droplets – Syphilis (sexual contact) – Public health

Modern Medicine – After 1900 medicine progressed rapidly towards specialization, as the infections were brought under control incidence of new diseases like cancer, diabetes, heart disease has increased – Dichotomy of medicine – curative & preventive branches was established

Primitive – modern medicine

Early days – hospitalization of patients to segregate them from society, custody of physician care taker

In 1950 – 1960s – Heath promotion – Immunization – Health education – Baby clinics – Marriage counselling – Physical, emotional social & vocational rehabilitation of the patients in well recognized.

Modern hospitals – In patients – Out patients.

Shifting from treatment of individual – community oriented approach – This will result in reduction in the number of people reporting sick to the hospitals – This will improve the health status of the society as a whole – Thus, the evolution of hospital services during various periods of developments history of medicine makes an interesting reading.

HOSPITAL MANAGEMENT

Hospital administered – Appointed from among, the professional staff of the hospital – Generally medical men – Position by virtue of then seniority

Function: Manage resources – material – money & time – conceive the mission & goal of the hospital – formulate the policies and plan the strategies to implement the same – King pan in organization & major role in solving the problem – must be creative & innovative – advances in diagnostic & therapeutic procedures – improve the quality of patient are by initiate the change.

Hospital Administrate must be: Able to look ahead and plan while managing the present situation – able to create and accept new ideas & implement – them for the benefit of the patients – prepared to take risks to get the new ideas and implemented – able to coordinate the activities of the hospital in a healthy atmosphere – must be able to organize & allocate fund & exercise control – Able to analyze, synthesise and integrate the diverse information available to him. – Able to act with a sense of equity, fairness & social justice in all the dealing within & outside the hospital – knowledgeable, possess adequate skills and experience – motivated and be able to motivate other to work for the common goal – able to review, evaluate & make adjustments as necessary.

REQUIREMENTS TO BE AN EFFECTIVE ADMINISTRATION

Understanding the situation

Objectives – Incharge of the institution – aware of the objectives of the institution – unique goals – must be able to assess what extent the objectives were achieved, whether they can be achieved (on) need modifications to suit the present situation – find weakness of objectives – objectives – known to the staff working in the institution

People – deal people working for the hospital – selected by him – some already working in hospital – transfer of staff (other institutions (on) migrated)

Service – Primary objective of the hospital is to provide service to suffering humanity – every effort – improve the patient care – fit into frame work of national health policy

Integrating & Coordinating – Administration able to visualize entire hospital as unit – demand of department to be rectified not concerned department – integrated vision – hospital should coordinate its activities with other hospital & health institutions around – hospital should also integrate national programs like National Malaria Eradication Program (NMEP) – National Tuberculosis control program – National Leprosy control program – National immunization program

Leading – Most important qualities a leader must possess are Honey & Integrity – Decision making – enthusiasm mastery over fear – constructive activity willingness to serve – self confidence – initiative.

Building a team – Staff should be encouraged to plan and execute their activities with team spirit – different team – therapeutic – supportive team – diagnostic – team work & cooperation of he different classes of personnel, administrator should develop managerial skills & proper attitude – Abel to judge basic needs of the different experts working in the hospital in relation to purchase of equipment on starting a new test & procedures – familiar with the procedures, processes, technique & methods administrator should involve himself in continuing medicine education, refreshing his knowledge which will help his profession growth.

Creativity – Is an important factor which determines the success of the hospital – creativity should be encouraged among the colleagues and they should be encouraged to come out with new ideas and be prepared to change the status quo.

RESPONSIBILITIES OF THE HOSPITAL ADMINISTRATOR

He administers & directs all the activities of the hospital and ensures the activities of the hospital to achieve the goals – Initiates step to maintain high standard – professional technical & supportive – coordinates the activities of various departments of the hospital – I/a of hospitals with both government and non government agencies transmits, interprets & implements the rules & regulations of the institution among staff of various department – delegates responsibilities & authority to appropriate person of the hospital and establishes means of accountability from the people to whom the duties have assigned – acts s liaison b/ w the governmental agencies & the hospital board – helps in formulation & implementation of policies – prepares annual reports of the activities of the hospital and presents that to the

hospital governing body – diseases the impact of various steps initiated by the government on the hospital activities – provides for sound patient care practices by all the staff ensures efficient and effective utilization of the physical facilities – establishes a good financial structure and ensure effective utilization of the financial resources – prepares budget proposals for the financial year and present it to the higher body of governing body – maintenance of the buildings, ground & equipment determines staff requirement – regulates the selection, employment confirmation of employees sanction of leave – construction of new buildings & arranges for construction – purchase of new equipment & machinery & procure them to determines need of training programs & conduct them – maintain good public relation with out side agencies & public – provides research & professional enrichment of the staff implements the legal requirements.

Following staff will directly report to the administration – Medical superintendent, Assistant / Associate Administrators / Nursing superintendent / finance officer / Personnel manager – some duties of the administrators can be delegated to assistant administrator (or) medical superintendent.

HOSPITAL DESIGN

Introduction – Designing infrastructure facility of hospital in various department – qualified staff – planning of the facility – architectural plan (early stage) – must not be failure leads to loss of 1% of total cost of the project – time spent – careful, detailed planning of the hospital (save money & time).

Data collection – before establishing a hospital – demographic data meteorological data disease pattern – geographic data vital statistics data existing medical care facilities – future development plans – utilization patterns of existing facilities –

Planning Tea – Formed to prepare he architect's brief for designing hospital which includes – Hospital admin/ Director / Superintendent – civil engineer – medical architect – local body representative.

Estimation of requirements

Before construction – Preliminary calculation about the requirements of hospital – area and population likely to be served by the hospital – hospital set up in a rural area – metropolis and densely populated easy it 10 difficult to be determined as other hospitals already exert – Ensures efficient and effective utilization of the physical facilities – establishes a good financial structure and ensures effective utilization of the financial resources – prepares

budget proposals for the financial year and present it to the higher body eg. Governing body maintenance of the buildings, ground and equipment determines staff requirement – regulate the selection, employment confirmation of employees sanction of leave – construction of new buildings and arranges for construction purchase of new equipment and machinery and procure them – maintain good public relation with outside agencies and public – provides research and professional enrichment of the staff implements the legal requirement – following staff will directly report to the administration – medical superintendent Assistant / Associate administrators – Nursing Superintendent Finance Officer – Personnel Manager – Some duties of the administrator can be delegated to assistant administrator (or) medical superintendent volume of patient seeking medical care in each department like duration of each consultation is established the estimates of hospital requirement can be estimated.

Site selection – establishing a hospital is choosing location of the facility – Hospital should be located in area easily accessible to the community – travel time to reach – 30 mts – site – spacious enough (chance for future of the hospital with expansion) in demand for services

Location of the hospital – It is difficult to find a site for the hospital in a central area especially in urban areas – as the cost of the land is prohibitive – located in large fairly near the periphery of the non town should expand in future – hospital will be central to the residential area

Size – Plot ratio is the ratio f the total area of the building to the area of the size – a plot ratio is one if the built up area is equivalent to the site area – If the hospital is a two storey structure half of the site will be occupied the building and remaining will be open area available for road, care park etc.

Hospital size	Land required
25 beds	5 acres
100 beds	15 acres
200 beds	25 acres
500 beds	50 acres
750 beds	80 acres
1000 beds	100 acres

Availability of Services

Site Selected – Provided with H_2O and electricity supplies – Provision for connection to a main sewerage to carry the hospital effluents H_2O @ 500 litres / patient day – sewage

disposal @ 400 liters / patient day – garbage disposal @ 1 kg / patient day – Electricity @ 1 KW / patient day

Environment – Site of Hospital – Free from pollution (air & noise) eg. Industry and air fields – Insect vectors carries diseases – exposure to breeze – proper ventilation

Communication system – Adequate telephone like – internal telephone connections – radio paging – public address system – intercom system – communication between nurse and patients

Soil structure – Soil testing regarding suitability – sub soil H_2O – Geological faults (carried out by engineers).

Preparation of the Architect's brief – Architectural plan of various depart?

Preparation of detailed plans – Once basic plan is approved – working diagrams – cost estimate.

Administrative approval & award of contracts - construction proceeds as per the plan without any deviation

Provision of man power & services - Heavy equipments – furniture – lift – generators – stores – electricity – water supply – sewerage system (man for this service is recruited)

Commissioning of the hospital – Construction is near completion – rules and regulations framed – procedure manuals – registers, various requisition – report form – inaugurated by a VIP.

Elements of Hospital - Hospital divided into following areas

Patients area – includes OP, emergency, service department, inpatient department, both several and special – Supportive services – Radiology laboratory, pharmacy blood bank – Operation theatre – medical records – Ancillary services – Mortuary – laundry – dietary stores – water and electricity supply trolleys – Community services – staff quarters – canteen – shopping – parking area for vehicles ambulances.

Broad outlines for establishing departmental zones - Parts of hospital closely linked to the community must be located close to the main entrance of the hospital – of services – emergency – casuality services – Next in order of distance from the entrance should be a zone allotted to medical service departments – radiology – area beyond this is allocated for inpatient services (or) wards other areas utilized by patients in hospitals are: - housekeeping,

laundry, kitchen etc (grouped together delivery vehicle can go easily) around service ward – residential accommodations for staff may be provided near by to the hospital to provide easy access – located clone to o/p area – laboratory services.

Role of climatic conditions – In certain climates hospital buildings – heated in winter – cooled in summer – airconditioning of the buildings is more expensive than heating cooling cost is proportional to volume of building number volume of building is reduced by providing low ceilings and restricting size of room.

In hot climates – design stage to ensure maximum natural cooling – Hospital buildings should be light and open and planned so that even the lightest breeze can pas across the room at low level to cool the occupants – In hot and dry climate the night are cool and the aim is to protect the occupants from the heat during the day – so buildings is must be massive with thick walls which absorb heat during the day and dissipate it during the night – Small windows – minimize radiations entering t he room – in hot climates – natural ventilation restoring air conditioning in extreme condition – cold climate – sufficient ventilation during winter cause cooling of cold air from outside – artificial air – cause contamination – OT burns and other wards where wound exposed to air must be provided with a/c – provided with air hygiene.

Light & color – Hospital designed to get natural light through window – while designing the window – it is better to avoid very large area of glass – results discomfort due to over heating in summer and cooling in winter windows – provided with shading devices to avoid patient direct expose to open slices in tropical and temperature mode – artificial lighting in the hospitals by night have also how been established.

Colors - used internally on the walls, ceilings and floors of the hospital buildings – which forms integral part of hospital design – decision is best left to architect – colour can make different between depressing and disquieting atmosphere and pleasant one – lighting is generally affected by color scheme – colour scheme decided along window design from international color notation – colors can be chosen.

Visual impact of the hospital – Hospital authorities also feel that a huge, gigantic hospital buildings is a wrong symbol for modern hospital – modern hospital wishes to highlight its links with the community and its human personal character rather than its power and glory as a temple of healing – hospital designed by architect must be uniformity, resulting in a building with a powerful and monumental look – different façade is choosed to each units it will result in building but appears irregular smaller and more human in scale.

HOSPITAL ENGINEERING – In developed countries as 33% of the cost of the infrastructure of the hospital goes to the mechanical engineering services like heating,

verification electricity lifts and communications their help is needed in early stages to get rough estimates o demand for H_2O, power, fuel an sewerage – important role in selection of site planning developing communication system lift and ventilation on systems – Engineers are concerned not only with installation of facility but area also responsible for maintenance the same – no equipment should allowed to installed unless there is a guarantee for maintenance of the equipment – engineers advise the architect regarding the immediate and future space requirement.

HOSPITAL HYGIENE – Cross infection – hospital acquired infections – resistant to variety of antibiotics – lack of proper facilities of disposal of hospital wastes can lead to pollution – epidemic illness – carriers in hospital spread the infection – aseptic dispose of waste and infected material – sterilization of bowls and instruments at different places – adequate ventilation – incinerator – to deal with the hospital waste generated provided.