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Vector Borne Diseases

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Chapter 1

OIE Definitions

VECTOR

- According to the Terrestrial Code the word ‘Vector’ refers to any living vector which carries an infectious agent from an infected individual to a susceptible individual, the food they consume or their immediate environment.
- The infectious agent may or may not spend part of its development cycle in the vector

Vectors

- Biological transmission is when the development cycle happens in the vector
- Mechanical transmission is when there is no development cycle in the vector.
- The majority of vectors are arthropods; either ticks or insects.

Vector borne disease

- A vector-borne disease can simply be defined as a disease transmitted by a living being, usually an arthropod vector, to a vertebrate host.

Vector Competence

- This refers to the genetic factors that enable a vector to transmit a specific disease

Vector Capability

- This is a wider concept which includes other factors that influence the ability of the vector to transmit a pathogen.

Vectors

- Ticks may be hard ticks (Ixodidae) or soft ticks (Argisidae)

Tick borne diseases

- Hard ticks are the vectors of some of the most economically important tropical diseases of domestic animals caused by protozoa (e.g. babesiosis, theileriosis), bacteria (e.g. ehrlichiosis, spirochaetosis) and viruses (e.g. Nairobi sheep disease, Crimean-Congo
- They are also responsible for transmitting a number of toxicoses where an infectious agent is not involved (e.g. sweating sickness, spring lamb paralysis, Karoo paralysis).
- Ornithodoros soft ticks are a vector for **African swine fever** (ASF).

Arthropods

- Diptera (flying insects) are the main arthropod involved in vector borne diseases and include: sandflies, black flies, midges, mosquitoes, horseflies, tsetse flies and louse flies.

Arthropods

- Culicoides biting midge are vectors for several arboviruses such Bluetongue virus one of the most significant and important in international trade as well as African Horse Sickness, Equine encephalitis virus, akabane virus, bovine ephemeral fever and schmallenberg.

Emerging Diseases

- An infection or infestation which is already known but which is spreading to a new geographical area or population
- A disease which is being diagnosed for the first time and has significant repercussions for animal health or public health.

Emerging Vector Borne Diseases

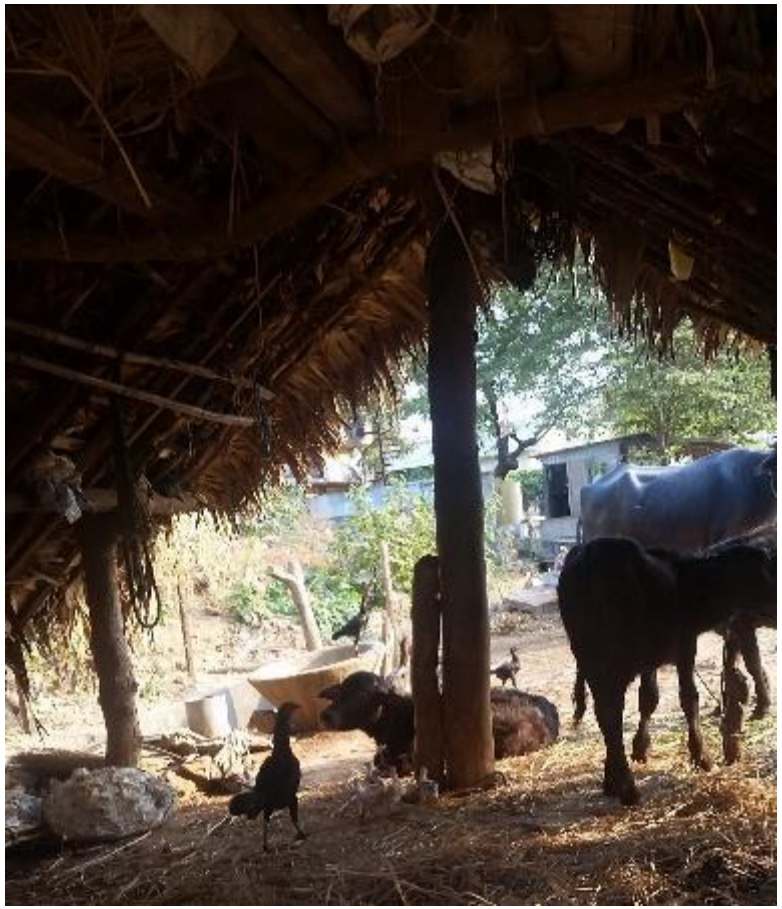
- Vector borne diseases may emerge as a result of a change to the ecosystem due to appearance of new vectors or new distribution of vectors for known diseases.
- Wildlife are often natural hosts for vectors and their role must be considered when looking at vector borne diseases.

Emerging Vector Borne Diseases

- Arboviruses such as Japanese Encephalitis have shown to shift from their primary wildlife hosts to secondary cycles in domestic species such as pigs, where the virus amplifies and spills over to the human population.

Vector Borne Diseases

- With so many complex factors affecting vector borne diseases there is still a lot to understand.



Thank you for your attention.