

## **CONCEPT OF THE DISEASE**

**ILLNESS:-** Is not described in the terms of the disease condition. It is the deviation from the normal healthy state and results in the frustration, anxiety, denial, grief, and uncertainty.

### **ILLNESS BEHAVIOUR**

It is the way in which client act towards illness. It is expression of the symptoms, monitoring the bodies, defining illness in their own way. All human beings react to illness in different ways. Illness behaviour becomes abnormal if it is disproportionate to the present illness.

### **DISEASE CAUSATION**

**DISEASE:-** the term literally means without ease. Disease is a morbid condition in which its functions are deranged.

**ILLNESS:-** refers to the individual's perception and behaviour in response to the presence of disease.

**SICKNESS:-** refers to a state of social dysfunction.

- **CONCEPT OF THE DISEASE CAUSATION**

Now it is recognised fact that disease occurs due to multiple factors i.e. agents, host, environment.

The course of the disease follows a definitive pattern but may vary from person to person. There are two main phases in the course of the disease:- 1. Prepathogenesis phase, 2. Pathogenesis phase.

- **AGENT FACTOR OF THE DISEASE**

1. Physical agents.
2. Chemical agents.
3. Biological agents.
4. Mechanical agent.
5. Social agent.
6. Nutrient agent.

- **HOST FACTORS OF THE DISEASE**

- **ENVIRONMENTAL FACTOR OF THE DISEASE**

1. Physical environment
2. Biological environment

3. psychosocial environment.

## CLASSIFICATION OF THE DISEASE

The disease may be broadly divided/classified into two types:-

1. **CONGENITAL**
2. **ACQUIRED**:- Communicable disease, non communicable disease.

Non-communicable disease are of four types:-

- Organic or degenerative diseases
- Deficiency diseases
- Allergic
- cancer



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# INFECTION

**INFECTION:-** The entry and multiplication of an infectious agent in the body of man and animals is known as infection

## **TYPES OF INFECTION:-**

1. primary infection:-
2. secondary infection
3. cross infection
4. iatrogenic infection
5. nosocomial infection
6. exogenous infection
7. endogenous infection
8. subclinical infection
9. clinical infection
10. re- infection

## **CAUSES OF THE INFECTION**

- NUMBER OF INVADING ORGANISMS.
- VIRULENCE OF ORGANISM
- RESISTANCE OF THE BODY TO DISEASE
- IMMUNITY

## **CLASSIFICATION AND CHARACTERISTICS OF MICROORGANISM**

### **CLASSIFICATION:-**

1. NON PATHOGENIC
2. PATHOGENIC

### **CHARACTERISTICS OF THE MICROORGANISM:-**

#### **1. BACTERIA:- TYPES OF BACTERIA:-**

- **Cocci:-** coccus, diplococci, streptococci, tetraccci, staphylcocci
- **Bacilli:-** gram-positive, gram-negative, acid fast staining
- **Spiral forms:-** thest long flagella, thin bacteria, vibrio, spirilla, spirochetes

2. **Rickettesia**
3. **Mycoplasma**

4. Viruses
5. Protozoa
6. Fungi (moulds and yeast)
7. Algae
8. Helminths.

**INCUBATION PERIOD:-** when pathogen infects a person, the microbes multiply till they produce toxin or tissue damage to make the symptoms of the disease begin to appear.

**SPREAD OR TRANSMISSION OF THE INFECTION:-**

1. Contact transmission
2. Vehicle transmission
3. Vector transmission
4. Air born transmission
5. Transplacental transmission
6. Iatrogenic transmission

**FACTORS AFFECTING GROWTH AND DESTRUCTION OF MICROBES**

1. Water
2. Oxygen
3. Carbon dioxide
4. Temperature
5. Hydrogen ion concentration
6. Light
7. Osmotic pressure
8. Glucose
9. Mixed growth

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# IMMUNITY AND BODY DISEASE MECHANISMS

The organisms including man have evolved a variety of defence system against the pathogens. There are two types of defence system:-

## **I. Non-specific defence mechanism**

This mechanism works in a similar way in all kinds of infections.

### EPITHELIAL SURFACES:-

- I. Skin
- II. Gastrointestinal tract
- III. Respiratory tract
- IV. Eyes

### CHEMICAL SECRETIONS

### CELLULAR FACTORS:-

- I. Blood cells
- II. Macrophages
- III. Inflammatory reaction
- IV. Fever
- V. Interferons
- VI. Natural killer cells
- VII. Complement system

## **2. SPECIFIC DEFENCE MECHANISM**

This mechanism defends the body against specific foreign component. It is based on the principle of self and non self.

### CELLS OF THE IMMUNE SYSTEM

- a) Lymphocytes
- b) Antigen presenting cells

### TYPES OF IMMUNE SYSTEM

- a) Humoral or antibody mediated immune system:-
- b) Cell-mediated immune system

## **3. TYPES OF IMMUNE RESPONSE**

- a) Primary immune response
- b) Secondary immune response.

## IMMUNITY- CONCEPT AND TYPES

Immunity is the resistance of the body against the effects of invading pathogenic micro organisms. It may also be defined as the condition of being immune.

- I. **PHAGOCYTOSIS:-** it is the process of engulfing the micro rganisms by phagocytessthus rendering them harmless.
- II. **ANTIBODY FORMATION:-** in additin to phagocytosis, the body produces substances known as antibodies that are antagonistic to pathogenic and their toxins.

### NATURAL IMMUNITY

Natural immunity is due to an individual's constitutional make up. It varies between species, races, individual and ages.

### ACQUIRED IMMUNITY

Natural immunity is not adequate for the prttection against many microbial diseases. It is of two types:-

ACTIVE IMMUNITY:- natural acquired, artificially produced.

PASSIVE IMMUNITY:- natural acquired, artyificial acquired.

## HYPERSENSITIVITY

Hypersensitivity reactions represents immunoligical responses to an antigen that lead to tissue damage rather than immunity; it is also called ALLERGY.

### TYPES OF HYPERSENSITIVITY

There are four types of hypersensitivity reaction :-

1. Type 1 – anaphylactic
2. Type 2 – cytotoxic
3. Type 3 – immune complex
4. Type 4 – cell mediated/delayed type

### AUTOIMMUNE DISEASES:-

Autimmune diseases results from the action of the immune system in respnse to the self antigens and causes damage to one's own organs.

### TYPES OF AUTIMMUNE DISEASES:-

1. Type 1 autoimmunity – may be due to antibodies against infectious agents such as virus but sequence similarity between viral and self proteins may result in the antibodies attacking self cells.
2. Type 2 autoimmunity- results from the reaction in which antibodies react to cell surface antigens.
3. Type 3 autoimmunity – are due to deposition of immune complexes which results in tissue damages.
4. Type 4 autoimmunity – are mediated by T-cell .

## ANTIGEN- ANTIBODY REACTION

The antibodies fight the antigen in five different ways:-

1. Neutralization
2. Agglutination
3. Precipitation
4. Lysis
5. Adherence

## VACCINES

Vaccine is a preparation of the disease agent or its toxic products used to inoculate a person which then stimulates specific antibody formation against the pathogen.

TYPES OF VACCINES:-

1. Live attenuated vaccines- BCG, OPV
2. Killed vaccines- typhoid, cholera, whooping cough, plague, rabies, influenza.
3. Toxoids – diphtheria, tetanus.
4. Mixed or combined – DPT, PENTAVALENT.
5. Cellular fraction vaccines – hepatitis B, pertussis
6. Conjugated vaccines – haemophilus influenza type B
7. Nucleic acid vaccines

## STORAGE AND CARE OF VACCINES

Vaccines must be stored at proper temperature in order to be effective.

**COLD CHAIN** is the system of storage and transport of vaccine at low temperature from the manufacturer to the actual vaccination sites. Cold chain equipment includes:-

- a) Walk in cold rooms

- b) Deep freezers and ice lined refrigerators
- c) Vaccine carriers
- d) Day carriers
- e) Ice packs

#### **IMPORTANCE OF COLD CHAIN**

- Helps to bring vaccines from their producers.
- Helps to store and transport the vaccines
- Helps to protect the vaccines from sunlight and antiseptic substances.
- Helps to prevent the reduction of the quality of the vaccines and their potency.
- Helps to keep the vaccine as directed by the producer.



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# COMMUNICABLE DISEASES

## INTRODUCTIN TO COMMUNICABLE DISEASES

Communicable disease is an illness due to specific infectious agents or its toxic products, capable of being directly or indirectly transmitted from man to man, animal to animal or from man to animal. These diseases includes:-

1. Plague
2. Small px
3. Chlera
4. Malaria
5. Hepatitis A and B
6. Chicken pox
7. AIDS
8. Swine flu
9. Encephalitis
10. Amoebic dysentary
11. Bacillary dysentry
12. Food poisoning
13. Gonrrhea
14. Syphilis
15. Influenza
16. Leprsy
17. Mumps
18. Measles
19. Typhoid fever
20. Polimyelitis
21. Tuberculsis
22. Whoping cugh
23. Dengue fever
24. Yellw fever

### EPIDEMIOLOGICAL CONCEPTS

According to schwabe et al, "Epidemiology is the study of disease in populations". It is the study of the districutin and determinants of the health related states in specified population and application of this study to control the health problems.

- **Aims of the epidemiology**

- I. To determine the frequency and distribution of the disease in a population.

- II. Identify the risk factor.
- III. To assess the economic effect of the disease.

- **Scope of the epidemiology**

- I. Cardiovascular epidemiology
- II. Cancer epidemiology
- III. Neuro epidemiology
- IV. Molecular epidemiology
- V. Genetic epidemiology
- VI. Computational epidemiology
- VII. Other epidemiological subdisciplines

### **MEASUREMENTS OF MORBIDITY AND MORTALITY**

Epidemiology focuses on the measurement of morbidity and mortality in human population and epidemiologists usually express the disease magnitude, ratios and proportions, which are the basic tools of measurements.

1. **Rate** :- crude rates, standardized rates, specific rates.
2. **Ratio**
3. **Proportions**

### **MEASUREMENTS OF THE MORBIDITY**

Morbidity is measured in terms of:-

- **Frequency**
  - a) Incidence rate
  - b) Prevalence rate
- **Duration**
- **Severity**

Importance of the measurement of morbidity:-

- I. Describe the nature and extent of the disease in the community.
- II. Assist in establishment of the priorities.
- III. Provide accurate and relevant information.
- IV. Serves as a crucial role in prevention of disease.
- V. Monitor and evaluate disease control activities.

### **MEASUREMENT OF MORTALITY**

#### **COMMONLY USED MORTALITY RATES ARE:-**

- Crude death rate

- Specific death rates
- Proportional mortality rate
- Case fatality rate
- Survival rate
- Standardized mortality ratio

### **DISEASE CYCLE OF THE COMMUNICABLE DISEASE**

There are six stages of disease cycle which occur in human host:-

- Incubation period
- Prodromal period
- Fastigium
- Defervescence
- Convalescence
- Defection

### **EPIDEMIOLOGICAL TRIAD**

i. **AGENT:-**

- Physical agent
- Chemical agent
- Biological agent
- Mechanical agent
- Social agent
- Nutrient agent

ii. **ENVIRONMENT**

- Physical environment
- Biological environment
- Psychosocial environment

iii. **HOST**

### **LEVELS OF PREVENTION**

- Premordial prevention
- Primary prevention:- health promotion, specific protection.
- Secondary prevention:- early diagnosis and treatment, referral.
- Tertiary prevention

## GENERAL MEASURES FOR THE CONTROL AND PREVENTION OF COMMUNICABLE DISEASES

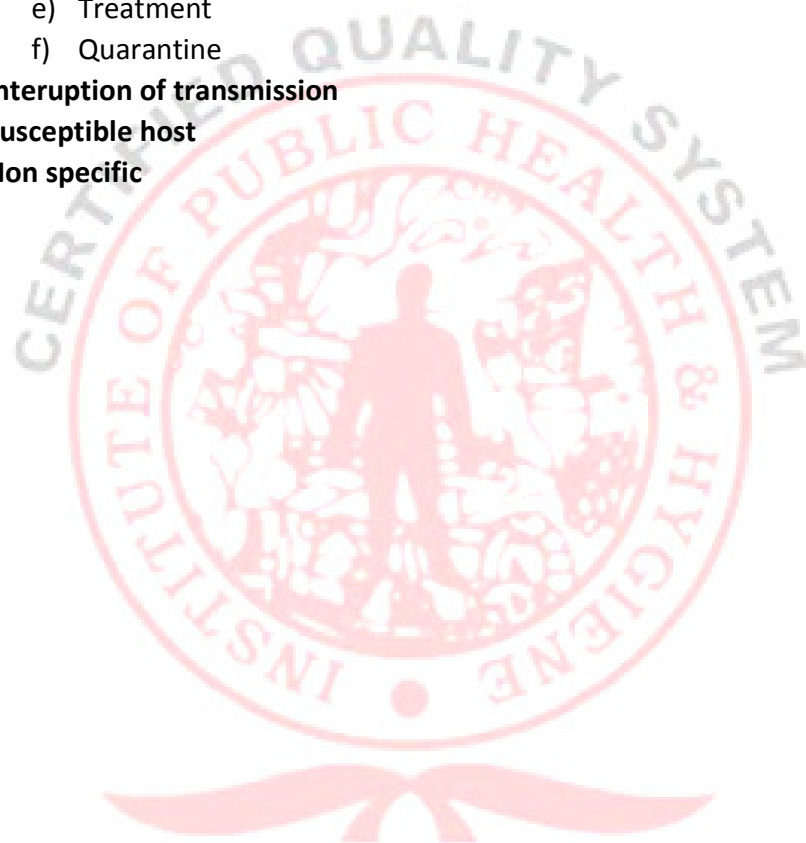
### A. Controlling the reservoir:-

- a) Early diagnosis
- b) Notification
- c) Isolation
- d) Epidemiologic investigation
- e) Treatment
- f) Quarantine

### B. Interruption of transmission

### C. Susceptible host

### D. Non specific



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# CARE IN COMMUNICABLE DISEASES

## CARE OF PATIENT WITH COMMUNICABLE DISEASES

- Keep the patient in isolation.
- Hand washing should be done before and after the contact of the patient.
- Disinfect the equipments and articles used by the patients
- Make the safe disposal of the excreta.
- Room should be well ventilated.
- use mask, gown and gloves for prevention of droplet infection.
- Use barrier nursing method while caring of the patient.

## ISOLATION METHODS

- The room should be well ventilated.
- Only one or two person can enter in the room.
- Person caring the patient should wear PPE.
- Excreta of the patient should be discarded properly.

## STANDARD SAFETY MEASURES

- Controlling the reservoir
- Interruption of transmission
- Susceptible host
- Non-specific

## HEALTH EDUCATION AND MESSAGES FOR DIFFERENT COMMUNICABLE DISEASES

- Prevention and control of the disease.
- Importance of the personal hygiene.
- Control of mosquito breeding places.
- Importance of the balanced nutrition or protein rich diet.
- Continuity of the drugs
- Importance of immunization.

- Importance of neat and clean environment.
- Use PPE during the care of patients.
- Use of sanitary latrines instead of open defecation.

## ROLE AND RESPONSIBILITY OF HEALTH WORKER:-

Health worker should inform the people about:-

- Prevention and control of the disease.
- Importance of personal hygiene.
- Control of mosquito breeding places.
- Importance of balanced nutrition or protein rich diet.
- Continuity of the drugs
- Importance of immunization.
- Importance of neat and clean environment.
- Use PPE during the care of patients.
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# EPIDEMIC MANAGEMENT

## DEFINITION AND CAUSES OF THE EPIDEMICS:-

An outbreak of the disease in a community in excess of the normal expectation and derived from the a commn or a propagated surce is called an epidemic.

### Causes :-

Diseases are transmitted frm the source of infection to the susceptible host. Three links in the chain transmissin are as follows:

1. Reservoir of infectious agents.
2. Mode of transmission:- direct transmissin and indirect transmission
3. Susceptible host
4. Virulence of the pathogen

## EPIDEMIC ENQUIRY IN COMMUNITY

A health care wrker should make following epidemic enquiry:

1. When the disease occurring?
2. Where is it occuring?
3. Who is getting the disease?
4. How many members are suffering frm the disease?
5. Identify the disease in early stage.
6. Early diagnosis is helpful in treatment f the disease.
7. Notify the local authority.

## EPIDEMIC MAPPING

It involves the follwing:-

1. To midentify the source of inferction.
2. To study the distribution of the disease in relation to the time, place, and persons.
3. Geographic situation where disease has occurred.
4. Climatic condition.
5. Social, cultural and behavioral pattern of the community.
6. Characteristics f the disease agent, resevoir, vectr, that may spread the disease.
7. Susceptible host.

## RELIEF OF THE WORK AND ROLE OF THE HEALTH WORKER/ANM

- **RELIEF WORK AT THE LEVEL OF A FAMILY**

Isolate the patient from other family members in a neat and clean room with proper ventilation.

Disinfect or dispose off safely the articles used by the patient, eg, cotton, dressings, excreta, sputum, utensils, etc.

Immunize other family members and care takers against the communicable disease.

- **RELIEF WORK AT THE LEVEL OF PANCHAYAT**

Incharge of PHC must be informed about the epidemic.

To cooperate the local health worker in prevention and control of the epidemic.

To ensure safe disposal of waste.

To take measures against pollution of water sources or to disinfect the water wells.

- **ROLE OF HEALTH WORKER/ANM**

To inform PHC/ higher health authority about the epidemic disease.

To isolate the patients

To provide primary health care to the patient.

To ensure safe disposal of excreta, vomitus, other secretions and their disinfection.

To educate people of the community about preventive control measures.

To refer the serious patients to primary health centre.

To control the vector by sprays or other measures.

To help the chlorination of the water sources or the disinfection of the drinking water by boiling.

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