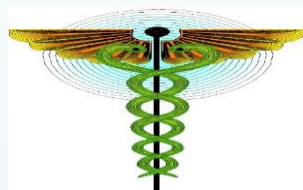




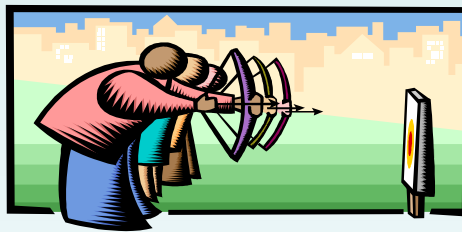
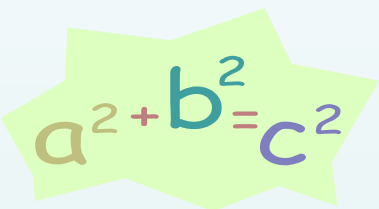
Yarmouk University
Faculty of Medicine
Basic Medical Sciences Department



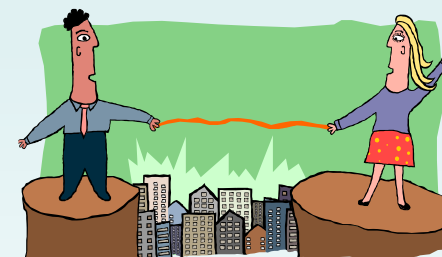
Introduction to Public Health

Dr. Ali Rawabdeh (Associate Professor), *Diploma, BS.c, MS.c, PhD*

Basic Medical Sciences Department



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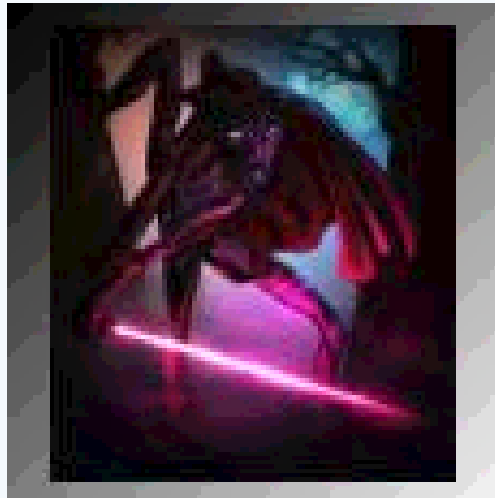
Objectives

- 1- Introduce the students to the basic principles and concepts of public health and enhance their abilities to apply them.
- 2- Widen students understanding of issues in contemporary public health.
- 3- Empower student's capabilities to build evidence based judgment to current and future public health issues, by explaining the relevance of facts and values.
- 4- Learn how to defend situation both in writing and oral manners, and express conventions logically and consistently.
- 5- Adherence to current rules and regulations, Medical Practice Art, and Code of Ethics.
- 6- Gain wisdom of social responsibilities and obligations specific to the role of physician.

Historical Perspective

Ancient Times

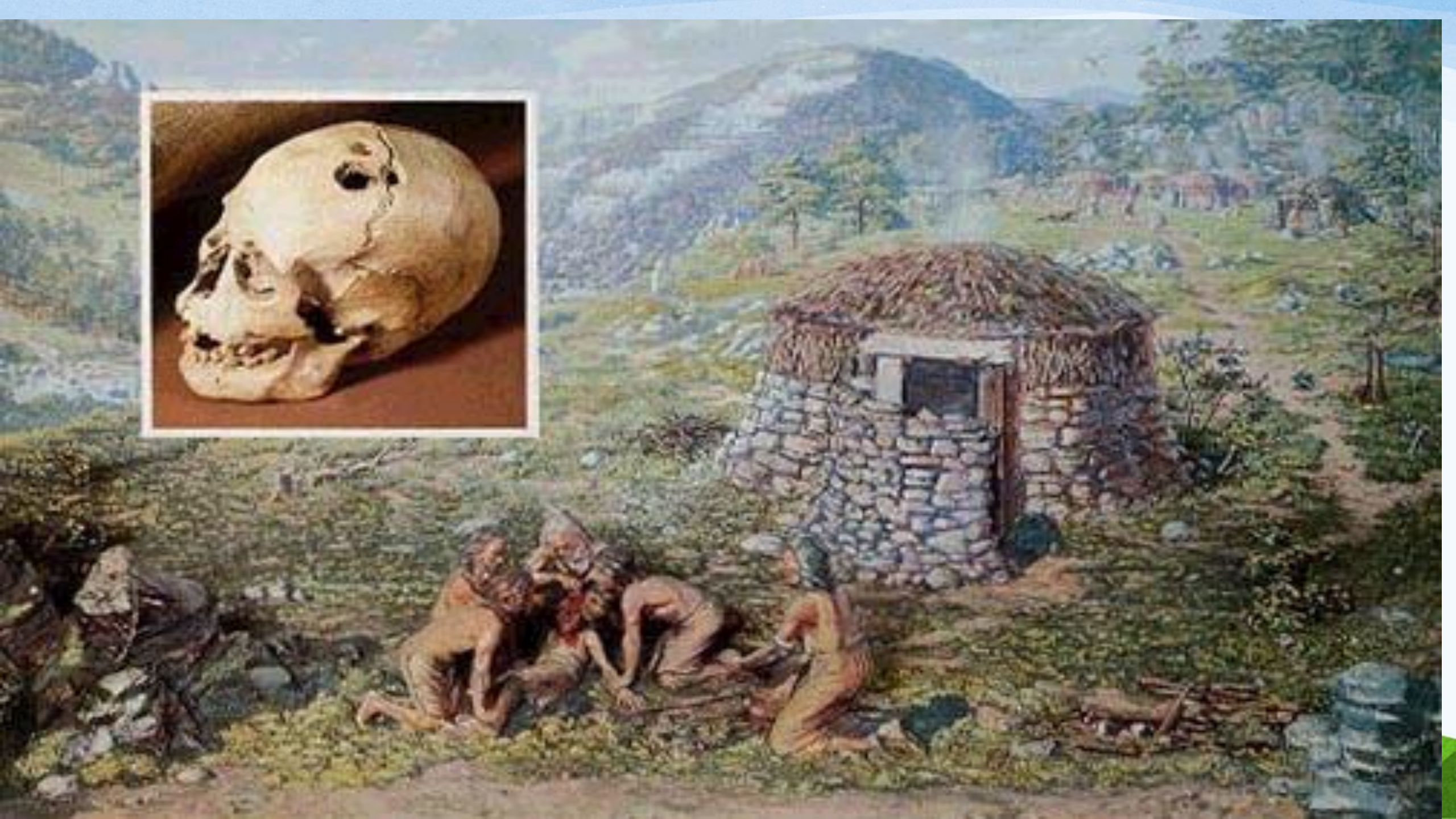
- In ancient times people believed that illness was caused by demons and evil spirits
- Treatment was directed towards eliminating evil spirits.



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Primitive Times (BC- 3000BC)

- Illness and disease were believed to be caused by evil spirits and demons
- Tribal witch doctors treated illnesses with ceremonies to drive out evil spirits
- Herbs and plants were used as medicine
- Trepanning was used to treat insanity, epilepsy and headache
- Average life span: 20 years



Ancient Egyptians (3000BC - 300 BC)

- First to maintain health records
- Called on the gods to heal them when sick
- Physicians were priests who studied medicine and surgery in temple schools
- Imhotep was thought to be the first physician
- Believed body was a system of channels: air, tears, blood, urine ..if these got clogged leeches was used to “open” them by bleeding the patient.
- Used magic and medicine to treat disease
- Average life span 20 - 30 years

IMHOTEP



LEECHING

Leeches 1 



Sorcery 

Target player loses all poison counters. Leeches deals 1 damage to that player for each poison counter removed in this way.
“Where our potions and powders fail, perhaps nature will succeed.”
—Reyhan, Samite Alchemist

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Ancient Chinese (1700 BC - 220 AD anno domini)

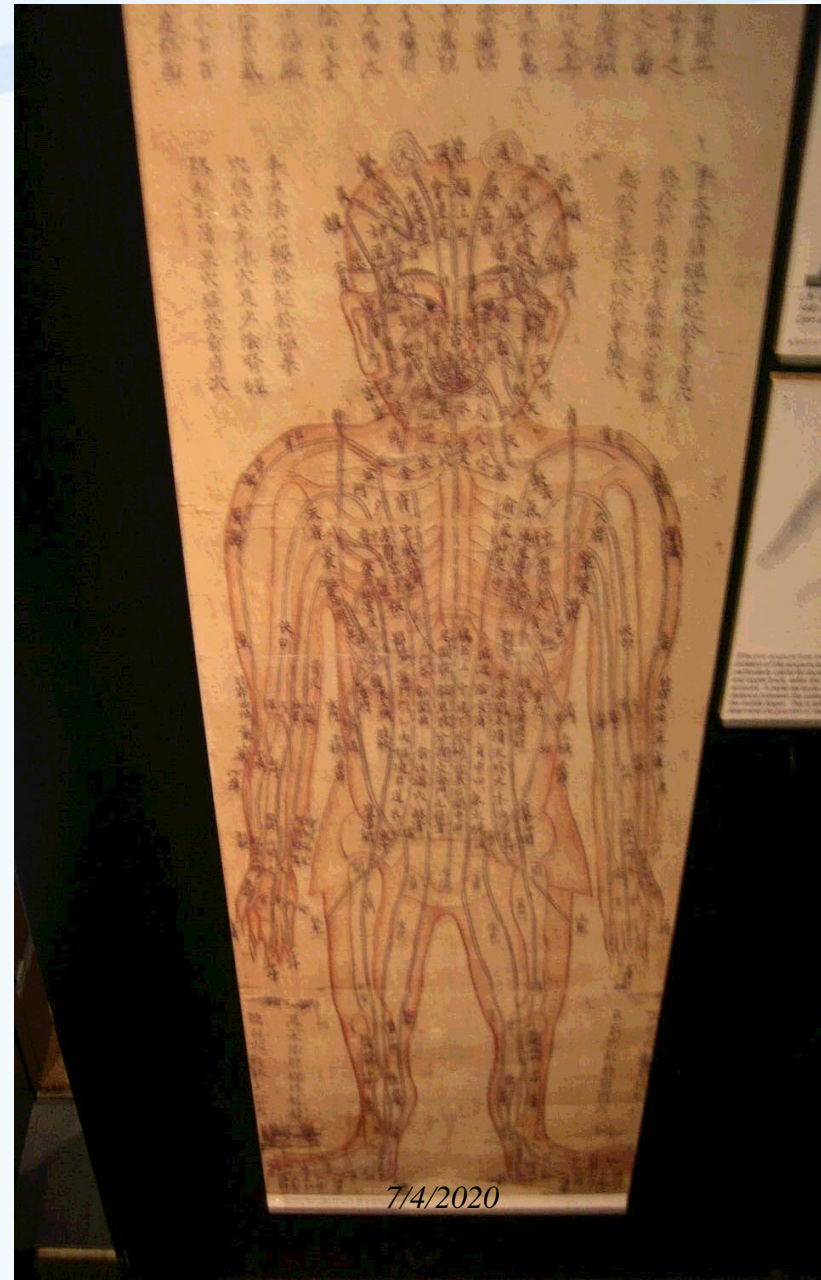
- Could not dissect the body due to religious beliefs. .knowledge of body was inadequate
- Monitored the pulse to determine body condition
- Treated the whole body by curing the spirit and nourishing the body
- Recorded a pharmacopoeia of medications based mainly on herbs
- Used acupuncture to relieve pain and congestion
- Began the search for medical reasons for illness
- Average Life span: 20 - 30 years

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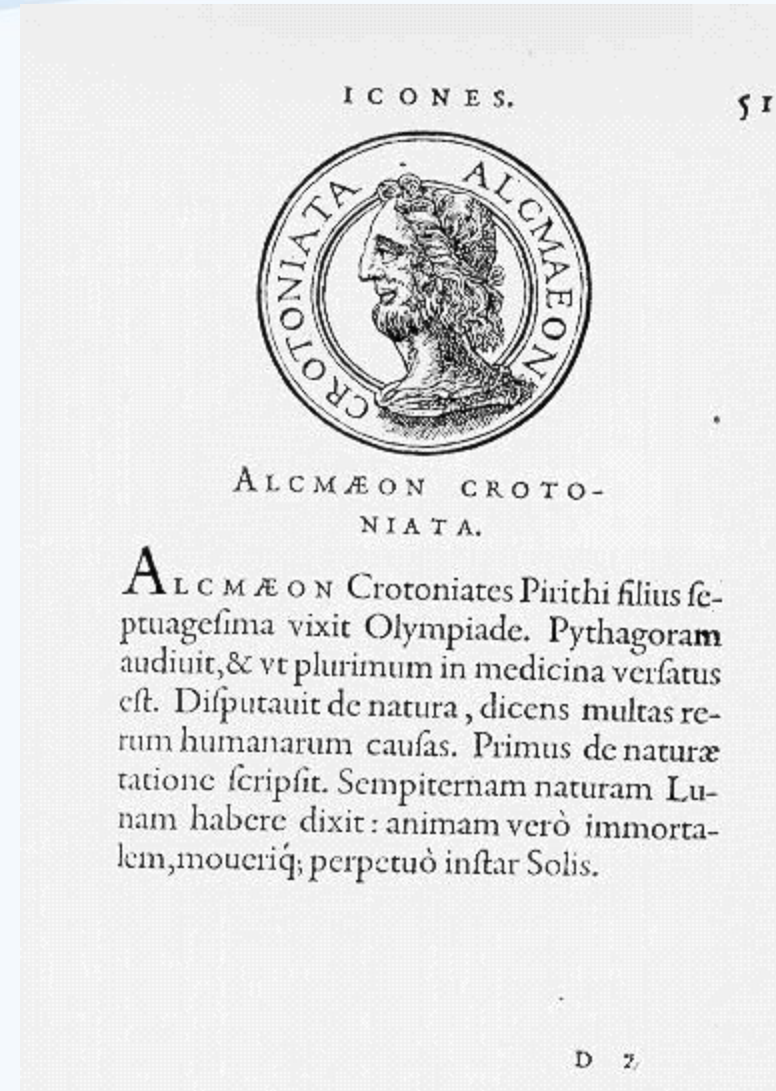
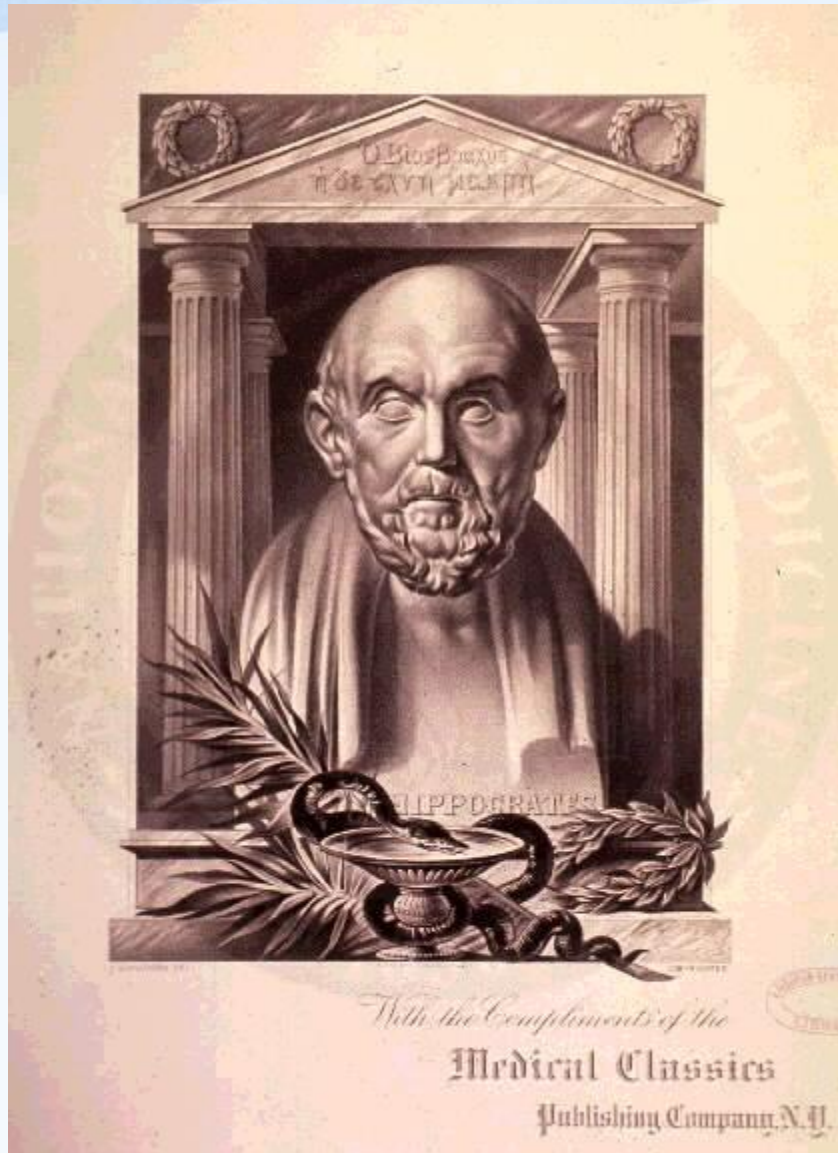
E-mail fstop@earthlink.net



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Ancient Greeks (1200 BC - 200 AC)

- Began modern medical science
- observed and studied the effects of disease
- Alcmaeon: identified the brain as important to the senses we have.
- Hippocrates: Father of Medicine
- Developed and organized method to observe the body
- Recorded s/sx of many diseases
- Created the Hippocratic oath still used today
- Aristotle: dissected animals...founder of anatomy
- Illness was caused by natural causes
- stressed diet and cleanliness as ways to prevent
- Average Life Span: 25 -35 years

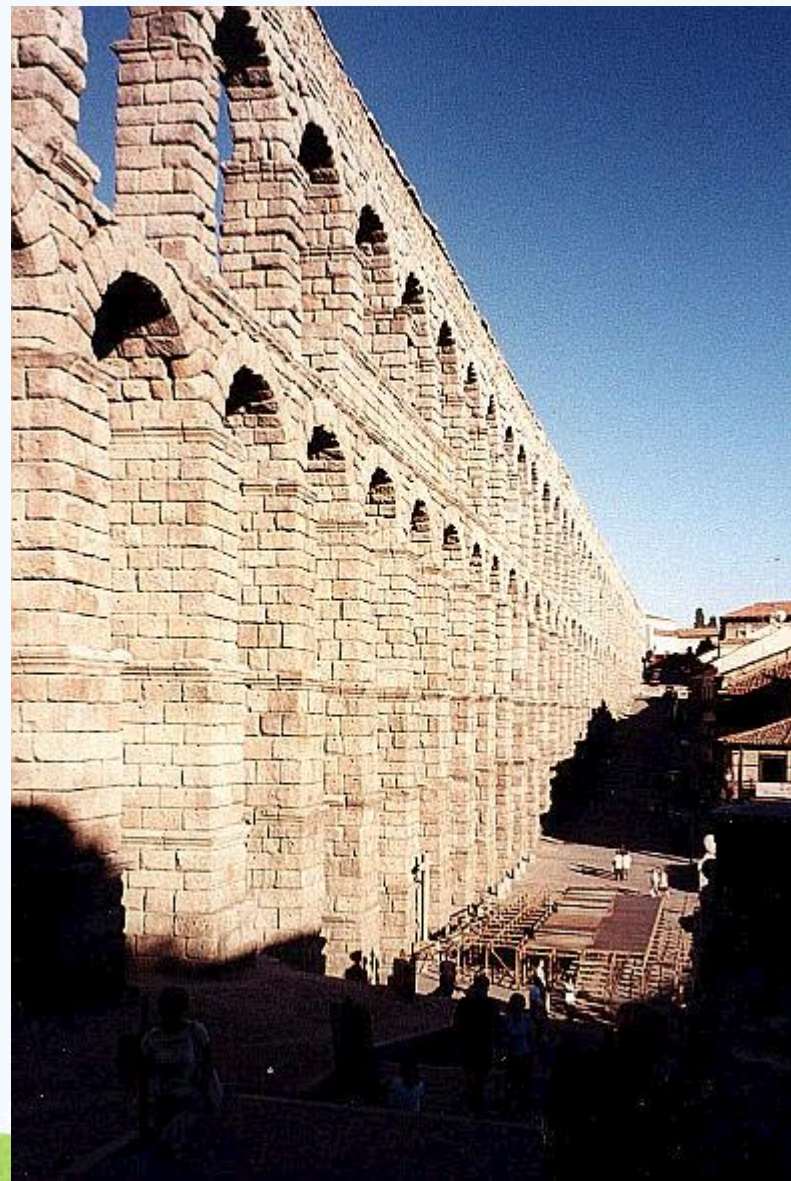


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Ancient Romans (753 BC- 410 AD)

- First to organize medical care (soldiers)
- Early hospitals began, Physicians cared for pt. In rooms in their homes
- Began public sanitation systems
- Aqueducts, sewers, filters in public baths and drained marshes to cut down on malaria
- Claudius Galen: believed in the four humors: body was balanced by blood, phlegm, black bile and yellow bile.
- S/sx of inflammation and infectious disease
- Dissected animals to determine how muscles, kidney and bladder worked
- Diet, exercise, and meds used in the treatment
- Average Life span: 25 - 35 years

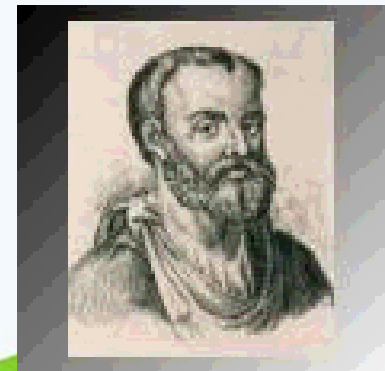
Ancient Romans (753 BC- 410 AD)



The Dark Ages (400 -800 AD)

- Emphasis was placed on saving the soul and the study of medicine was prohibited
- Prayer and divine intervention was used to treat illness and disease
- Monks and priests provided custodial care for the sick
- Medicine was mostly herbal mixtures
- Average life span 20 - 30 years

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The Middle Ages (800 - 1400)

- Renewed interest in the medical practices of the Greeks and Romans.
- Medical universities
- Black Death (the bubonic plague) killed 3/4 of the population in Europe and Asia 1348-50
- Smallpox, Tuberculosis, Typhoid, malaria the plague happened
- Arab physicians used chemistry to advance pharmacology

Middle Ages (continued...)

- Rhazes: Arab Hippocrates
- Diagnosed using observation and s/sx
- Criteria developed for distinguishing between smallpox and measles
- Suggested blood was the cause of many infectious diseases
- Used animal gut for sutures
- Arabs: had to pass exams to get a physician's license to practice
- Avenzoar (ابن زهر): described the parasite causing scabies
- Average life span was 20 - 35 years



Renaissance عصر النهضة 1350 - 1650 AD

- Rebirth of the Science of Medicine
- Dissection was allowed (Michelangelo and Leonardo da Vinci drew the human body)
- First Anatomy book: Andreas Vesalius
- Dietetic book: Isaac Judaeus
- Michael Servetus: described the circulatory system in the lungs and how digestion is the source of heat for the body
- Roger Bacon: chemical remedies, optics and refraction
- Average Life Span: 30-40 years

ANDREAE VESALII.



16th and 17th Century

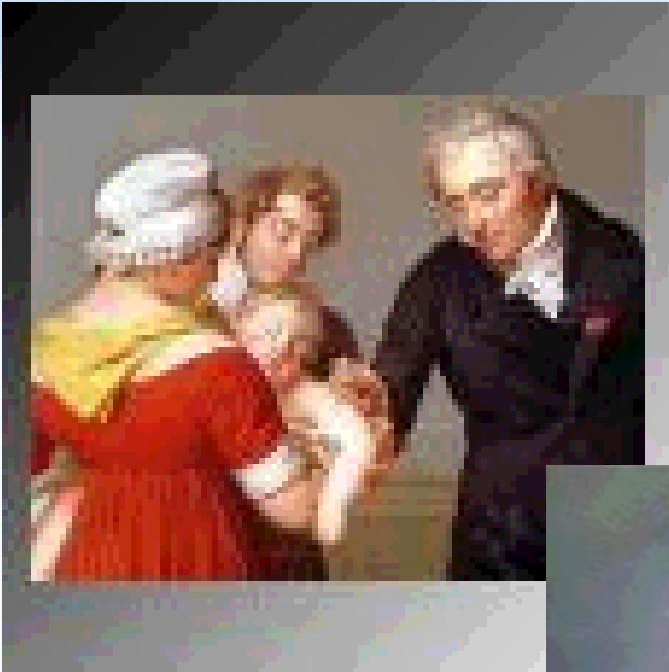
- William Harvey: heart circulation in 1628
- Anton van Leuwenhoek: microscope in 1666
- Gabriel Fallopius: identified fallopian tubes and the tympanic membrane in the ear
- Bartolomeo Eustachio identified the Eustachian tube leading from the ear to the throat
- Scientific Societies were formed
- Apothecaries (صيدليات) were made...prescribed and sold meds
- Average Life Span: 40 -50 years

18th Century

- Gabriel Fahrenheit created the mercury thermometer in 1714
- Joseph Priestley: discovered oxygen (1774)
- John Hunter: English surgeon...established surgical procedures, introduced tube feeding (1778)
- Benjamin Franklin: Bifocals
- James Lind: Lime juice with vitamin C to treat scurvy Edward Jenner: vaccination for smallpox (1796)
- Average Life Span: 40 - 50 years

19th Century

- Rene Laennec: stethoscope (1819)
- First successful blood transfusion in humans
- Dr. Phipippe Pinel: treated mental illness
- William Morton: American dentist used anesthetic (1846)
- James Simpson: chloroform as an anesthetic(1846)
- Louis Pasteur: microorganisms cause disease, and pasteurization of milk, created a vaccine for rabies (1885)



*EDWARD
JENNER*

*FIRST
MICROSCOPE*



BIFOCALS



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19th Century

- Joseph Lister: disinfectants and antiseptics in surgery
- Elizabeth Blackwell: first female MD in US (1849)
- Florence Nightingale: founder of modern nursing, and started schools
- Dorothea Dix: Female superintendent of nurses in the army
- Clara Barton: Founder of American Red Cross in (1881)

19th Century

- Gregory Mendel: hereditary and dominant/recessive patterns
- Robert Koch: Culture plates to identify pathogens and isolated bacteria causing TB
- Dimitri Ivanofski: discovered viruses (1892)
- Wilhelm Roentgen: X-rays (1895)
- Almroth Wright: vaccine for typhoid fever (1897)
- Bacteria causing gonorrhoea and leprosy were identified
- Average Life Span: 40 -60 years



Clara Barton



Joseph Lister



Florence Nightingale



Elizabeth Blackwell

*A FEW
IMPORTANT
PEOPLE*

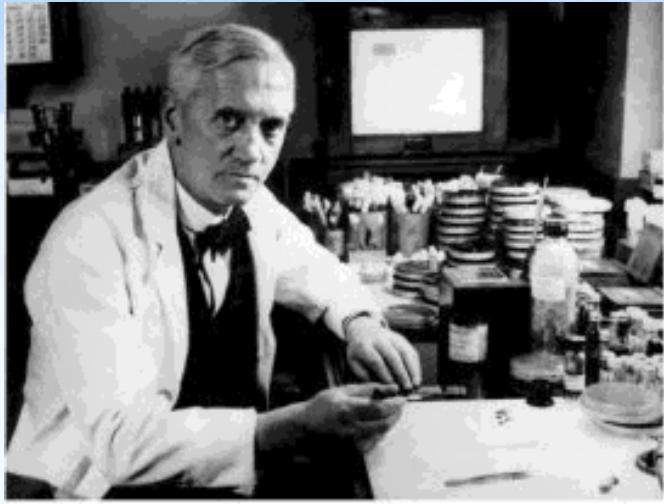


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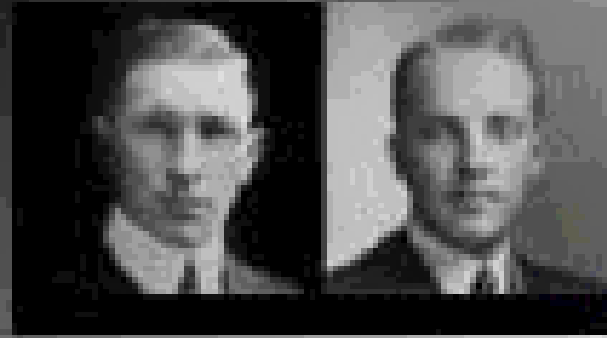
Wilhelm Roentgen

20th Century

- Walter Reed demonstrated that mosquitoes carry yellow fever (1900)
- Carl Landsteiner: classified the ABO blood groups (1901)
- Dr. Elie Metchnikoff: WBC protect against disease
- Marie Curie: isolated radium (1910)
- Sigmund Freud: psychology
- Banting and Best: insulin (1923)
- Health Insurance: (1920)
- Sir Alexander Fleming: Penicillin (1932)



*BANTING
AND
BEST*



FLEMING



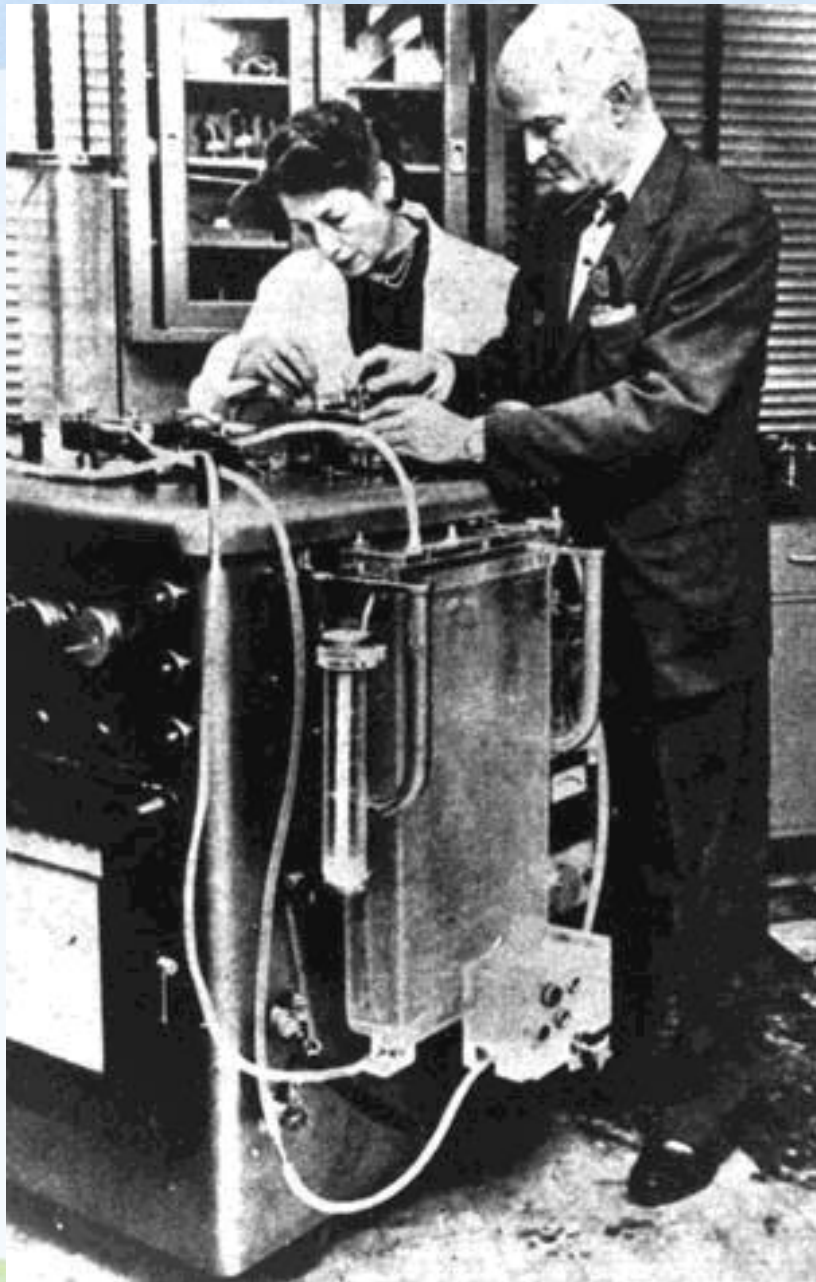
FREUD



SALK

Continued....

- Enders/Robbins: grew viruses on cultures
- Derhard Domagk: sulfa drugs
- George Papanicolaou: Pap smears
- Dialysis machine: 1944
- Salk: polio vaccine 1952
- Crick and Watson: DNA (1953)
- Heart-Lung machine: (1953)
- Kidney transplant first done in 1954



First test tube baby

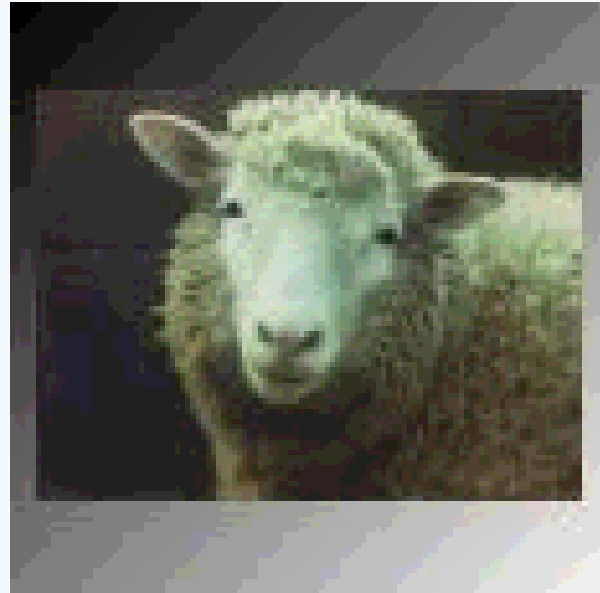
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First heart-lung machine

Continued.....

- Birth control pills FDA approved 1960
- Arm reattached 1962
- First liver transplant 1963
- First Lung Transplant 1964
- First Heart Transplant: 1968
- Hospice: 1967
- Gene's synthesized: 1970
- CAT scan: 1975
- Test Tube baby: 1978

- AIDS: 1981
- HIV identified in 1984
- Gene therapy: 1990
- Sheep cloned in 1997
- Average life span: 90- 100 years and beyond



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21st Century: Potential for the future

- Cure for AIDS, cancer, heart disease, diabetes may be found
- Genetic manipulation to prevent inherited diseases
- Methods developed to slow the aging process
- Nerves in the brain and spinal cord regenerated
- Transplants for all body organs (brain)
- Antibiotics that can't have a resistance built up
- Life Span: 90 - 100 years

Issues for Concern

- **Government support**
- **Rise of Medical Technology**
- **Rise of 3rd Party Payers**
- **Distrust of the Professions**
- **Rise of Professional Ethics**
- **Critics of Medicine**
- **Rise of Team health care**
- **Women's Movement:**
- **Focus on cure rather than care and prevention**
- **Legalization, legislation, and litigation**
- **Social interest in freedom and autonomy - decline in the status of medicine**
- **Media Interest**
- **Rise in the Cost of Medicine: how much can we afford?**

Different terms of Public Health

- *Definition of Public Health*

Public health is the science and art of preventing disease, prolonging life and promoting health and efficiency through organized community effort for;

- a. The sanitation of the environment,
- b. Control of communicable diseases,
- c. Education of the individual in personal hygiene,
- d. Medical and nursing services for early diagnosis,
- e. To ensure adequate living standard of everyone for the maintenance of health.

Definition of public health

- *... the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organisations, public and private, communities and individuals."*
- Though this definition is over one century old, it remains valid, despite all societal changes. Public health is a field where many disciplines and many professional sectors collaborate.
- Relevant disciplines and sectors within public health:
- Epidemiology, microbiology, biostatistics, health services, environmental health, community health, behavioural health, health economics, informatics, public health interventions, public policy ..etc.

Preventive Medicine

- Preventive medicine is a part of public health and not a substitution to it.
- It is a science and art of health promotion, disease prevention, disability limitation and rehabilitation.
- Its objective is to prevent causative agents from its transmission and thereby halting the disease process.

Community Health

- The term community health in some countries has replaced the terms public health, preventive medicine and social medicine/
- It involves motivating individuals and groups to change patterns of behaviour as to take such action, including seeking of medical care, as would enable them to achieve optimum health.
- It is used as synonym for environmental health.

Social Medicine

- It is the study of man as the social being in his total environment
- Its focus is on the health of society as a whole
- It stresses the importance of social factors in the etiology of a disease.
- It plays a major role in developing epidemiological methods and their application to the investigation of a disease.
- Therapy consists of social and political actions for the betterment of conditions of life of a man.

Community Medicine

- It is the field concentrated on the study of health and disease in the population of defined community or group.
- Its goal is to identify the health problems and needs of defined population, and to plan, implement, and evaluate the extent to which health measures effectively meet these needs.
- The practice of community medicine is concerned with group or population rather than individual patient.

Curative/Clinical Medicine

- Clinical medicine is basic science oriented e.g. Chemistry, biology and pharmacology etc. and circles in periphery of it.
- It deals with patients in which a physician diagnosis the disease of a patient and prescribes medicine and keeps the patient in follow-up care.
- Its primary objectives are:
 - ➤ Removal of disease from patient rather than from mass
 - ➤ Treatment of disease by the use of drug which produces a reaction that itself neutralizes diseases.

History of Public Health

- Birth of Public Health concept in England around 1840.
- An English epidemiologist John Snow studied the epidemiology of cholera in London from 1848 to 1854 and established the role of drinking water in the spread of cholera.
- Cholera which is often called the father of Public Health appeared from time and again in the western world during the 10th century.
- In 1856, William Budd by careful observation of an outbreak of typhoid fever in the rural north of England concluded that the spread was by drinking water.
- Sanitary reform was done by Sir John Simon (1816-1904) the first medical officer of health of London.
- By the beginning of 20th century, the broad foundations of Public Health.
- Clean water, clean environment, wholesome condition of houses, control of offensive trades etc.
- Public Health made rapid strides in the western world, its progress has been slow in the developing countries such as Nepal where the main health problems continue to be those faced by the western world 100 years ago.

History of Preventive Medicine

- James Lind, a naval surgeon advocated the intake of fresh fruits and vegetables for the prevention of scurvy in 1753.
- Edward Jenner and John Hunter, discovered vaccination against smallpox in 1796.
- Preventive medicine developed as a specialty only after Louis Pasteur propagated in 1873 the germ theory of disease followed by discovery of causative agents of Typhoid, Pneumonia, Tuberculosis, Cholera and Diphtheria.
- The later part of the 19th century was marked by such discoveries in preventive medicine as Pasteur's anti-rabies treatment (1883), Cholera vaccine (1892), Diphtheria antitoxin (1894), anti typhoid vaccine (1898), antiseptics and disinfection (1827-1912), etc.
- Elucidating of the modes of disease transmission to control disease by specific measures such as blocking the channels of transmission e.g. quarantine, water pollution, pasteurization of milk, protection of food, proper disposal of sewage, destruction of insects and disinfection.
- The development of laboratory methods for the early detection of disease.

Concept of Diseases, Health and Being Healthy

- **Concept of Health (Changing concepts of Health)**

- I. Biomedical Concept

- II. Ecological Concept

- III. Psychological Concept

- IV. Holistic Concept

- *Biomedical concept* Health has been viewed as an —absence of diseases‖. If one was free from diseases, and then the person was considered healthy. It has basis in the —germ theory of disease‖. The medical profession viewed the human body as a machine, disease as a consequence of the breakdown of the machine, and one of the doctor’s tasks as repair of the machine.

- *Ecological concept:* Health is a dynamic equilibrium between host and environment. Disease as a maladjustment of the human organism to the environment. It raises two issues; imperfect man and imperfect environment.
- *Psychological concept:* Health is not only a biomedical phenomenon but one which is influenced by social, psychological, cultural, economics, and political factors of the people concerned.
- *Holistic concept :* Holistic concept is synthesis of the entire above concept. It recognizes the strength of social, economic, political and environmental influences on health. It describes health as a unified and multi-dimensional process involving the well being of the whole person in the context of his environment. It implies that all aspects of society have an effect on health (in particular, agriculture, animal husbandry, food industry).

Definition of Health

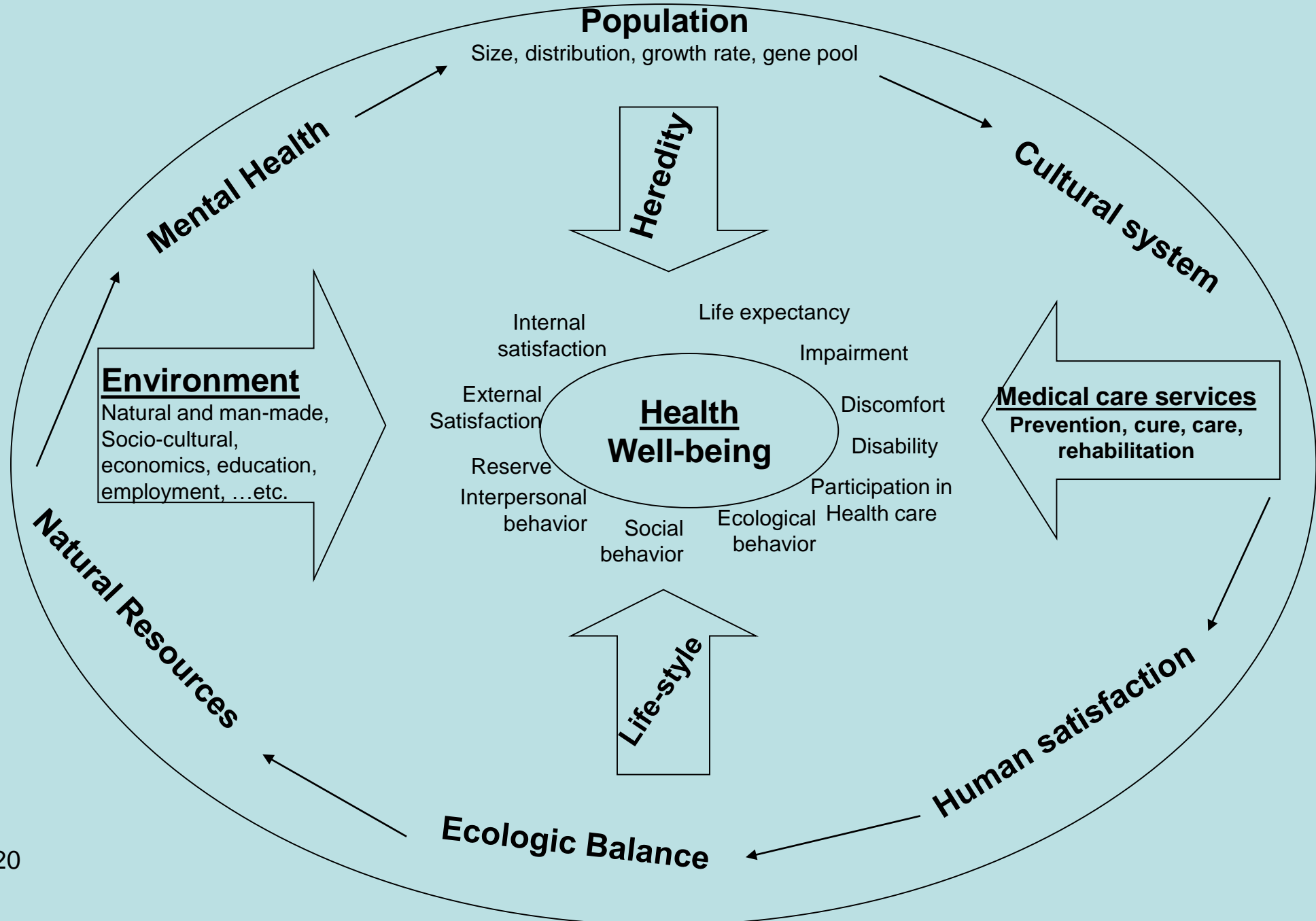
- *Webster Dictionary*: Health is the condition of being sound in body, mind or spirit, especially freedom from physical disease or pain.
- *Oxford Dictionary*: Health is soundness of body or mind, that condition in which its functions are duly and efficiently discharged.
- *WHO*: Health is the state of complete physical, mental and social well being and not merely an absence of disease or infirmity. In recent years this statement of WHO has been amplified to include the ability to lead a socially and economically productive life and also has been added the aspect of spiritual wellbeing.
- *Criticism of WHO definition of health* :WHO definition of health has been criticized as being too broad. It cannot be defined as a state at all, but must be seen as a process of continuous adjustment to the changing demands of living and of the changing meaning we give it to life. It is dynamic concept. It helps people live well, work well and enjoy themselves. This condition may prevail in some individual but not in every one.

Dimension of health

- There are four major dimensions of health included in the WHO definition of health.
- 1. Physical
- 2. Mental
- 3. Social
- 4. Spiritual
- *1- Physical Health* : Most obvious dimension of health, concerned with the mechanistic functioning of the body. Conceptualizes health biologically as a state in which every cell and every organ is functioning at optimum capacity and in perfect harmony with the rest of the body.
- *2 - Mental health* : It is an ability to think clearly and coherently. A state of balance between oneself and others. A co-existence between the realities of the self and that of other people and that of the environment. It deals with sound socialization in communities.

- *3 Social health* : It refers the ability to make and maintain relationships with other people or communities. It is a quantity and quality of an individual's interpersonal ties and the extent of involvement with community.
- *4 Spiritual health* : It is concerned with religious beliefs and practices. It also deals with personal creeds, principles of behaviour and ways of achieving peace of mind and being at peace with oneself.
- *5 Emotional health* : It is ability to recognize the emotional i.e. fear, joy, grief and anger and practice such emotions appropriately. It also deals with coping stress, tension, depression and anxiety.

A conceptual Framework for understanding HEALTH



Concept of disease

- *Webster* A discomfort, a condition in which body health is seriously attacked, deranged or impaired, a departure from a state of health an alteration of human body interrupting the performance of vital functions.
- *Oxford Dictionary* A condition of the body or some part or organ of the body in which its functions are disturbed or deranged.
- *Ecological point of view* It is maladjustment of the human organism to the environment.
- *Simplest definition* Disease is just the opposite of health. That is any deviation from normal functioning or state of complete physical or mental well being.