WHY DO WE FALL ILL

HEALTH: Health is a state of physical, mental and social well being.

The conditions necessary for good health are:-

i) Good physical and social environment.

ii) Good economic conditions.

iii) Social equality and harmony.

Good physical and social environment includes clean surroundings, good sanitation, proper garbage disposal and clean drinking water.

A good economic condition includes job opportunities for all for earning to have nutritious food and to lead a healthy life. Individual is free from anxiety and tension.

Social equality and harmony are necessary for a healthy and peaceful life.

Differences between Healthy and Disease free :-

	Healthy	Disease free
1	It is a state of physical, mental and social well being.	It is a state of absence from diseases.
2	It refers to the individual, physical and social environment	It refers only to the individual
3	The individual has good health.	The individual may have good health or poor health

Factors affecting health:

1. Physical environmental factor: like light, temperature, natural disasters, soil type, rainfall etc.
2. Social environmental factor: like job conditions, housing condition, family's atmosphere and relationship between neighbours and friends.
3. Public cleanliness.
4. Balanced diet.
5. Good economic conditions.

So, personal and community issues both play an important role in determining individual's health.

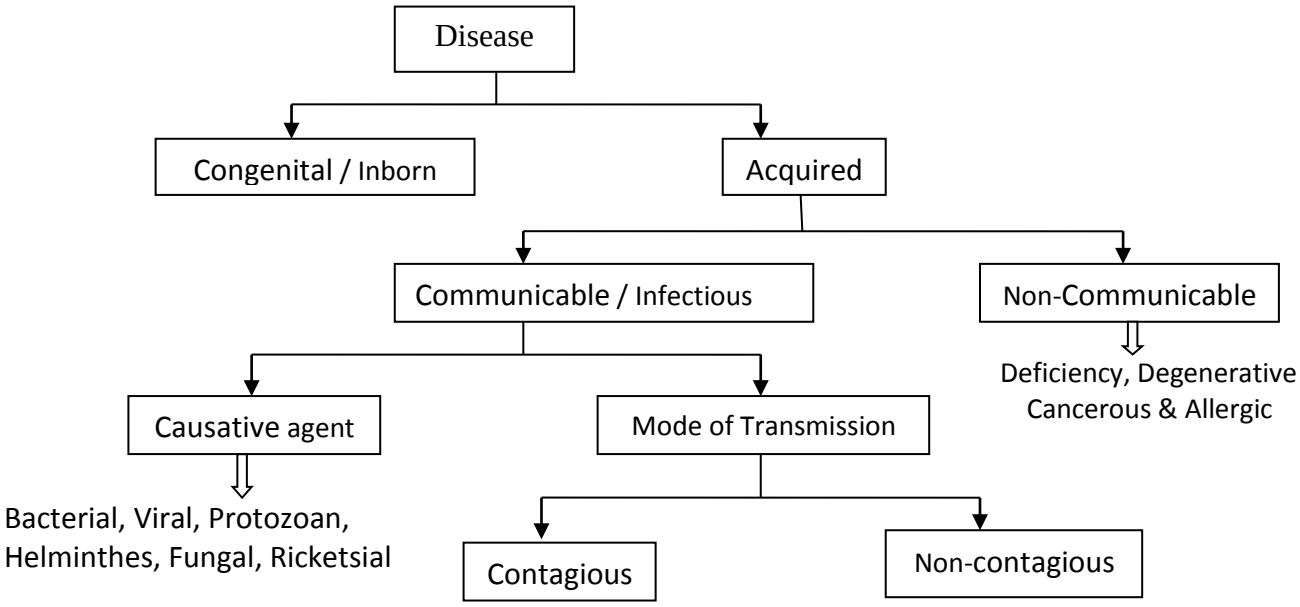
Characteristics of good health: the important characteristics of a person having good health are-

1. Free from sickness and disease.
2. Free from unnecessary anxiety.
3. Free from social and psychological tension.
4. Self confidence.
5. Feeling of joy in living.
6. Ability to work efficiently and at his best.

Importance of good health: "good health is one's real health". A healthy person is always cheerful, active, willing worker and energetic. Good health increases one's efficiency for doing work. This contributes to his own progress, the progress of his family, the progress of the community and the progress of a nation as a whole.

Disease: (Dis = against; ease = comfort): Any conditions which interfere with normal functioning of the body and impairs the health, is called disease. Thus disease is opposite to health.

Types of disease:



On the basis of period of occurrences of disease it is classified into two categories:

(A) Congenital Disease: are inborn disease present from the birth and are inheritable i.e. can be transferred from parent to offspring.
e.g.- Haemophilia, Colour-blindness

(B) Acquired Disease: Disease acquired during the lifetime i.e. occur only after birth are called acquired disease. These are non-inheritable. It may be communicable or non-communicable from parent to offspring. On the basis of their communication, acquired diseases are of two types:
1. Communicable Disease.
2. Non-communicable Disease.

1. Communicable Disease: these can be transferred from infected to a healthy person by means of air, water, food, physical contact or vectors.
These are caused due to infection and multiplication of some kind of micro-organisms, so are called infectious disease.
These can be categorised on two basis:
(a) Causative agent
(b) Mode of transmission

Depending upon the causative agent communicable disease is of following types:-
(i) Bacterial Disease: Diphtheria, Whooping cough, Leprosy, Syphilis, Tetanus, Typhoid, Tuberculosis (T.B), Cholera, Anthrax etc.
(ii) Viral Disease: Dengue, Influenza, Measles, Polio, Small pox, Common cold, Rabies, Japanese encephalitis
(iii) Protozoan Disease: Maleria, Amoebiasis, Kala-azar, Sleeping sickness etc.
(iv) Helminth Disease: Taeniasis, Ascariasis, Elephantiasis, Trichinosis, Liver rot etc.
(vi) Ricketsial Disease: Typhus fever, Trench fever, Q-fever, Rocky Mountain fever etc.

Depending upon the mode of transmission communicable disease is of two types:
(i)Contagious Disease: The transmission of disease from an infected person to a healthy person if take place by actual contact between them is called contagious disease.
e.g. - STDs like AIDS, Syphilis, Gonorrhoea, Small pox, Chicken pox, Measles, Leprosy etc.
(ii) Non-contagious Disease: these can spread from infected person to healthy person without direct contact either **by food, water & air**. e.g-. Taeniasis, Ascariasis, Cholera, T.B, Typhoid etc.

or **by some vectors / Carrier hosts**. e.g.- Malaria, Filariasis, Plague etc

2. Non-Communicable Disease: That disease does not spread from an infected person to a healthy person. These are of following two types on the basis of causative agents:

(i) Deficiency Disease: Occur either due to deficiency of some nutrients in the diet or some hormone.
e.g.-. Kwashiorker (Protein), Diabetes mellitus (Insulin), Dwarfism (Growth hormone) etc.

(ii) Degenerative Disease: Occur due to degeneration of certain body tissues.
e.g.- Cardio-vascular disease,(Diseases of Heart & Blood-vessels), Arthritis (of joints).

(iii) Cancerous disease: Occur due to uncontrolled growth and division of cells in certain body tissues leading to tumour formation.

(iv) Allergic disease: Occur due to hypersensitivity of body to certain external agents, called Allergens.
e.g.- Asthma, Hay fever etc.

SOME IMPORTANT DIFFERENCES:

Communicable & Non-Communicable Disease:

Communicable Disease	Non-Communicable Disease
1. It can be transmitted from infected person to healthy person	1. Cannot be transmitted from infected person to healthy person
2. It is caused by micro-organisms called pathogens	2. It is caused due to deficiency of nutrients or Hormones, Degeneration of Tissue or Hypersensitivity of body or Tumour formation.
3. e.g.- Typhoid, Cholera, T.B, AIDS, Maleria etc.	3. e.g.- Diabetes, Kwashiorker, Marasmus, Goiter, Allergy etc.

Congenital & Acquired Disease:

Congenital Disease	Acquired Disease
1. It occurs from birth	1. It occurs after birth and during the life span of an individual.
2. it can be inherited from Parent to Offspring's	2. It does not inherit from Parent to Offspring's
3. It is caused by Gene mutation or Chromosomal mutation	3. It is caused due to Pathogens or Deficiency of nutrients or Hormones or Degeneration of tissues or Cancer growth

Infectious & Non-Infectious Disease:

Infectious Disease	Non-Infectious Disease
1.Caused due to successful entry and multiplication of certain micro-organisms	1.It is not caused by microbes, but may be caused by internal causes like Genetic abnormalities or Diet deficiency or Hormone defeciency
2.Are always Communicable	2. Are Non-Communicable

Acute & Chronic Disease:

Acute Disease	Chronic Disease
1.These occur very rapidly but last for only short periods, a few days	1. These last for a long time and also could be dangerous
2. Does not cause major effects on general health and become well within a week or so	2. Have prolonged and major effects on general health over the years
3. e.g.- Common cold, Acene, Cough etc.	3. e.g.- T.B, Elephantiasis, Cancer, Diabetes, Arthritis

CAUSE OF DISEASE: Any substance which causes a disease by its excess or deficiency or absence is called disease agent. Disease agents are of five types:-

1. Biological infectious agent: also called Pathogens. (Gr. Pathos = Disease, Genesis = Producing) These are micro-organisms which when successfully infect the human body by first multiplying their number and producing Toxin which interfare with the normal functioning of the body and cause a disease.

e.g.- Bacterial, Viral, Rickettsis, Fungi, Protozoan, Helminths etc.

Incubation Period: The period of time of entrance of pathogen till the first sign of the disease is called incubation period.

2. Chemical agent: It may be endogenous i.e. produced inside the body. e.g.- Urea, Uric acid, Hormones, Enzymes etc; or Exogenous .e.g. pollutants like dust, metals, fumes, Allergens like spores & Pollens, Alcohol, Tobacco, Drugs etc.

3. Nutritive agent: e.g.- Minerals, Carbohydrate, Protein, Fat, Vitamin & Water.

4. Physical agent: e.g.- Heat(Stroke), Cold(Frost), Radiations, Sound(Impaired hearing)

5. Mechanical agent: include Injuries, Fracture, Sprains and Dislocation etc.

The disease agents like biological agents, Endogenous chemical agent and Nutritive agent, Physical & Mechanical agents are collectively called **Extrinsic or External factors** of the disease.

The disease caused by endogenous chemical agents and due to genetic abnormalities is collectively called **Internal / Intrinsic disease or Organic / Metabolic Disease**. e.g.- haemophilia, Sickle-cell anaemia, Heart attack, Arthritis, Diabetes, Allergy etc.

These five types of disease agents are called **Primary / Immediate cause of the disease**, while the chances of disease are further increased by certain contributory causes like – lack of good nourishment and poor heredity which decreases the disease resistance power of individual, genetic differences between the organisms and poverty, lack of public hygiene services.

Mode of transmission of disease: there are two modes of transmission of diseases-

(A) Direct Transmission: The pathogens are transmitted from an infected person to a susceptible healthy person directly without an intermediate agent. It occurs in following ways:-

(i) By direct contact with the infected person either through hand-shake, mouth to mouth kissing e.g. - Chicken pox, Small pox, Measles, Leprosy, Ring worm, Gonorrhoea, Syphilis etc.

(ii) Droplet transmission through coughing, sneezing and splitting of infected person.

e.g. - Diphtheria, Influenza, T.B, Common cold, Whooping cough etc.

(iii) Contact with soil: e.g.- Tetanus

(iv) Animal bite: e.g.- Rabies

(v) Transplancental transmission: in this mode of transmission pathogens are transmitted from mother to the foetus through placenta,

e.g.- AIDS, Syphilis

(B) Indirect Transmission: when the disease is transmitted from an infected person to the healthy person through some intermediate agent is called indirect transmission. it occurs in the following ways:-

(i) Vector borne disease: e.g.- Maleria, Dengue, Cholera, Sleeping-sickness, Kala-azar etc.

(ii) Vehicle borne: the disease, whose pathogen is transmitted by agencies like contaminated food, Water etc. e.g.- Cholera, Dysentery and Typhoid etc.

(iii) Fomite borne: Pathogens are spread through contaminated articles like handkerchiefs, towels, crockery etc.

(iv) Air borne: e.g. - Influenza, Epidemic, Typhus etc.

(v) Unclean hands: e.g. - Ascariasis.

SEXUALLY TRANSMITTED DISEASE (STDs):- Are those diseases which spread by sexual contact from an infected person to a healthy person.

e.g.- Syphilis, gonorrhoea - Bacterial

AIDS – Viral

MANIFESTATION OF DISEASE (DISEASE SYMPTOMS):-

The abnormal changes in the functioning or appearance of the organ or body parts are called symptoms of the disease. The symptoms of the disease are of two types:

1. Common manifestation and
2. Organ-specific and Tissue specific manifestation

Organ-specific and Tissue specific manifestation: depends upon the target organ which the microbes target after their entry.

Sl.No.	Name of the disease	Target	Specific menifestation
1.	T.B, Lung cancer	Lung	Cough, Breathlessness, Chest-pain, Bloody sputum
2.	Hepatitis	Liver	Inflammation of Liver cell leading to Jaundice charecterised by yellowness of skin, nail & eyes
3.	Cholera	Intestine	Inflammation of wall of intestine leading to Diarrhoea and Dehydration
4.	Influenza	Nasal chamber	Inflammation of nasal tube leading to sneezing, bronchitis, Coughing ,fever etc

Common manifestation: These are observed in number of diseases such as Headache, Coughing, Loose motion, wound with pus etc. indicating some kinds of disease but do not indicate exact type of disease. e.g.- headache may be due to many causes like examination stress or Meningitis or any other disease

So there is need of laboratory testing of Blood or Urine or Stool or any other body tissue to pinpoint the disease further.

The common manifestation occurs due to activation of immune system in response to infectious disease which produces antibodies or actually attack and kill disease causing microbes. This is manifested in the form of inflammation characterised by redness of the infected area, swelling, fever etc.

Severity of disease manifestation depends upon the following factors:

1. Number of invading pathogens.
2. Immunity of the person.
3. Tissue or organ which the microbes targets: e.g.- HIV enters the body through the sexual contact but spread to lymph nodes through the blood , virus causing Japanese encephalitis or brain fever enters into a person through mosquito bite in the blood but attack the brain.

PROPHYLAXIS (PREVENTION OF DISEASE):

Nowadays most of the disease is curable but still there are some diseases which are incurable and are fatal. e.g. - AIDS, Cancer in the last stage.

In the treatment of the curable disease specially the infectious disease there are some limitations like:-

1. Body function may never recover completely.
2. Patients are bedridden for some time depending upon the severity of the disease.
3. Infected person acts as a source of the spread of the disease to even healthy persons.

Therefore it is rightly said "Prevention is better than cure".

There are two ways of prophylactic measures:-

1. General measures
2. Specific measures.

General measures:

1. Air-borne diseases like Pneumonia, T.B and Influenza etc can be prevented by avoiding overcrowding and providing hygienic living conditions.
2. Water-borne diseases like Cholera, Typhoid, etc. can be prevented by providing safe drinking water or use of boiled water.
3. Contagious disease like Chicken pox, Small pox, Measles, Leprosy etc can be prevented by isolating the infected person to avoid their close contact with the healthy person.
4. Vector-borne diseases like Maleria, Dengue and Cholera etc. can be prevented by clean environment through public hygienic measures like proper sanitation of human feces or by killing the vector through insecticide spraying.
5. By providing proper and sufficient food which is essential for the proper functioning and strengthening of individual Immune – system.
6. STDs can be prevented by having faithful relationship and using condoms.
7. Other general measures like proper coverage of eatables, proper washing of fruits and vegetables before their use, keeping the food in clean container, washing of hands before meals , proper diet.

Specific measures: by Vaccination / Immunisation.

Immunity: is the ability of the organisms to resist the development of the disease.
Immune: Infected person with no disease is said to be immune.

Immunity is provided by immune systems which forms specific defence mechanism of organisms. The main cells of Immune system are two types of Lymphocytes- 'T-Lymphocyte' and 'B-Lymphocyte' which have different mode of action. B-Lymphocyte kills the antigen (foreign particle which causes disease) by producing antibodies while T-Lymphocyte attack and kills microbes by producing toxic chemical like Lymphotoxin & Cytolysin.

VACCINATION: is the process of inoculation of vaccine before the occurrence of the disease to stimulate the immune cells to produce antibodies.

VACCINE: is the dead or weakened antigen i.e. pathogen causing disease.

Vaccine was first developed by **Edward Jenner** and the first vaccine discovered was of **Small-pox.**

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