

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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Epidemiology & control of Vector Borne Disease



Epidemiology & Control of Vector Borne Disease

- Vector-borne diseases are **infections transmitted by the bite of infected arthropod species**, such as mosquitoes, ticks, bugs, sandflies, and blackflies. Arthropod vectors are cold-blooded (ectothermic) and thus especially sensitive to climatic factors.

Vector Born Diseases World wide

- Chikungunya.
- Dengue and severe dengue.
- Yellow fever.
- Zika virus.
- Malaria.
- Japanese encephalitis.
- Lymphatic filariasis.
- Leishmaniasis.

Epidemiology & Control of Vector Borne Disease

- **Carrier** : Carrier is an individual / organism who has the disease, but no symptoms; it is capable of transmitting the disease to a new individual. e.g. Hepatitis , Genetic Carrier , Covid -19(flu) etc.

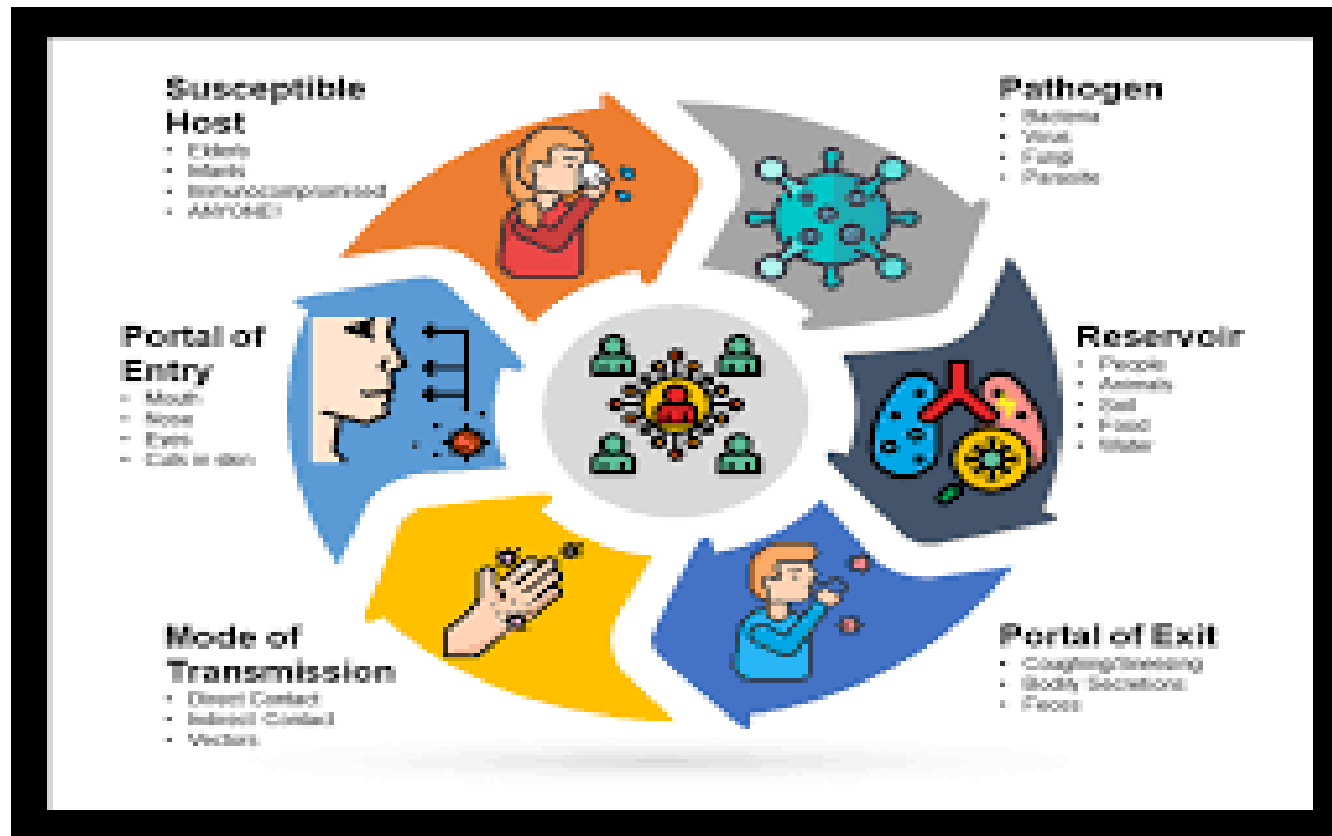
Vector : Vector is an organism that is capable of transmitting disease from infected individual to new individual without having the disease. Vectors such as **mosquitoes, fleas, and ticks** may carry an infectious agent through purely mechanical means or may support growth or changes in the agent

Epidemiology & Control of Vector Borne Disease

Reservoir.

The reservoir of an infectious agent is the habitat in which the agent normally lives, grows, and multiplies. Reservoirs include humans, animals, and the environment. The reservoir may or may not be the source from which an agent is transferred to a host.

Epidemiology & Control of Vector Borne Disease (Reservoir)



Epidemiology & Control of Vector Borne Disease

- **Disinfection**

A process that eliminates many or all pathogenic microorganisms, except bacterial spores, on inanimate objects

Sterilization :

A process that destroys or eliminates all forms of microbial life and is carried out in health-care facilities by physical or chemical methods.

Epidemiology & Control of Vector Borne Disease

TABLE 3-4

Differences between sterilization and disinfection

	Sterilization	Disinfection
Definition	Freeing an article, surface, or medium from all living organisms including viruses, bacteria and their spores, and fungi and their spores.	Process that reduces the number of contaminating microorganisms, liable to cause infection to a level which is deemed no longer harmful to health. Spores are not killed.
Uses	Objects or instruments coming in direct contact with a break in skin or mucous membrane or entering a sterile body area.	Objects or instruments coming in direct contact with mucous membrane but tissue is intact or via intact skin.
Examples	Surgical instruments, needles, syringes, parenteral fluid, arthroscopes, media, reagents and equipments in laboratory use.	Endotracheal tubes, aspirators, gastroscopes, bed pans, urinals, etc.

Epidemiology & Control of Vector Borne Disease (Types and Procedure)

STERILIZATION AND DISINFECTION

Sterilization methods

- **Physical methods**
- •Moist heat in autoclaves
- •Dry-heat in ovens
- •Gamma irradiation
- •Filtration
- •Plasma sterilization
- ✓**Chemical agents**
- •Ethylene oxide
- •Glutaraldehyde (high concentration)

Disinfection methods

- **Chemical agents**
- •Alcohols
- •Aldehydes
- •Halogens
- •Phenols
- •Surfactants
- •Heavy metals
- •Dyes
- •Oxidants
- ✓**Physical methods**
- •**Boiling and pasteurisation**
- •**Ultraviolet radiation**

Epidemiology & Control of Vector Borne Disease

- **Communicable Disease:**
- Communicable diseases are illnesses that spread from one person to another or from an animal to a person, or from a surface or a food. Diseases can be transmitted during air travel through: direct contact with a sick person. respiratory droplet spread from a sick person sneezing or coughing.

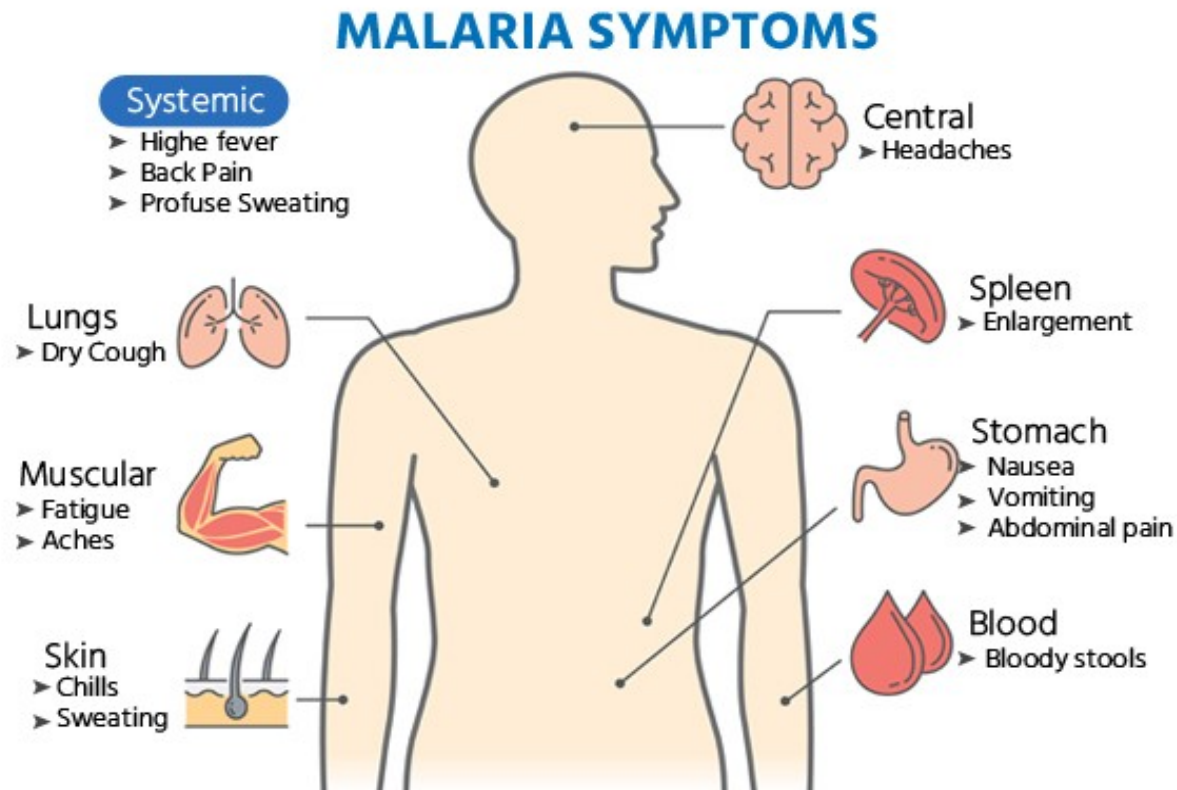
Epidemiology & Control of Vector Borne Disease

Prevention

- Communicable diseases can be prevented by appropriate preventive measures which include:
 - Good site planning
 - Provision of basic clinical services
 - Provision of appropriate shelter
 - Clean water supply
 - Sanitation
 - Mass vaccination against specific diseases
 - Regular and sufficient food supply
 - Control of vectors

Epidemiology & Control of Vector Borne Disease. (Malaria)

Definition : Malaria is a disease caused by the parasite Plasmodium, which is transmitted by the bite of an infected mosquito.



Epidemiology & Control of Vector Borne Disease. (Malaria)

- The Strategies adopted for malarial parasites depend upon :

- ✓ Strategy in General
- ✓ Strategy in Personal
- ✓ Strategy by Government



Epidemiology & Control of Vector Borne Disease. (Malaria)

Malaria Control Measures

- Destroy mosquito breeding sites, clear stagnant water
- Prevent mosquito bites, use nets for sleeping, wear cover-up clothing, use insecticide spray on skin
- Introduce predators of mosquito larvae
- Use insecticide to control populations of mosquitoes
- Use anti-malarial drugs to prevent people being infected by the parasite. Most work by inhibiting enzymes in the parasite and preventing normal metabolism and reproduction.

Strategies to Protect Yourself Against Malaria



Use Mosquito Nets

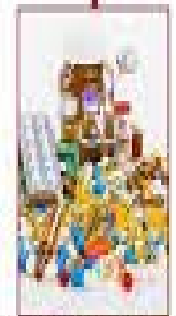
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Wear Full-Sleeved Shirts



Use Mosquito Repellent Creams



Take Conventional Antimalarials

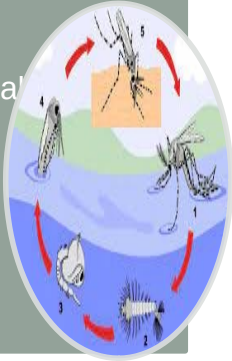
Epidemiology & Control of Vector Borne Disease. (Malaria)

- Anti – Larval Management

- Anti-Adult Measure

- Protection against Mosquito Control

Anti – Environmental
Measurement
Chemical Control
Biological Control



Space spray
Residual spray
Genetic Control



Nets
Screening
Repellent



Epidemiology & Control of Vector Borne Disease. (Malaria)

Vector Control Methods:

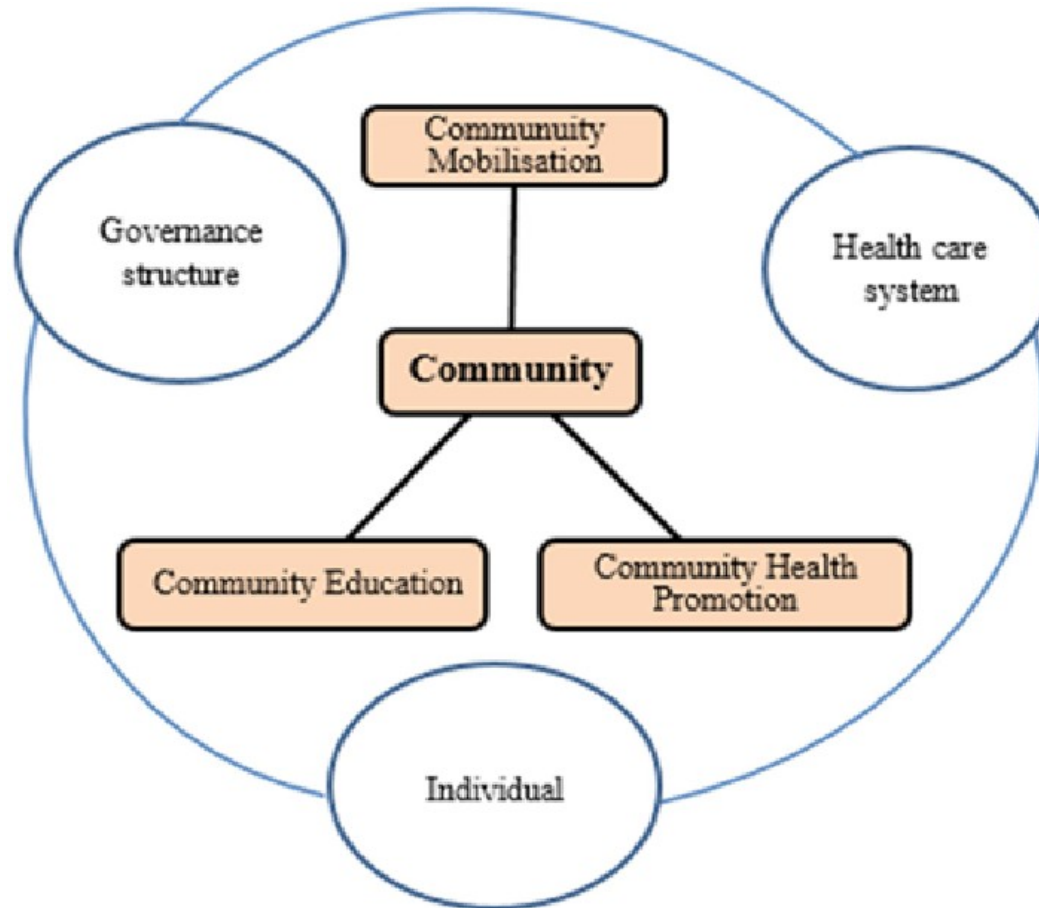
1- Residual insecticides application (Spraying and dust application of insecticides)

2- Breeding sites treatment (Larviciding)

3- Personal protection measures that include the use of:

- *Repellants.*
- *Insecticides Treated bed nets (ITNs/LLINs).*
- *Cloth Treatment.*
- *Protective cloths.*
- *Screening of houses.*

Epidemiology & Control of Vector Borne Disease. (Malaria)



Epidemiology & Control of Vector Borne Disease. (Malaria)



"ALL OF US, AT SOME TIME OR OTHER, NEED HELP. WHETHER WE'RE GIVING OR RECEIVING HELP, EACH ONE OF US HAS SOMETHING VALUABLE TO BRING TO THIS WORLD. THAT'S ONE OF THE THINGS THAT CONNECTS US AS NEIGHBORS--IN OUR OWN WAY, EACH ONE OF US IS A GIVER AND A RECEIVER."

- MR. ROGERS



Epidemiology & Control of Vector Borne Disease. (Malaria)

