BREAKING RABIES BOUNDARIES

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100% fatal but 100% preventable

“WORLD RABIES DAY”

28th September

To reinforce awareness about prevention and fight against zoonotic disease

Core Components

- History of Rabies
- Epidemiology
- Clinical Manifestation
- Prevention of Rabies
- Mass Dog Vaccination

History of Rabies

- Rabies is an acute, neglected, tropical, zoonotic viral disease
- It is mentioned in the ancient scripts
- Rabies is fatal to both animals and humans




History of Rabies…

- Rabies has been known since around 2000 BC
- Latin word “madness”
- Sanskrit word “Rabhas” …. to do violence
- In 1885 Louis Pasteur created Rabies Vaccine

Louis Pasteur

History of Rabies…

A very wide distribution – Human rabies is present in 150 countries and territories and on all continents

Over 99% of rabies death in humans result from infected dog bite.

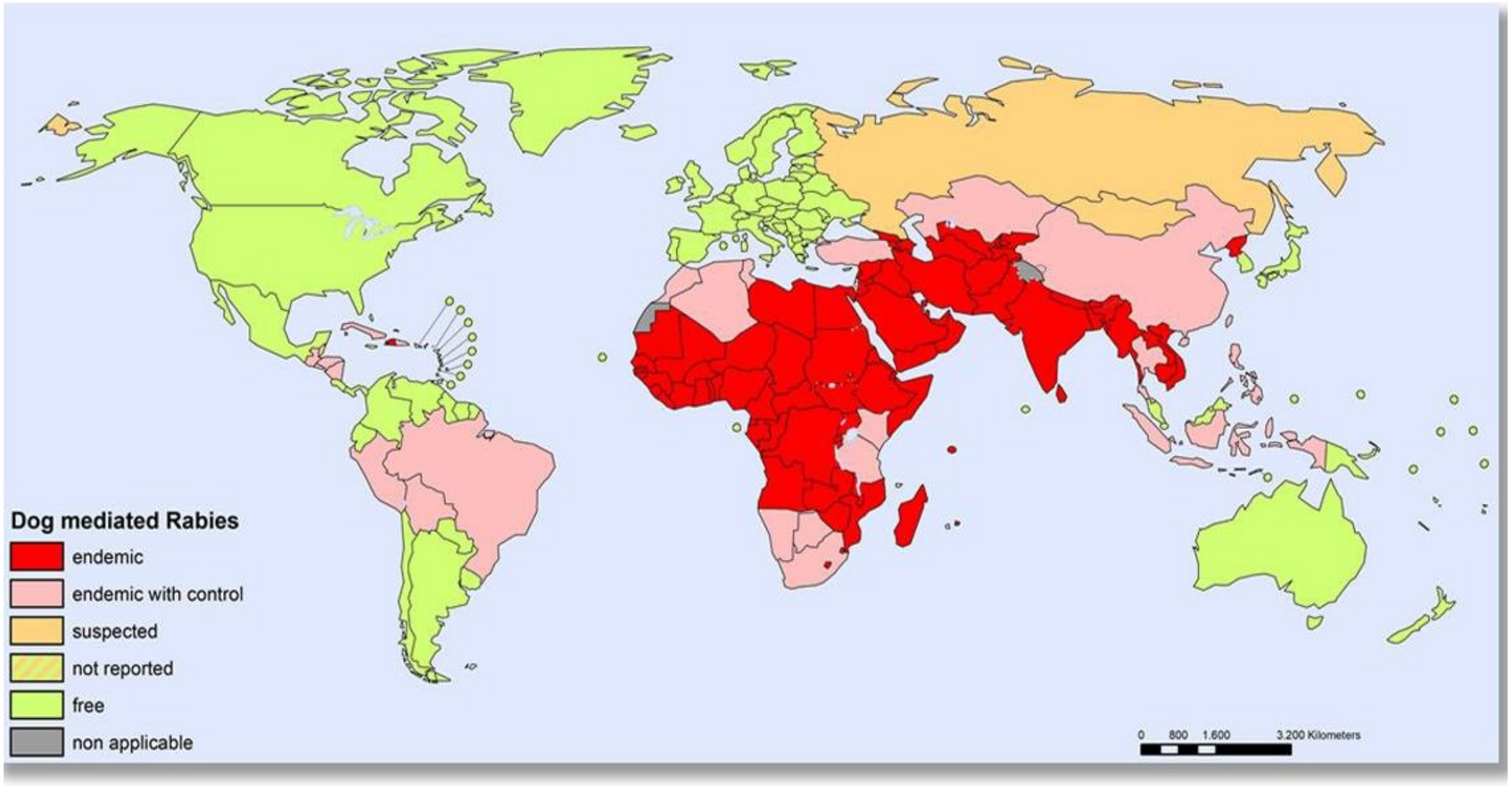
59,000 people die of rabies every year

4 out of 10 deaths are in children

One death in every 15 minutes world wide

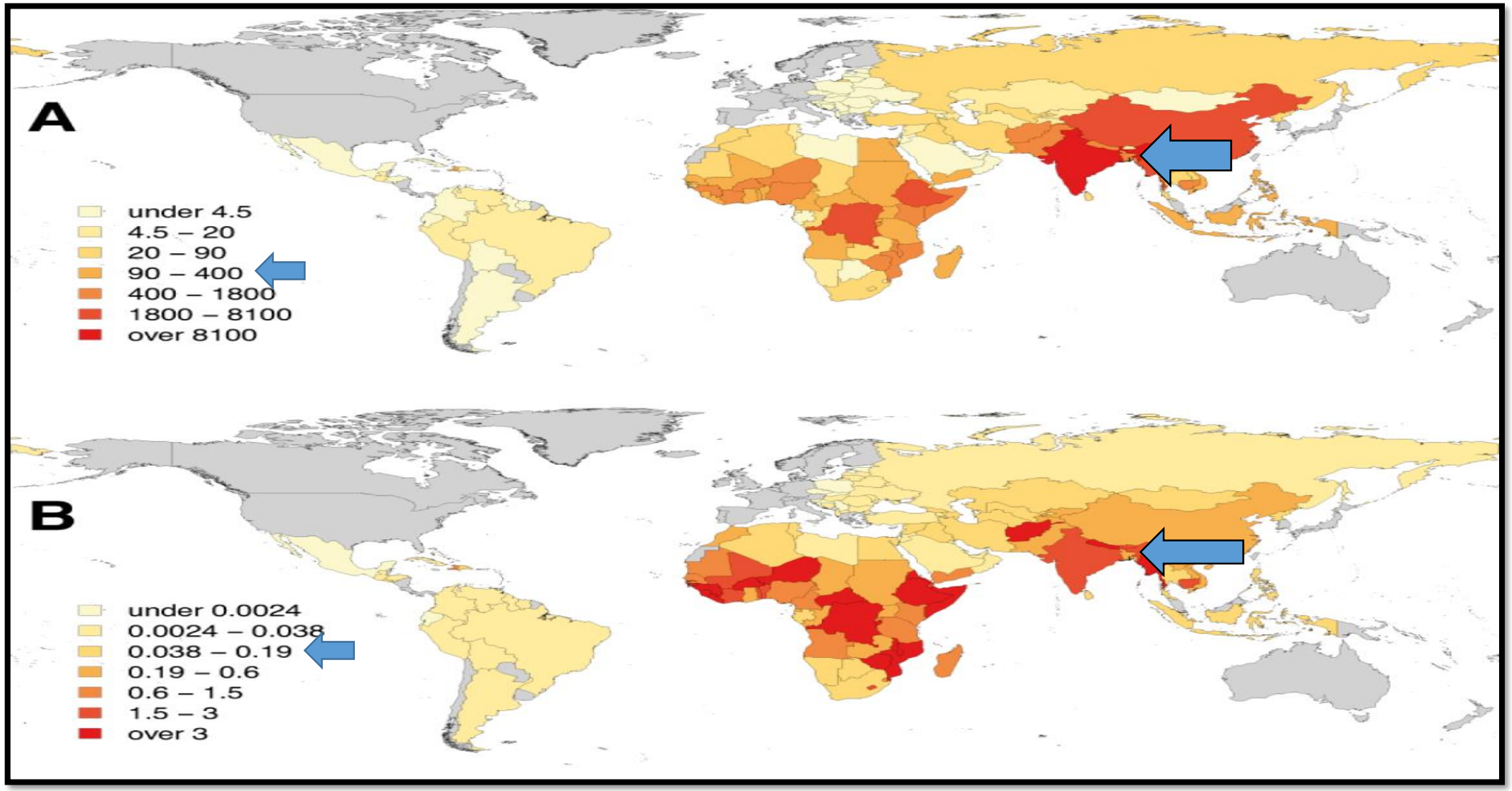
[Source]: www.who.int/rabies/en

Global Distribution



[Source: www.who-rabies-bulletin.org]

Global Burden



[Source: https://www.who.int/teams/control-of-neglected-tropical-diseases/rabies/epidemiology-and-burden(2018)]

Epidemiology

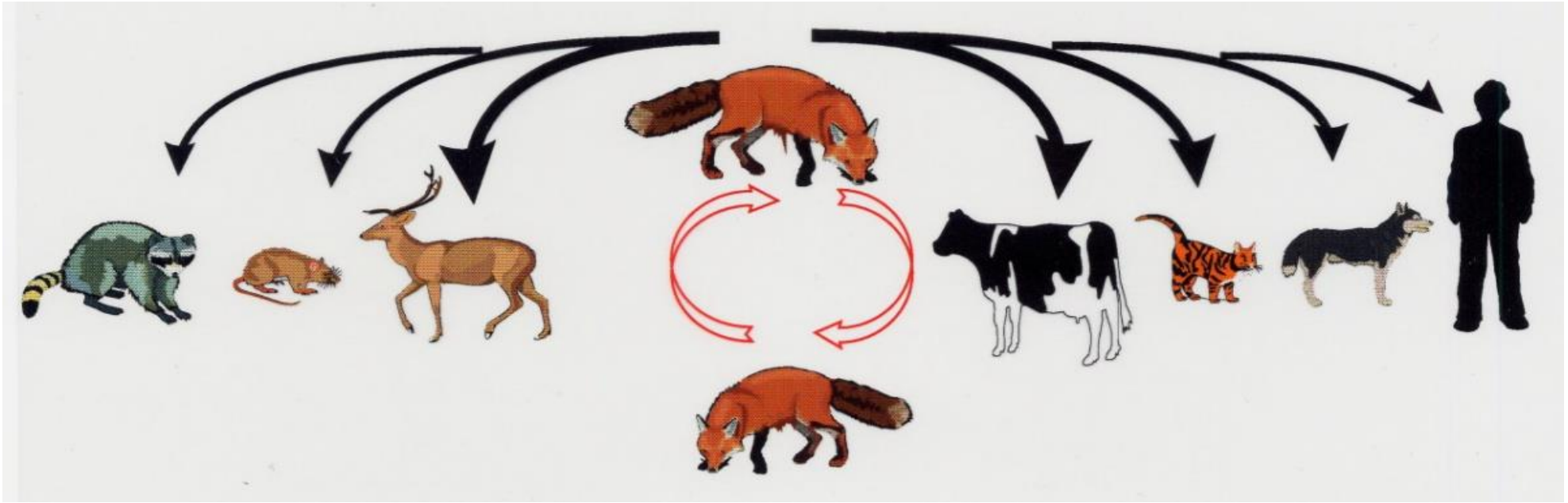
Agent Factors

- Single Strand RNA virus- Lyssa virus
- Family- Rhabdoviridae
- Bullet shaped, enveloped
- Street virus and Fixed Virus
- Destroyed rapidly by soap, detergent

Host Factors

- **All warm blooded animals including man are susceptible to rabies**

- **Rabies in man is a dead- end infection**



Host Factor(Bangladesh)

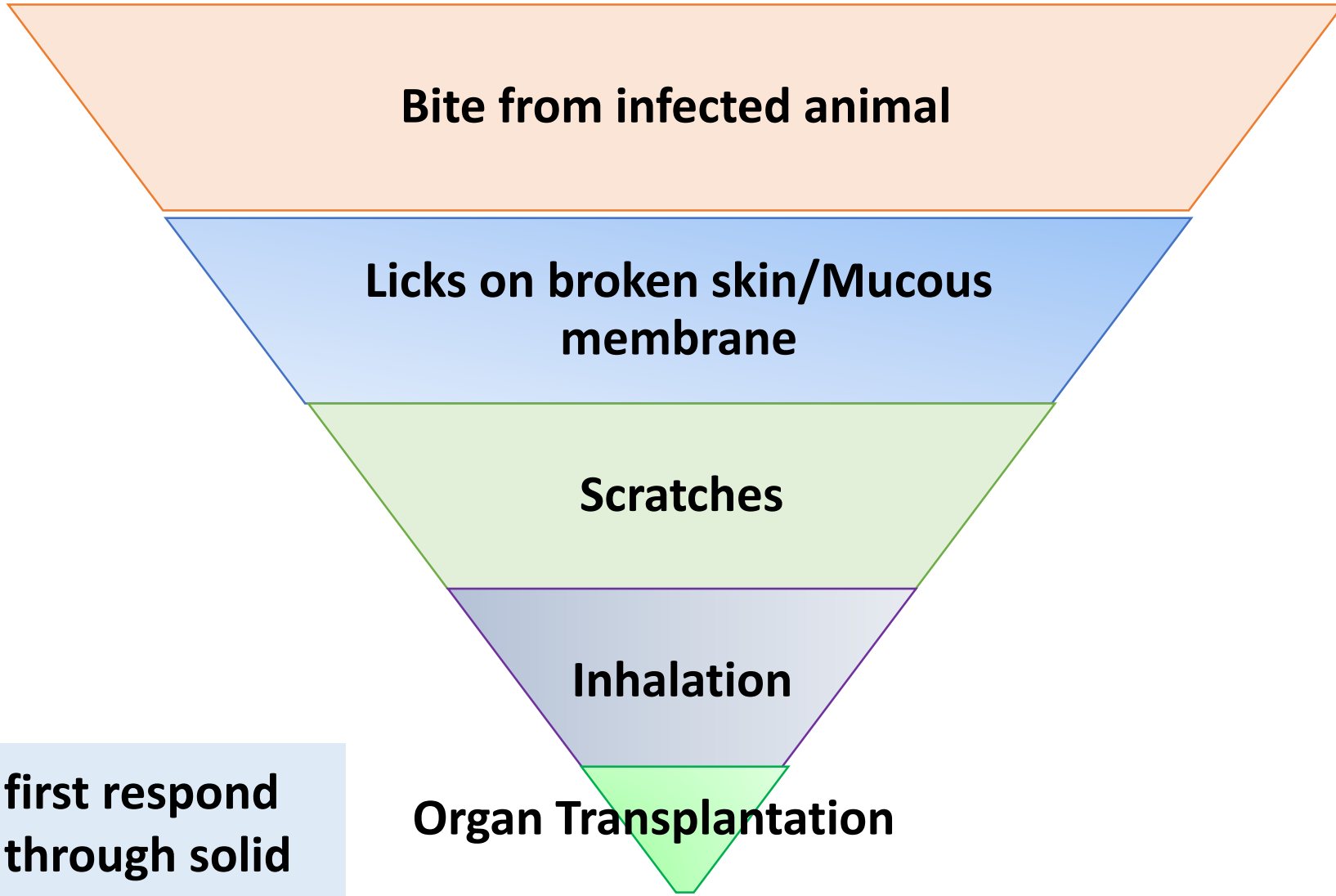
Environment Factors

More prevalent in summer season

Source of Infection

Saliva of rabid animals

Mode of Transmission



In 2004, CDC confirmed the first respond cases of rabies transmission through solid organ transplantation

Incubation Period

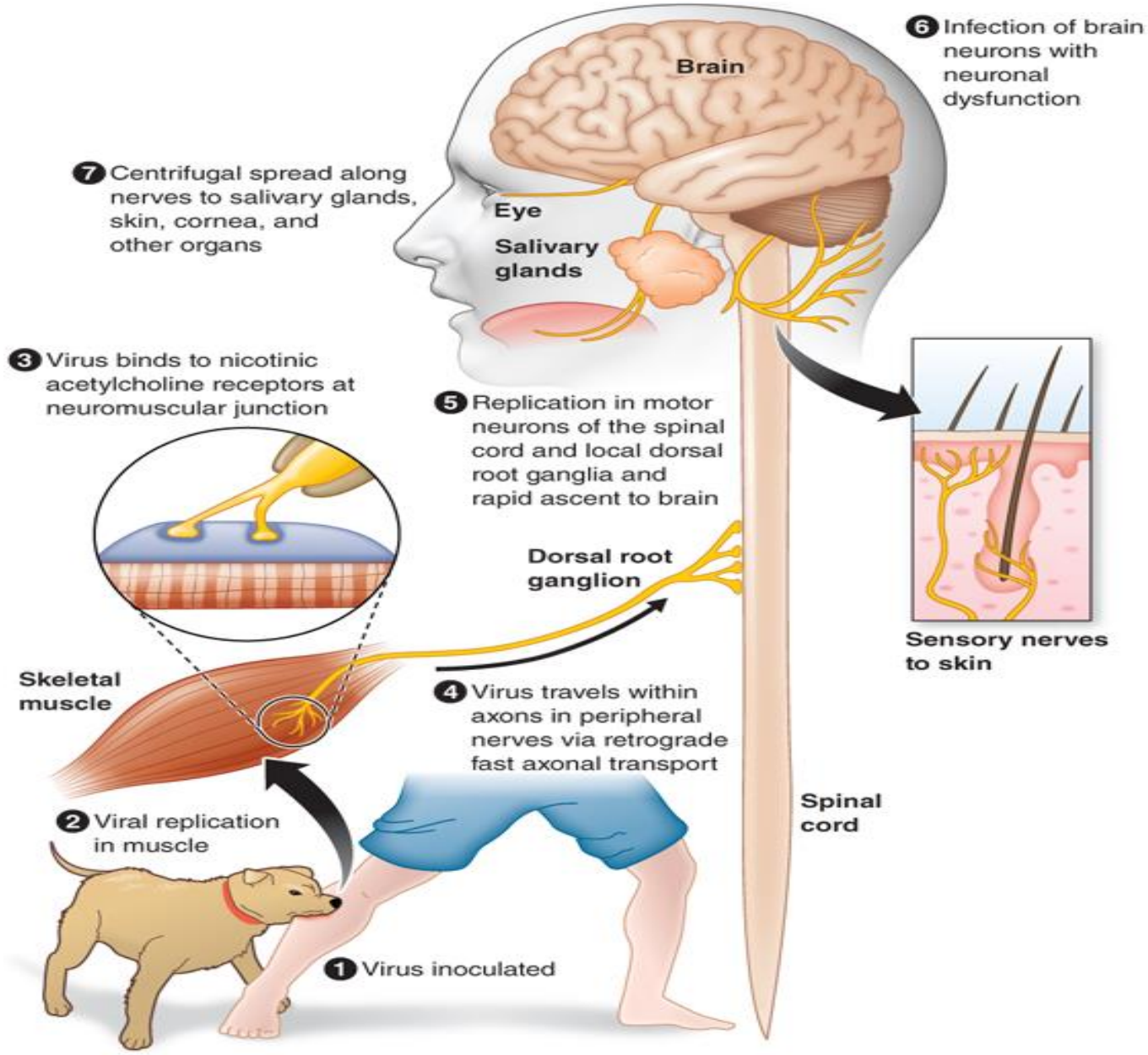
1 to 3 months following exposure

But it may vary from 7 days to many years

It depends on -

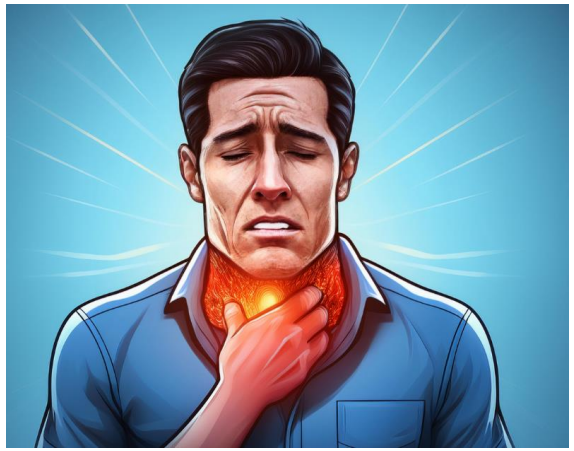
- site of the bites
- number of wounds
- severity of bites
- amount of virus injected
- species of biting
- protection provided

Pathogenesis



Clinical Manifestation

Clinical Manifestation



Sore throat

Tingling sensation on affected site

Headache

Clinical Manifestation

Hydrophobia

Aerophobia

Photophobia

Pupil Dilatation

Aggression

Muscle spasm

Treatment

Treatment

There is no specific treatment for rabies

Prevention

Prevention of Rabies

Rabies can be prevented by two ways:

i. Prevention of human rabies

ii. Prevention of rabies in dogs

Prevention of Human Rabies

Prevention of Human Rabies

This may be considered under 3 heads

i. **Post-exposure prophylaxis**
ii. **Pre-exposure prophylaxis**
iii. **Re-exposure prophylaxis**

Post exposure prophylaxis
(General Measures)

Washing of wounds

Suturing of wounds

Chemical treatment

Post exposure prophylaxis…

Category of wound and recommended measures

Category	Wound details	Treatment
Category 1	Touching or feeding animals, licks on the intact skin	No treatment
Category 2	Nibbling of uncovered skin, minor scratches or without bleeding	Inj. ARV
Category 3	Single or multiple transdermal bites or scratches, licks on broken skin, with bleeding	Inj. ARV & Inj. RIG

Category 2

Category 3

[Source]: National Guideline for Animal Bite Management in Bangladesh 2021

Post exposure prophylaxis…

WHO recommended PEP vaccination schedules

Types	Route	Site of vaccination	Amount	Dose
Inj. ARV	Intradermal	Both arm	0.1ml	D0, D3, D7
	Intramuscular	One arm	1 ml	D0, D3, D7, D14
Inj. RIG	40 IU / Kg Body weight, highest 3000 IU	Wound site		D0

Post exposure prophylaxis
(Additional Measures)

Antibiotics

Anti tetanus

Pre exposure prophylaxis

(WHO recommended PrEP vaccination schedules)

Route	Dose	Duration	Site
Intradermal	0.1 ml (each site)	D 0, D 7	Deltoid Region of the arm of adults Anterolateral area of thigh is recommended for children(<2 years)
Intramuscular	1 ml	D 0, D 7	

Re-exposure prophylaxis

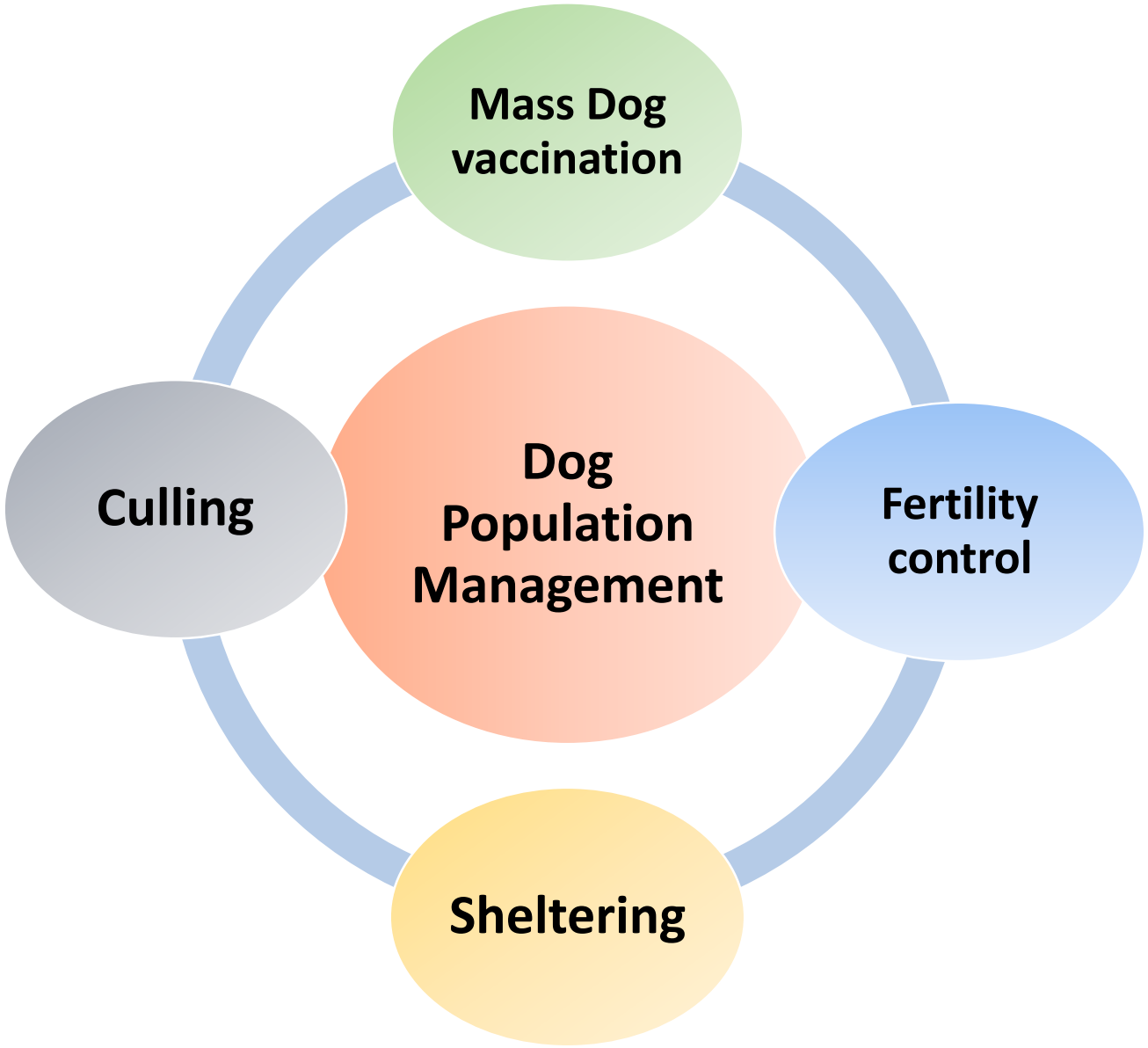
WHO recommended Re-Exposure(Rabies PEP of previously vaccinated persons

Route	Dose	Duration	Site
Intradermal	0.1 ml (1 site)	D 0, D 3	Deltoid Region of the arm of adults
Intramuscular	1 ml / 0.5 ml	D 0, D 3	Anterolateral area of thigh is recommended for children(<2 years)

Prevention of Rabies in Dog

Prevention of Rabies in Dog

Dog Population Management



Dog Population Management

Culling

Episodic removal and killing

Fertility control

Surgical sterilisation through the Catch-Neuter-Release

Sheltering

Sheltering free-roaming dogs to reduce dog population size

Mass Dog vaccination

It is an effective method for stop dog to dog and dog to human rabies virus transmission

Mass Dog Vaccinations(MDV)

Bangladesh’s MDV programme began in 2011 in the municipality of Cox’s Bazar.

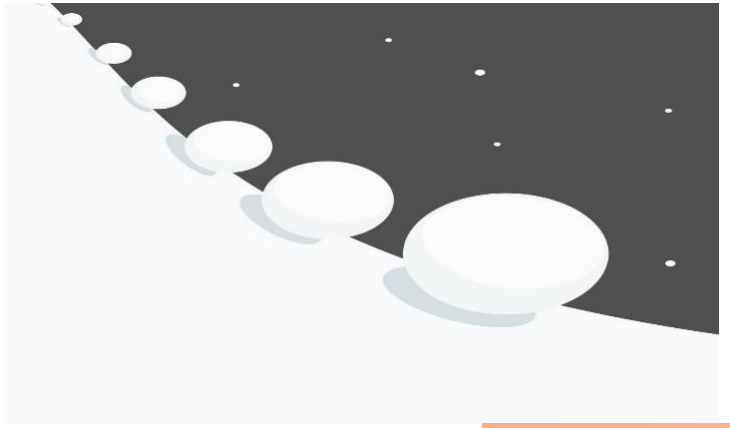
MDV in Bangladesh

Number of completed round	Coverage area(District)
1st	64
2nd	45
3rd	8

[Source]:Rabies control in Bangladesh and prediction of human rabies cases by 2030: a One Health approach. *The Lancet Regional Health-Southeast Asia*, *27*.

Model of MDV

Snow Ball Capacity Building



Short duration campaign

Public health programme with local financing

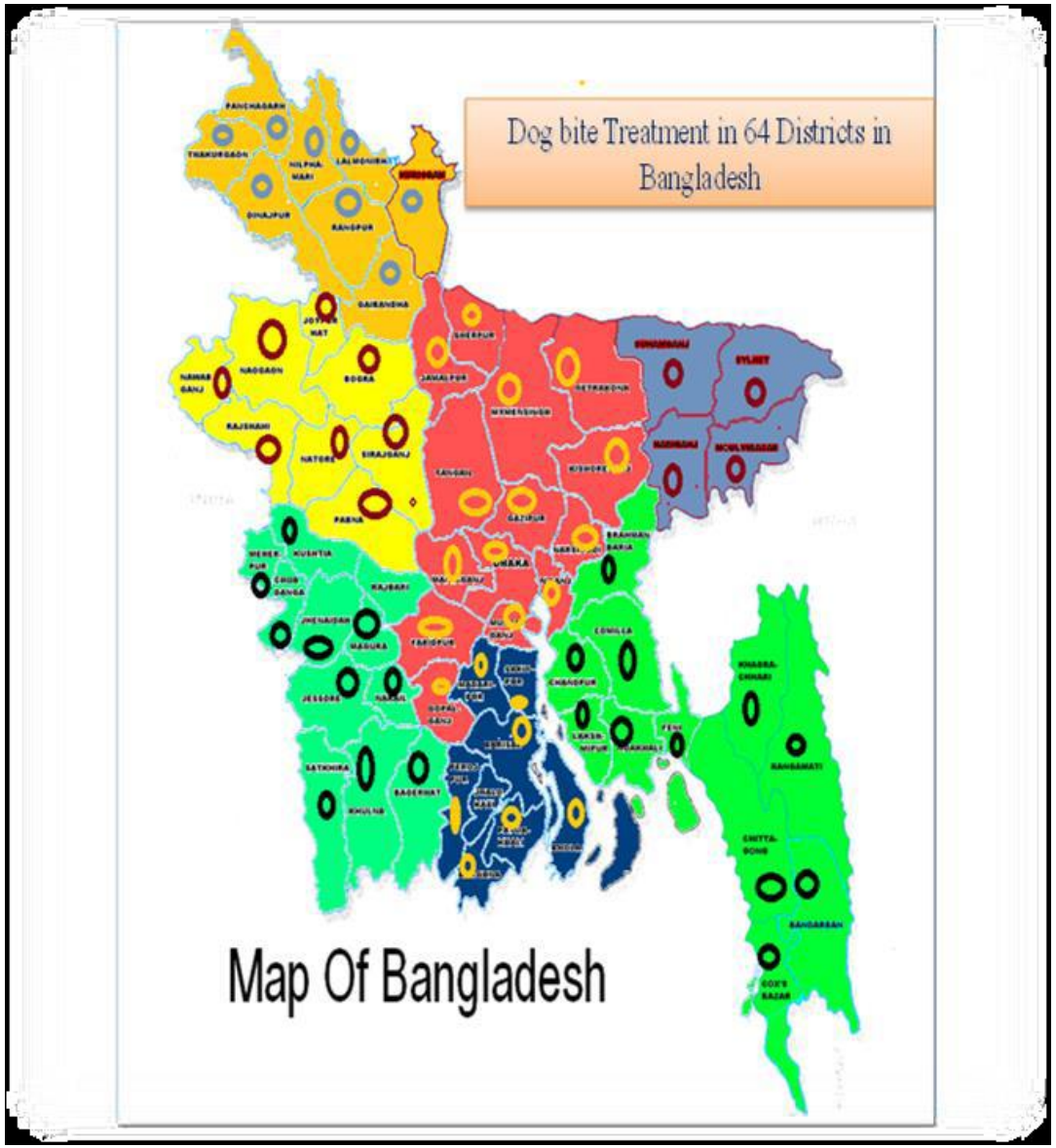
National Rabies Prevention and Control Center (NRPCC), IDH, Dhaka

May be the largest Intradermal Rabies Vaccination center in the world

600-700 cases attend every day

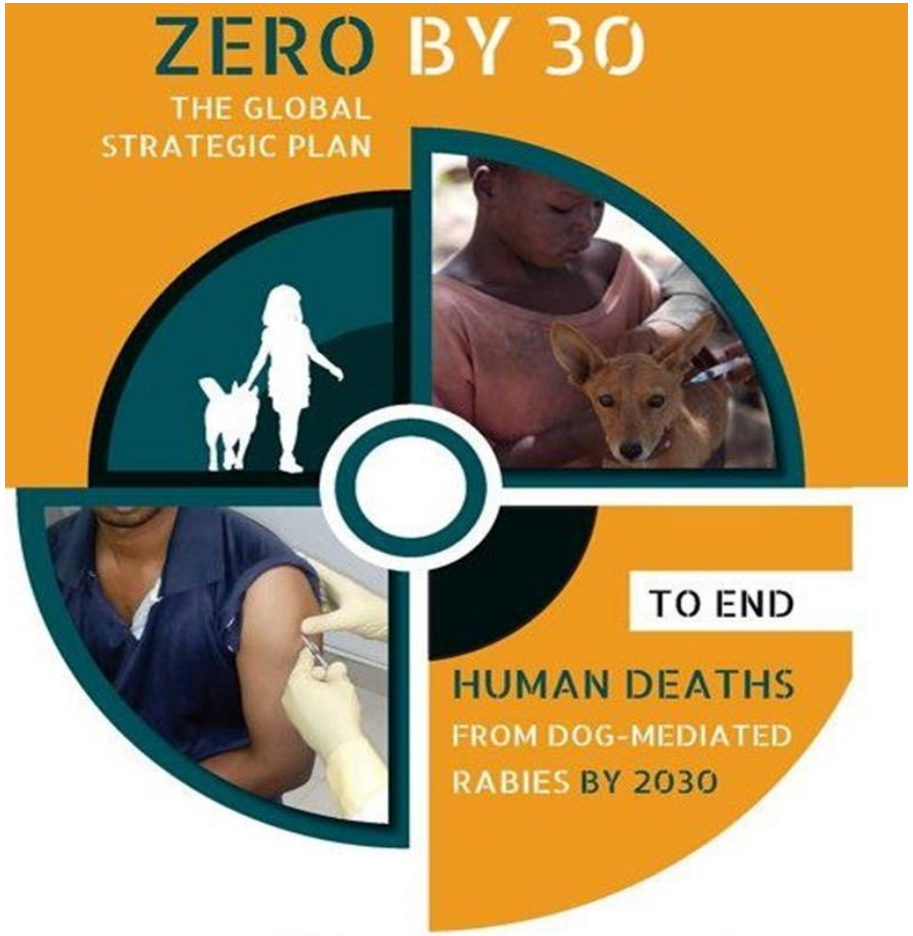
Rabies Prevention and Control Center

Bangladesh Institute of Tropical and Infectious Disease Hospital, Chittagong



Zero By 30

“United Against Rabies”–have globally announced a call to eliminate dog-mediated human rabies by 2030 (“Zero by 30”)



Global Alliance for Rabies Control

Food and Agriculture Organization of the United Nations

World Organisation for Animal Health
Founded in 1924

World Health Organization

Take Home Message

- **100% fatal but 100% preventable**
- **No Bite, no Rabies**
- **If bites, Must be vaccinated as soon as possible**

Reference

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Thank
You!


Q & A