

Asst. Prof. Jan Vincent T. Delos Santos, MAEd, RN N-12 Public Health Nursing I | UP College of Nursing

# Philippine Context PERSPECTIVE REVIEW

 Read https://www.thelancet.com/journals/lanwpc/article/PIIS2666 -6065(22)00120-1/fulltext

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9197058/

- How has the National Dengue Prevention and Control
  Program struggled?
- What complex factors drive larval development?

## **1. Vectors**

 living organisms that can <u>transmit</u> <u>infectious pathogens</u> between humans, or from animals to humans (WHO, 2020)

#### • Vermin and Vermin Control

 A group of insects or small animals such as flies, mosquitoes, cockroaches, fleas, lice, bedbugs, mice, and rats which are vectors of diseases (PD 856 Code on Sanitation of the Philippines)

# 2. Vectors: Mosquitoes





- mosquito becomes infected when it takes blood of person infected with the virus
- After about one week, it can then transmit the virus while biting a healthy person
- daytime feeder
- peak biting periods: early in the morning and in the evening before dusk

who int

- flies about 400 feet from its breeding ground can't fly very high but can cover much ground doesn't fly far from breeding ground and stays close to it
- can complete entire life cycle once a small vessel with some water is located (relatively clean water, stagnant) • any container with enough water, where they can survive for a year

eartheclipse.com

#### SOURCE REDUCTION

- best preventive measure to eliminate egg laying sites Indoor
  - Ant traps
  - Flower vases and saucers
     Water storage tank (drinking water, bathroom)
  - Plastic containers
  - Bottles
  - Outdoor
  - Discarded bottles and tins
  - Discarded tires
     Artificial containers

  - Tree holes, potholes, construction sites
  - Drums for collecting rainwater Shells, husks, pods from trees
  - Leaf axils of various plants
  - Boats, equipment



## Anopheles

- spread malaria
- lay eggs in marshy areas or near banks of shallow creeks and streams
- Adult females bite usually late in evening or at night. Blood is needed to produce eggs.
- Adult females prefer to feed on people or animals, such as cattle
- attracted to dark, sheltered areas for resting during daytime

cdc.gov/mosquitoes

## Culex

- lay eggs on surface of fresh or stagnant water [barrels, ornamental ponds, unmaintained swimming pools, creeks, marshy areas]
- adult females bite people and animals; after blood feeding, these look for water sources to lay eggs
- don't fly long distances but fly up to 3.2 km
- · live outdoors or near homes

cdc.gov/mosquitoes

#### Flies

- Females can lay between 75 to 150 eggs at a time
- HOUSE FLY: Musca domestica
  - typically gray and have four black stripes on thorax use sponging mouthparts to liquefy solid foods through spitting or regurgitation
  - capable of transferring more than 100 different pathogens, including salmonellosis, typhoid, tuberculosis
  - can contaminate food surfaces by spreading disease organisms picked up on their legs and mouths when feeding on trash, feces, and other decaying substances

pestworld.org

#### FRUIT FLY

- appear to be brown or tan; usually have red eyes; have a tan thorax with black and grey abdomen
- eat rotting food matter, especially fruits and vegetables, and any fermenting liquids, like beer, liquor, and wine
- breed in <u>dark, moist, and</u> <u>unsanitary environments</u> like drains, garbage disposals, and trash bins



## Cockroaches

 search for <u>dark, moist environment</u> while scavenging for plants and animals

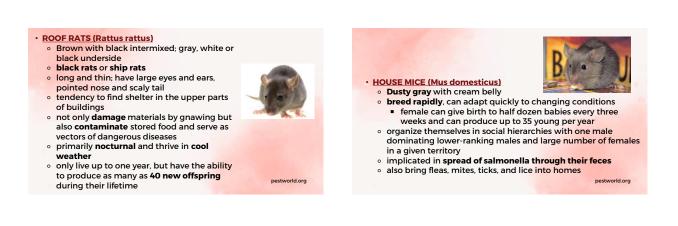
#### · American cockroaches

- varies from red to almost brown, with yellow band that outlines area behind heads and long, slender antennae
- prefer warm and humid environments (sewers and sinks)



familyhandyman.com webmd.com thepestinformer.com





# **3. Mechanisms for Transmission**

#### MECHANICAL

- vector simply <u>carries</u> pathogenic microorganisms on their body and transfers them to food
- examples: flies, cockroaches
- BIOLOGICAL
  - involves multiplication and growth of disease-causing agent inside vector's body

## 4. Diseases

- Vector-borne diseases human illnesses caused by parasites, viruses, and bacteria that are transmitted by vectors
  - malaria, dengue, schistosomiasis, human African trypanosomiasis, leishmaniasis, Chagas disease, yellow fever, Japanese encephalitis, onchocerciasis

Aquatic snails	Schistesomiasis (bilharziasis)	Parasite
Blackfiles	Onchooseclasis (riverblindness)	Paraske
Reas	Plague (transmitted from rats to humans)	Bacteria
	Tungkein	Ecoperasite
Lice	Typhus	Bacteria
	Louise-borne reliansing fever	Becteria
Sandlies	Leishmaniasis	Paraske
	Sandfly fever (phlebotomus fever)	Virus
Tieks	Crimean Congo haemorrhagic fever	Virus
	Lyrve disease	Bacteria
	Relapsing fever (borneliosis)	Bacteria
	Rickettsial diseases (eg: spotted fever and Q fever)	Bacteria
	Tick-borne encephalitis	Virus
	Tularaenia	Bacteria
Triatorne bugs	Chagan disease (American tryperonomiasis)	Paranite
Tortor files	Sleeping siduress (African trypanosomiasis)	Parasite

## 5. Dengue

- viral infection caused by dengue virus, transmitted to humans through bite of infected female mosquitoes, primarily Aedes aegypti (WHO, 2023)
- most common symptoms: high fever, headache, body aches, nausea, rash

Jays of illness	1 2 1		7 8 9 10
	1.0	Mar and	
emperature		Para and	
	1	11	
		No.	Reabsorption
otential linical issues	Dehydration	, 10 - A	Fluid overload
Innear Issevs	0	gan lingalit	ment
	5	15	Platelet
aboratory hanges	Hematogrit	L	1
	Viraemia		IgMIgG
	0	5 25	-
erology and irology		/	

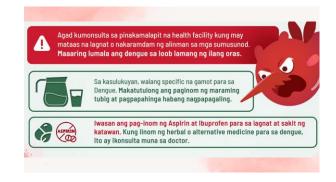
AO 2012-0006 Revised Dengue Clinical Case Management Guidelines















- Sarili ay protektahan laban sa lamok
- Sumangguni agad sa pinakamalapit na pagamutan
- Sumuporta sa pagpapausok kapag may banta ng outbreak Sikapin at ugaliing uminom ng maraming tubig











## 7. Programs

- Aedes Borne Viral Diseases Prevention and Control Program
   to reduce disease burden of Dengue
- to prevent transmission of Chikungunya and Zika
   National Malaria Control and Elimination Program
- to ensure universal access to reliable diagnosis, highly effective and appropriate treatment and preventive measures
- to strengthen governance and human resources capacity at all levels to manage and implement malaria interventions
- to secure government and non-government financing to sustain malaria control and elimination efforts at all levels
- to ensure quality malaria services, timely detection of infection and immediate response, and information and evidence to guide malaria elimination (Health Information and Regulation)

## 8. Laws / Policies

- PD 856 Code on Sanitation of the Philippines
  - Spaces where food and drinks are stored, prepared and served shall be so constructed and maintained as to exclude vermin.
  - All opening which connects spaces to the outer air shall be effectively protected with screen of non-corrosive wire 16mesh or finer. Door screens shall be tight-fitting.
  - A vermin abatement program shall be maintained in the establishments by their owners, operators, or administrators. If they fail, neglect or refuse to maintain a vermin abatement programs, the local health agency will undertake the work at their expense.

- During deratting or disinfecting operations, all foodstuffs, utensils, food preparation and cleaning equipment shall be covered to protect them from toxic chemical substances.
- Vermin control in public places shall be the responsibility of the provincial, city or municipal governments which have jurisdiction over them.
- The procedure and frequency of vermin abatement program shall be determined and approved by the local health authority.

#### • Sec 64.

 Hotels, motels, apartments, lodging, boarding, tenement houses, condominiums: Periodic insect and vermin control measures shall be undertaken to eradicate vectors of diseases.

#### Sec 66.

 <u>Port, airport, vessel, aircraft</u>: Every port of entry and the area within the perimeter of an airport of entry shall be kept free from mosquito vectors of yellow fever, malaria and other diseases of epidemiological significance.

## 9. Measures

#### · PHYSICAL

- use of mechanical or physical forces
   CHEMICAL
- use of pesticides
   BIOLOGICAL
- limit growth and reproduction
- ENVIRONMENTAL • good housekeeping
- EDUCATION
  - health education and information

# **10. Implications to Nurses' Care of Families**

- Cover or properly discard items that collect rainwater or are used to store water.
- Empty remaining essential containers; clean and scrub (to remove eggs) at least once a week.
- Use long-sleeved clothing and mosquito repellents, as well as window and door screens, mosquito nets, insecticides, aerosols, mosquito coils or other insecticide vaporizers.
- · Community participation is key.

who int

