



Introduction on Important Diseases in Wild animals

M.V.Sc Programme: VPP 611

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Examples of disease agents or pathogens involving wildlife....

- ◆ Viruses: hantavirus, rabies, West Nile virus
- ◆ Bacteria: Lyme disease, plague, tularemia
- ◆ Rickettsia: Rocky Mtn. spotted fever, typhus fever
- ◆ Prions: Chronic wasting disease (CWD)
- ◆ Mycotic (fungus): histoplasmosis, cryptococcosis
- ◆ Protozoans: toxoplasmosis, giardia
- ◆ Parasites: trichinosis, roundworm

Hanta Virus diseases

- Hantavirus infections are caused by a group of viruses known as hantaviruses. These viruses cause two serious illnesses in humans. They are hemorrhagic (pronounced heh-meh-RA-jik) fever with renal syndrome (HFRS) and hantavirus pulmonary syndrome (HPS).

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Hanta Viruses

- Hanta virus belong to family - Bunyaviridae
- Found Globally
- Causes serious diseases, can be fatal
- It is estimated there are 100,000 to 200,000 infections occur worldwide.

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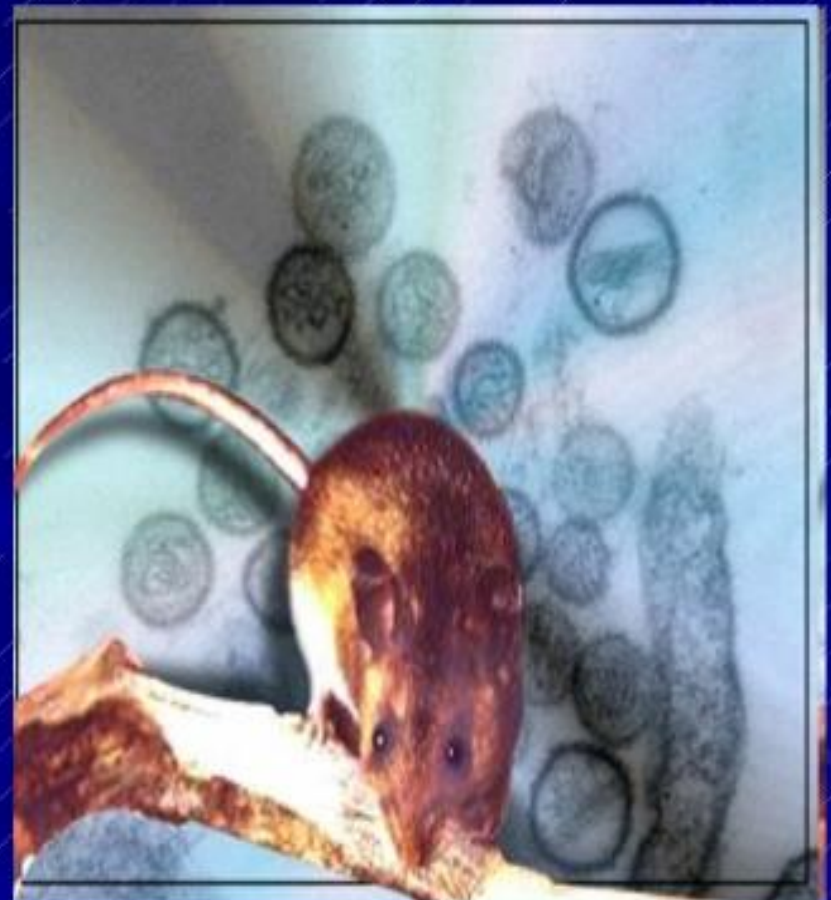
Source of Hanta Virus Infections

There are several distinct Hanta viruses, each associated with specific Rodent Host

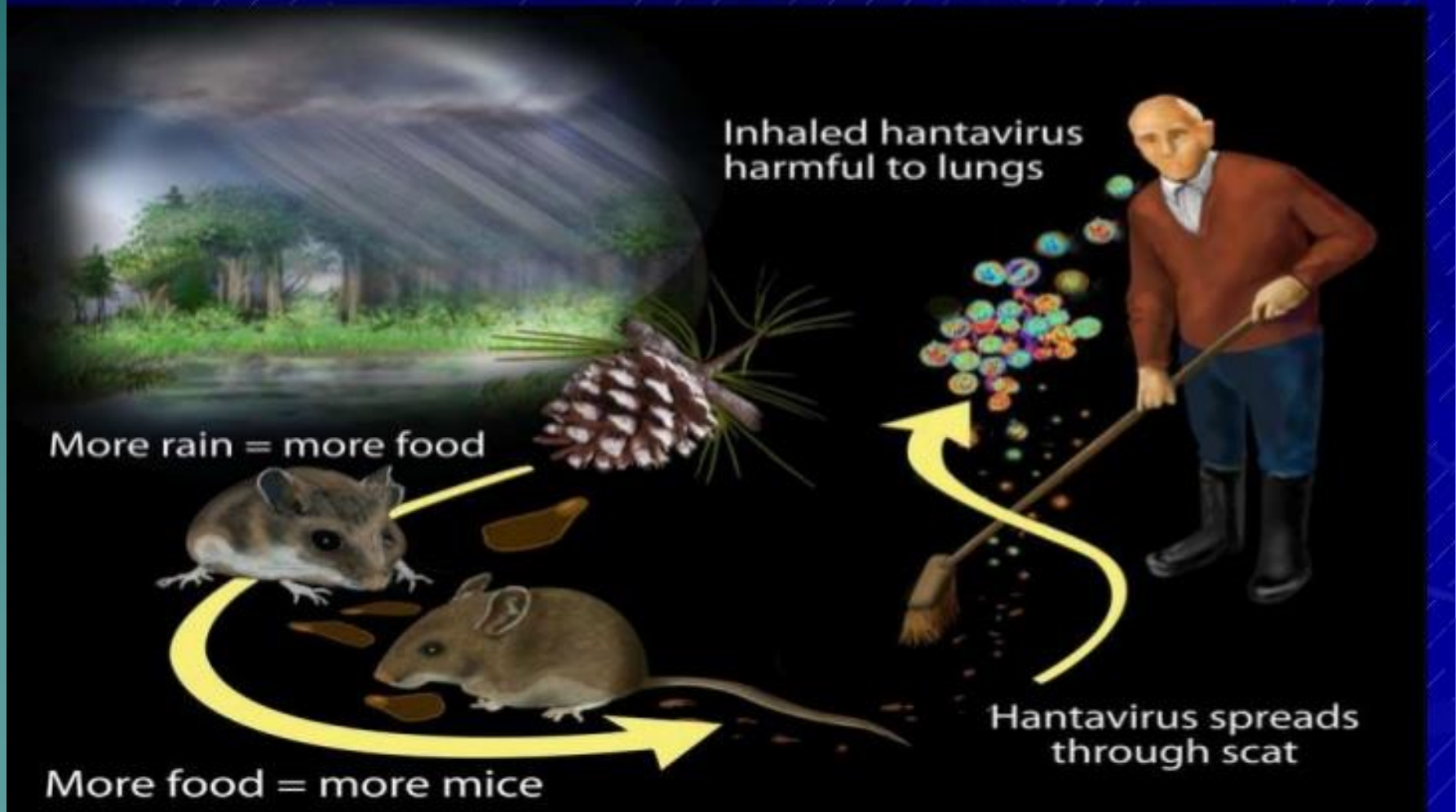
The Infection in Rodents are life long without deleterious effects.

Humans get infected by inhaling aerosols of Rodent excreta.

(Urine, Feces, Saliva)



Breeding of Rodents have relation to spread of Infection



Rabies



- It is a zoonotic disease of warm blooded animals such as – Dogs, Skunk, Cats, Jackals, bats and wolves.



2) WILD LIFE RABIES:
From jackals and foxes.



3) BAT RABIES:

Vampire bats which live on the blood of animals and men. These are one of the main causes of the death of bovine, around 0.5 to 1 million per year.



Source of Infection

- Saliva of Rabid animal



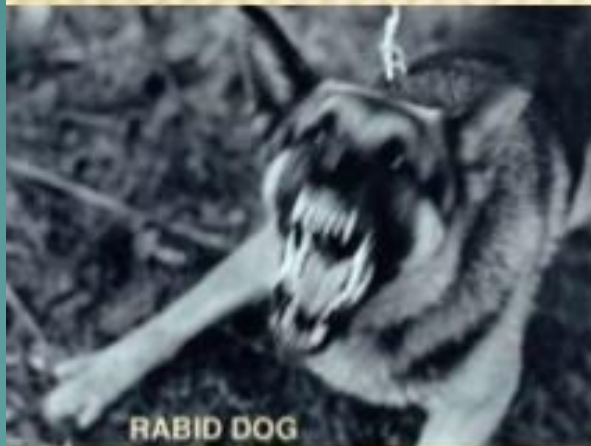
HOST & RESERVOIR



INCUBATION PERIOD



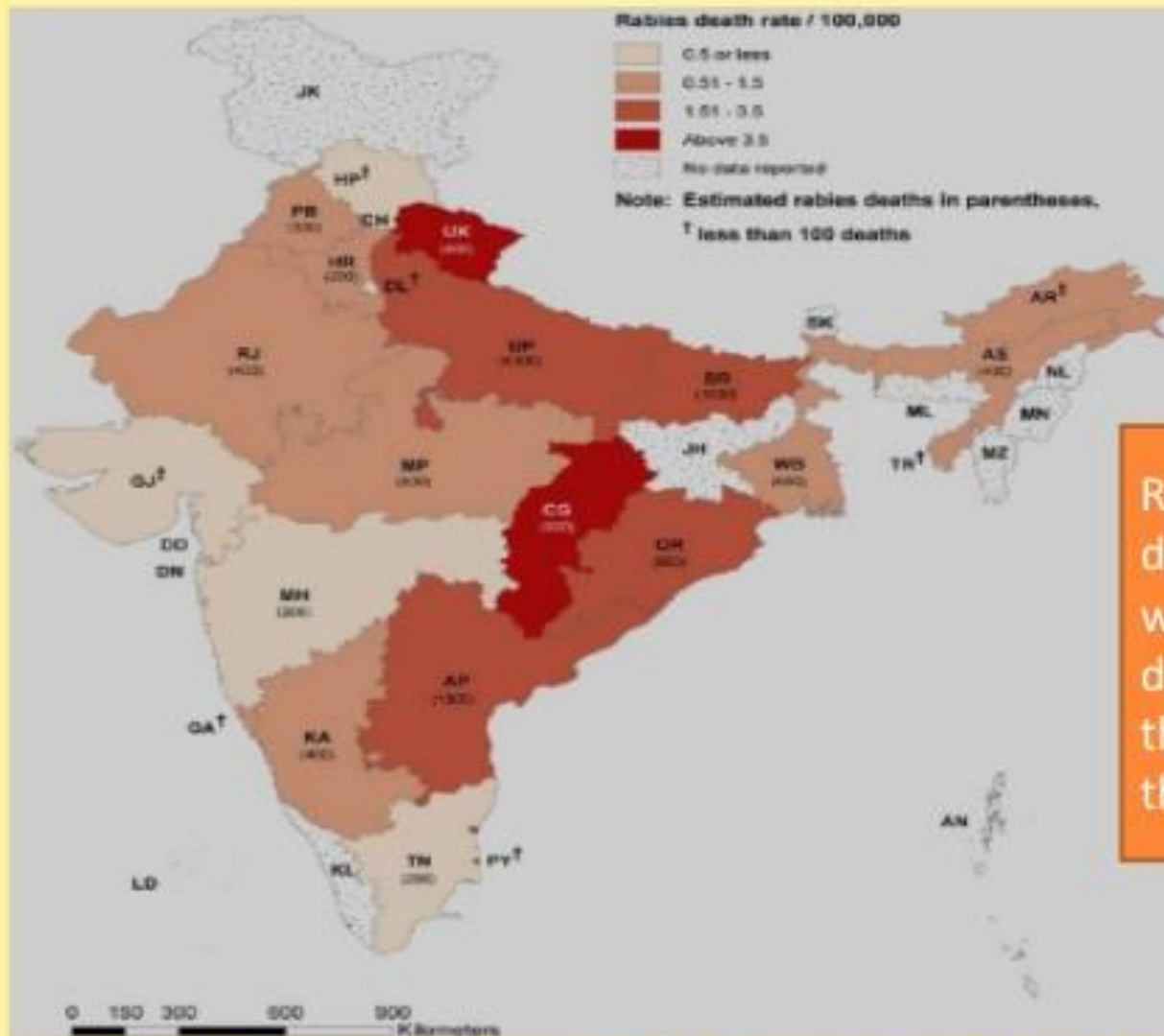
- ✦ It is highly variable in man, commonly 3-8 weeks following exposure.
 - + The closer the bite to the brain, the shorter the incubation.
 - + Rabies virus travels 1 cm per day.



Burden in India

- India is endemic for rabies accounting for 36% of the world's deaths.
- True burden of rabies in India is not fully known; although as per available information, it causes 18,000 - 20,000 deaths every year.
- 30%-60% (approx) of reported rabies cases and deaths in India occur in children under the age of 15 years

Burden of Rabies- State wise



Rabies deaths are widely distributed throughout the country

Source: Suraweera, Wilson & Morris, Shaun & Kumar, Raj & A Warrell, David & Warrell, Mary & Jha, Prabhat. (2012). Deaths from Symptomatically Identifiable Furious Rabies in India: A Nationally Representative Mortality Survey. PLoS neglected tropical diseases. 6. e1847. 10.1371/journal.pntd.0001847.

WHAT IS WEST NILE VIRUS?

- “arbovirus” - derived from phrase “arthropod-borne.”
- Flavivirus
- Infects birds, humans, other vertebrates (Africa, E. Europe, W. Asia, Middle East.)
- Closely related to St. Louis encephalitis virus found in US.

ANIMALS TOO GET INFECTED AND SPREAD THE DISEASE



- Although found mainly in birds, West Nile Virus has been identified in other animals such as horses, cats, bats, chipmunks, skunks, squirrels, and domestic rabbits. As the virus multiplies in the animal's system it crosses the blood-brain barrier and eventually resulting in inflammation of the brain.

WEST NILE VIRUS

- Wild and domestic birds - primary host.
- Spreads from birds to man and other animals via mosquitoes feeding on an infected bird and then biting another host.
- Mosquitoes that transmit WNV and SLE usually prefer to bite birds.
- Human infections with these mosquito-borne viruses are very rare and can be prevented by taking simple measures to avoid mosquito bites.

Mosquito Vectors



Culex tarsalis feeding

Nearly 50 species of mosquitoes capable (at least in the lab) of transmitting WNV

Important vectors vary by geography, e.g.

Culex tarsalis (western states)

Culex pipiens (Midwest, and elsewhere)

Culex quinquefasciatus (south)

Different behaviors – some fly very long distances

SPECIES AFFECTED

Horses*

Goats*

Sheep*

Dog*

Rabbit

Chipmunk

Skunk*

Crocodile*

Black Bear*

Wolf*

Alpaca*

Mountain Goat

Alligator*

Gray Squirrels*

Bats*

Llama*

Cattle*

Seal*

Cat*

Deer*



Where to get more information....

- ◆ State and county health offices
- ◆ Centers for Disease Control
(www.cdc.gov)
- ◆ Control of Communicable Diseases in Man, A. Benenson (ed.), Publ. by the Amer. Public Health Assoc.
- ◆ Wildlife Diseases and Humans, R. McLean, *in* The Prevention and Control of Wildlife Damage, S. Hygnstrom (ed.), Nebraska Cooperative Extension Service, Lincoln