The Wrath of Rabies

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Overview

- Burden of rabies
- Animal bite management guideline
  - Post-exposure Prophylaxis
  - Pre-exposure Prophylaxis
- Management of human rabies
- Rabies Free Phils in 2020

Burden of rabies: Global

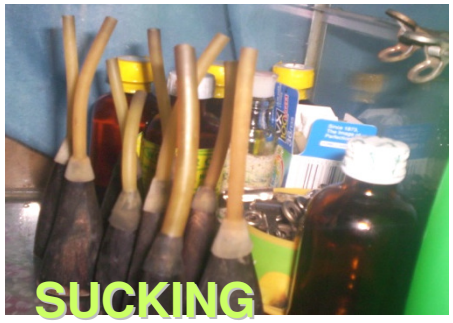
- Rabies remains a public health concern in the world
- still kills more than 50,000 people every year
- More than 99% of all human deaths - developing world, with domestic dogs the source of the vast majority of human cases.
- 40% of human rabies cases - children aged under 15 years.

Burden of rabies: Asia

- More than 4 billion people in Asia, potential risk of getting rabies
- More than 94% of documented human rabies cases were exposed to rabid dog bite
- Raccoon dogs, foxes, jackals, mongoose are responsible for maintenance of rabies transmission
- More than 21 million patients receive rabies vaccination annually

Rabies in the Philippines

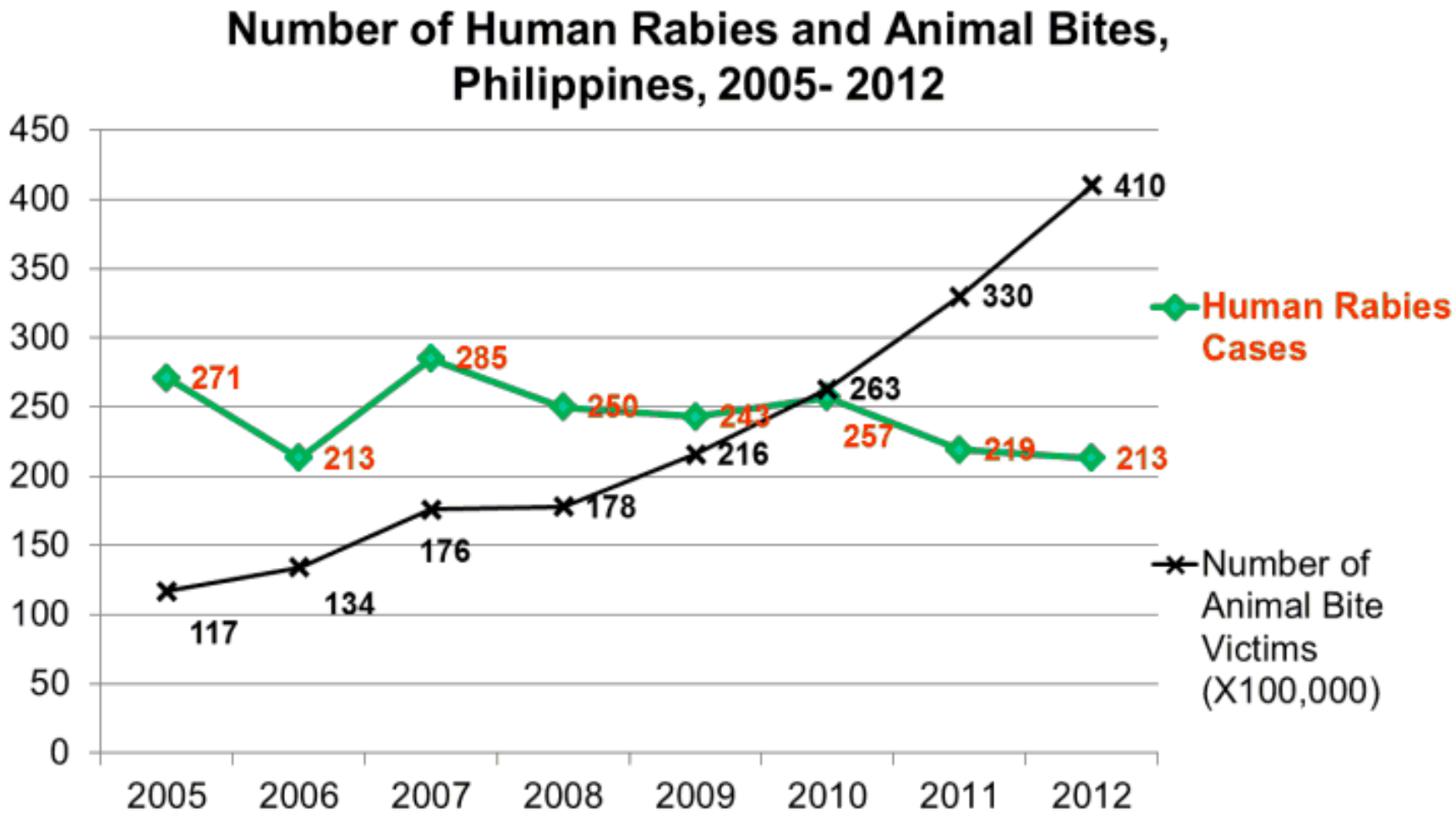
- Domestic dog is the main vector
- Rabies is a reportable disease
- Special features
  - Traditional Medicine
  - Cultural practices/beliefs - eating dog meat, free ranging pets, fear of vaccination



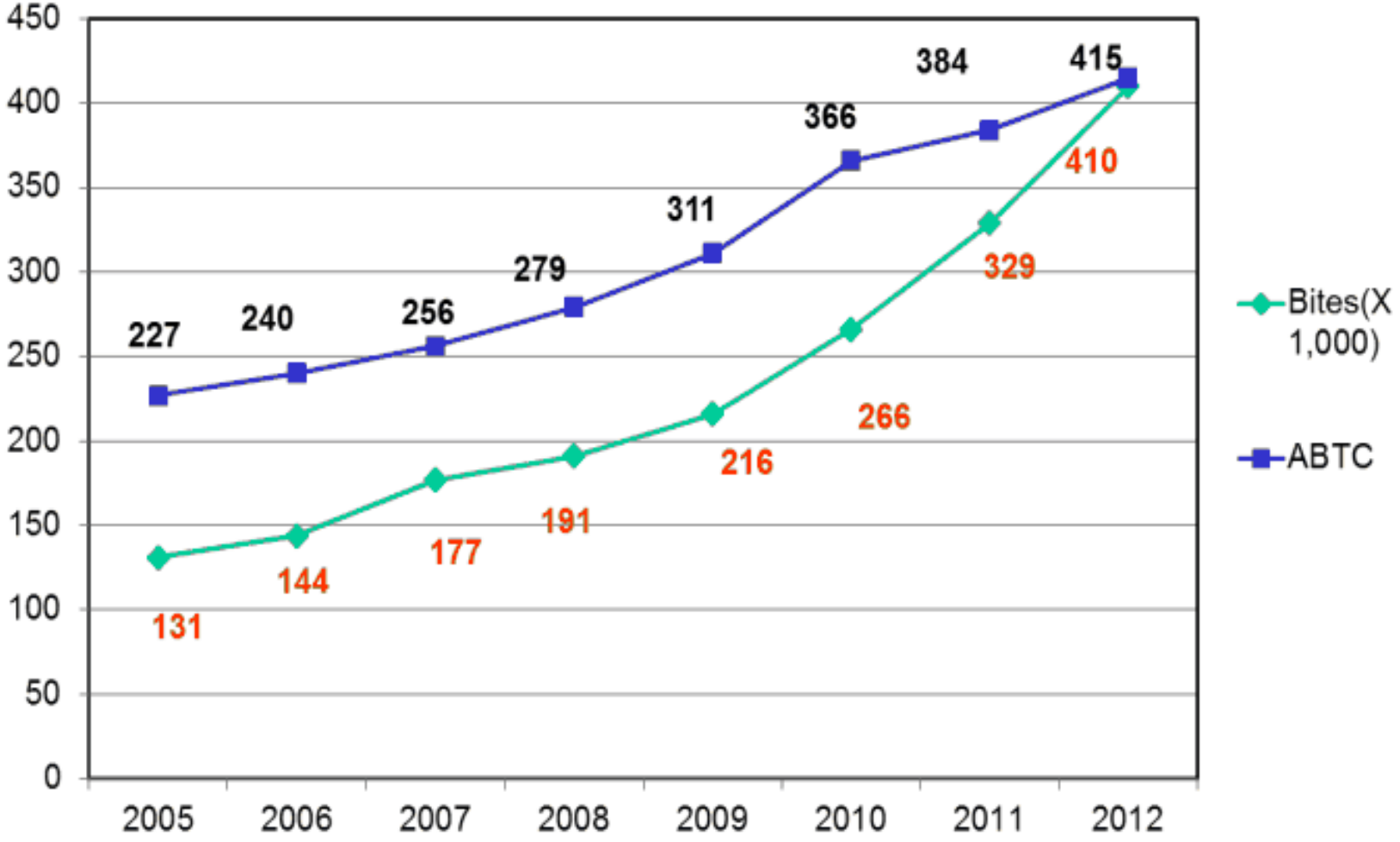
SUCKING APPARATUS

Rabies Situation in the Philippines

Human Rabies and Animal Bites

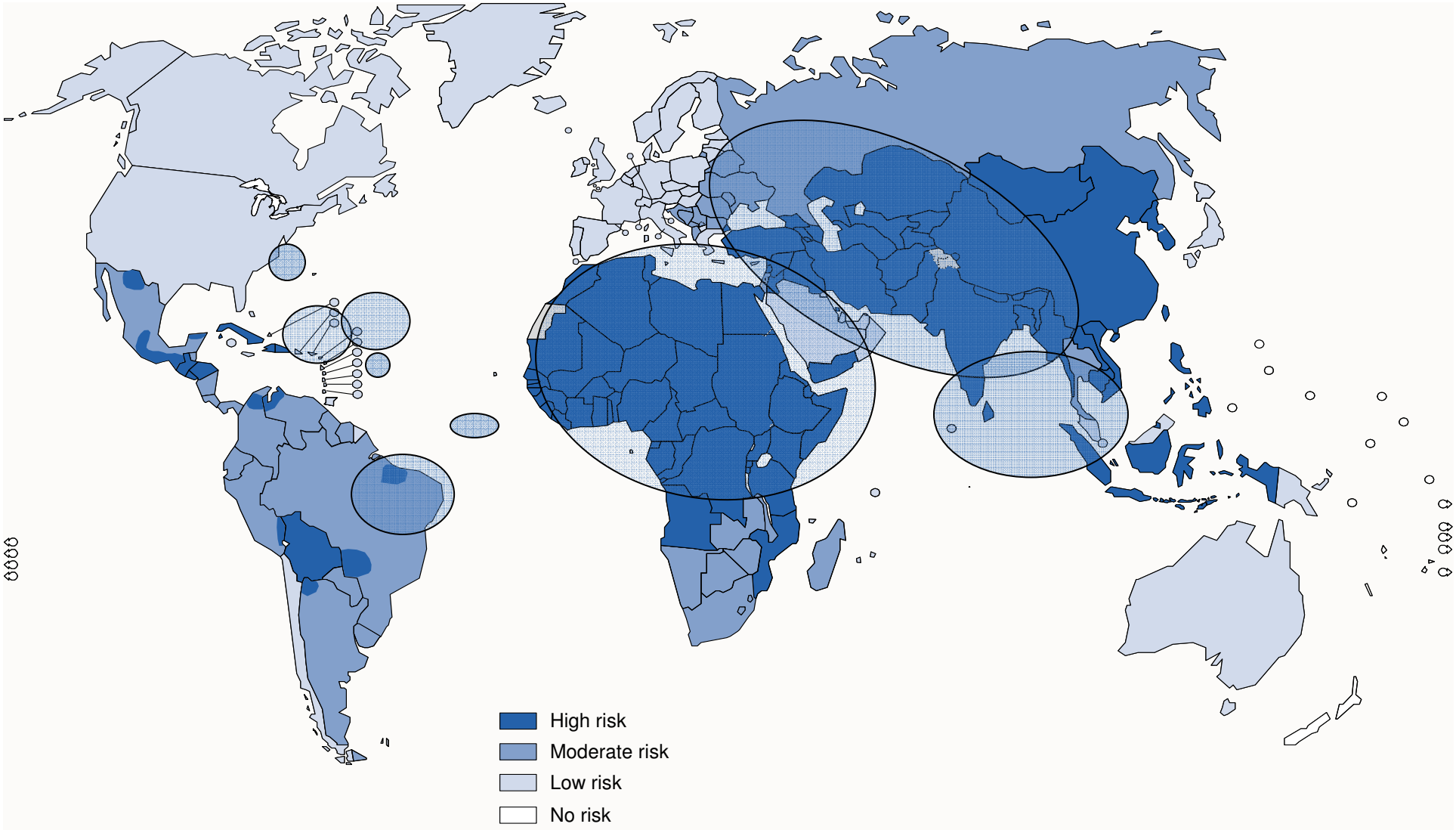


Number of Bite Cases and Animal Bite Treatment Centers (ABTC)



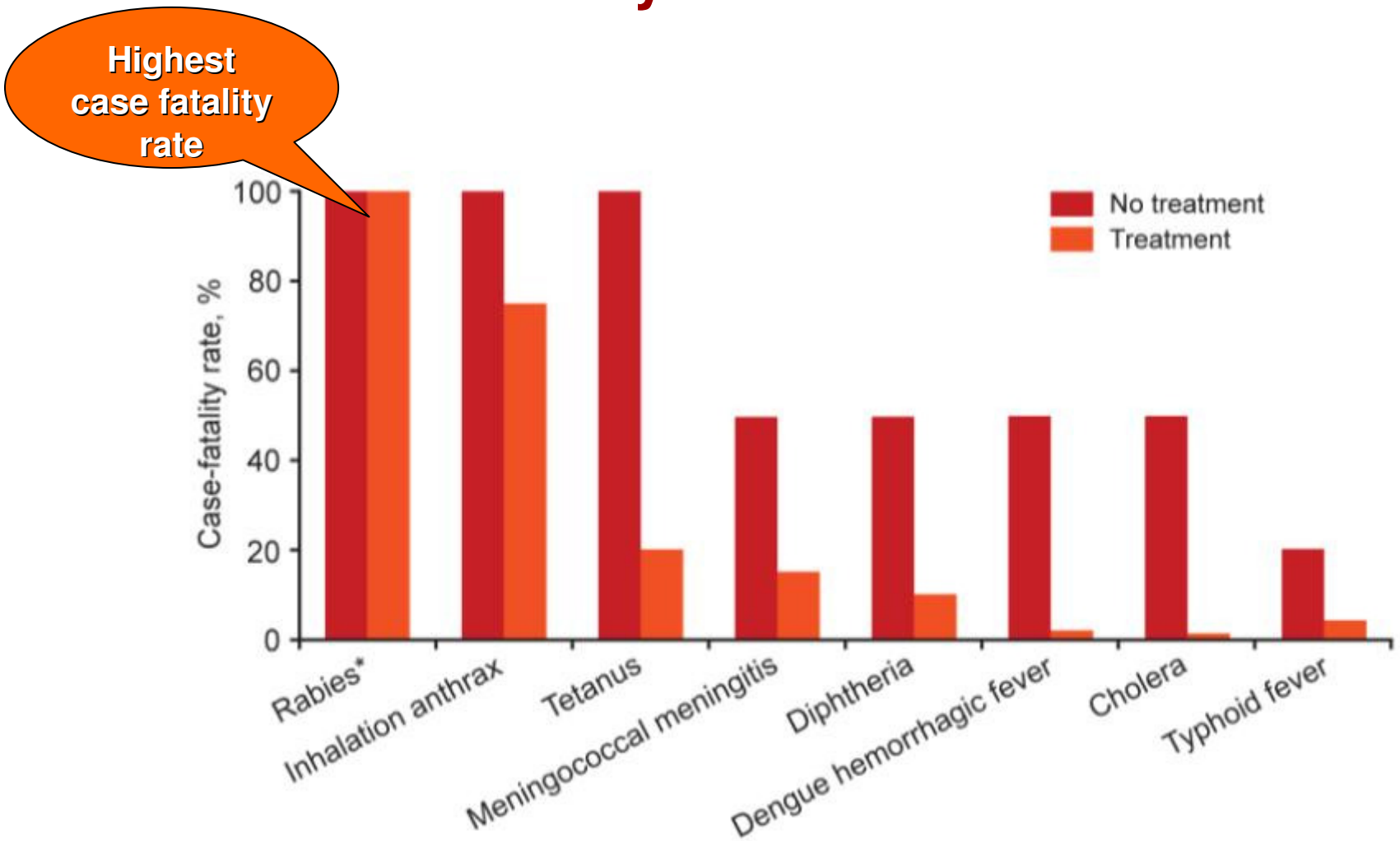
Risk of humans contracting rabies

Hot spots (WHO, 2010)

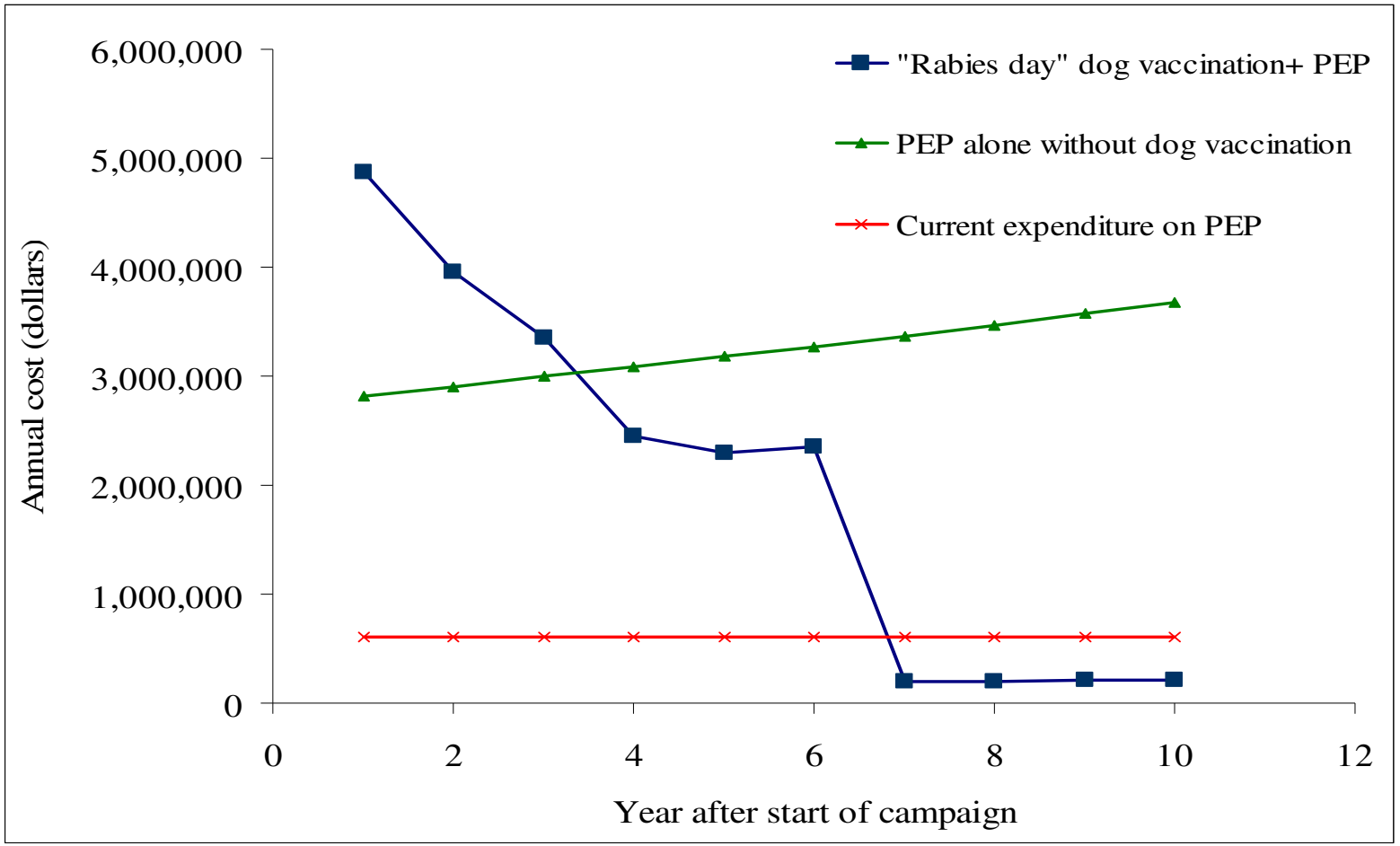


Large variety of reservoir species:
rabies cannot be eradicated!

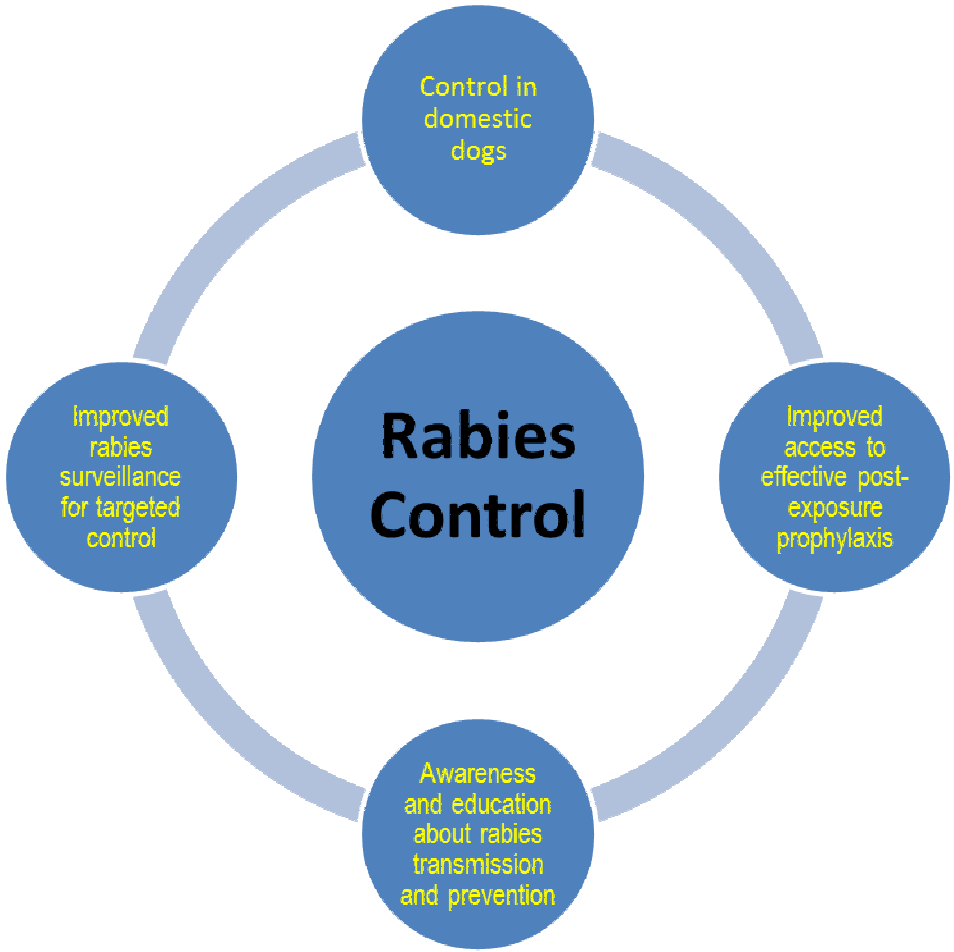
Rabies: Case fatality rate



Projected costs of rabies control



Intersectoral Rabies Control



Global partners for Rabies elimination

Post-exposure Prophylaxis

- Given to exposed patients
- Objectives:
  - To minimize the amount of virus at the site of inoculation
  - To develop a high titer of neutralizing antibody early and maintain it for as long as possible

Post-exposure Prophylaxis

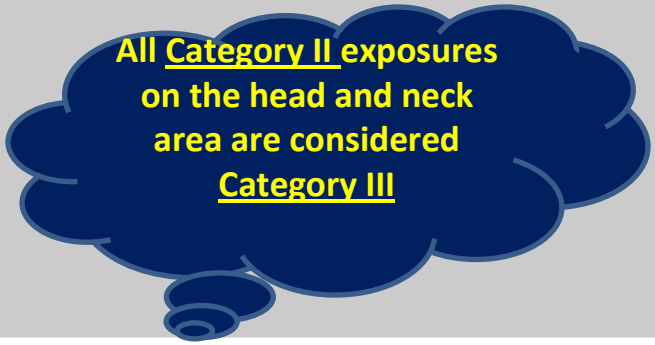
- Components:
  - Local wound care – do's and don'ts
  - Categorization of exposure
  - Immunization
    - Active immunization
    - Passive immunization

Categorization of Exposure

Category 1 Exposure	Management
▪Feeding/touching an animal ▪Licking of intact skin (with reliable history and thorough physical examination) ▪Exposure to patient with S/Sx of rabies by sharing of eating or drinking utensils ▪Casual contact to patient with S/Sx of rabies (talking, visiting, feeding, routine health care delivery)	▪Wash exposed skin immediately with soap and water ▪No vaccine or RIG needed ▪Consider pre-exposure prophylaxis for high risk persons

Categorization of Exposure

Category 2 Exposure	Management
▪**Nibbling of uncovered skin w/ or w/o bruising/hematoma** ▪**Minor scratches/abrasions w/o bleeding** ▪**Minor scratches/ abrasions which are induced to bleed**	▪**Wash wound with soap and water** ▪**Start vaccine immediately** ▪**RIG is not indicated** ▪**Complete vaccination regimen until day 28/30 if:** ▪Animal is rabid ▪Animal is killed/died w/o testing ▪Animal has S/Sx of rabies ▪Animal is unavailable for 14 -day observation (e.g. stray)



Categorization of Exposure

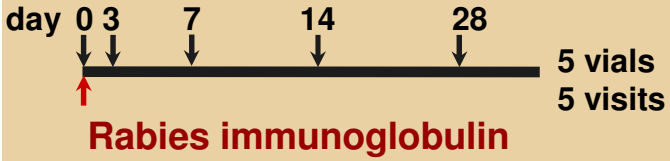
Category 3 Exposure	Management
• Transdermal bites (puncture wounds, lacerations, avulsions, deep abrasions) or scratches with spontaneous bleeding • Licks on broken skin* • Contamination of mucous membranes (eyes, oral/nasal, genital/anal mucous membranes) with saliva • Exposure to a rabies patient through bites, contamination of mucous membranes or open skin lesions with body fluids through splattering, through mouth-to-mouth resuscitation • Handling of infected carcass or ingestion of raw infected meat • All Category II exposures on head and neck area	▪Wash wound with soap and water ▪Start vaccine and RIG immediately ▪Complete vaccination regimen until day 28/30 if: ▪Animal is rabid ▪Animal is killed/died w/o testing ▪Animal has S/Sx of rabies ▪Animal is unavailable for 14 -day observation (e.g. stray)

WHO Recommended

Rabies Post-Exposure Regimens

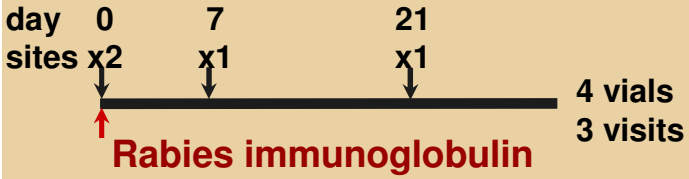
1 Essen

Standard WHO intramuscular regimen
one dose i.m. (1.0 or 0.5 ml) into deltoid



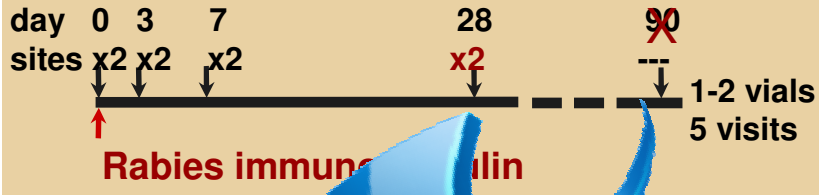
2 Zagreb

Reduced multisite intramuscular regimen (2-1-1)
one dose i.m. (1.0 or 0.5 ml) into deltoid



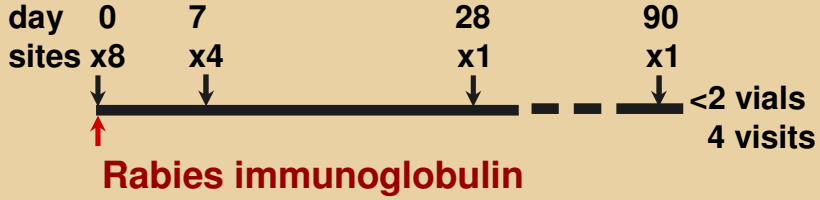
3 Updated Thai Red Cross

2-site intradermal regimen (2-2-2-0-2)
0.1 ml i.d. per site



4 8-site ID

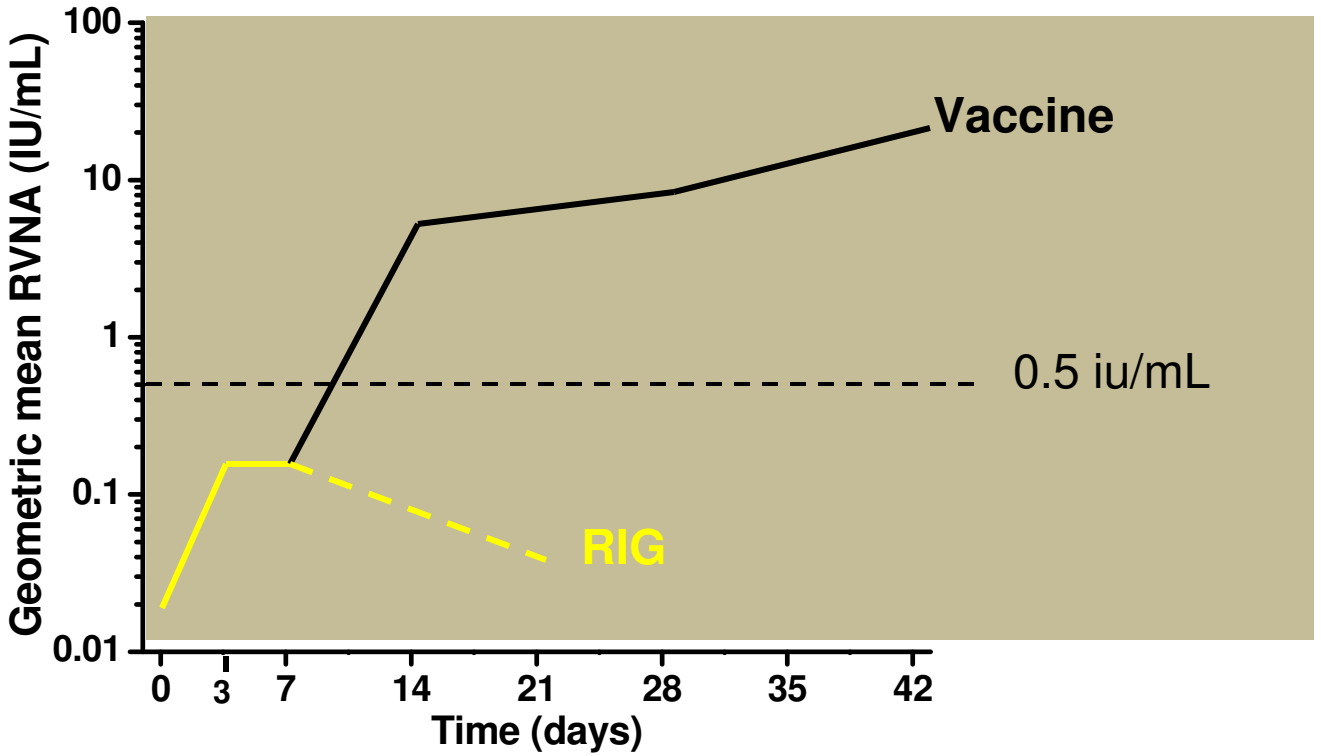
8-site intradermal regimen (8-0-4-0-1-1)
0.1 ml i.d. per site



WHO Expert Committee on Rabies, 8th report, Geneva 1992

Passive Immunization

- **RIG provides immediate protection but is short-lived (half-life 21 days)**
- **Vaccines provide long term protection but Ab appear 7-14 days after the 1st dose**



"Anti-Rabies Act of 2007"

- **Republic Act No. 9482**
- **An Act providing for the control and elimination of human and animal rabies**
- **Signed into law on May 25, 2007**

Provides for free routine immunization or Prophylaxis of schoolchildren aged five to fourteen

- **in areas with a high incidence of rabies (IR > 2.5/M pop)**

Pre-exposure prophylaxis

- **The Philippines is the first country to implement wide scale pre-exposure vaccination among children**
- **Goal**
  - **Vaccinate 50,000 school children/ year in high risk areas**
- **Strategy**
  - **Immunize all children grades 1-6 initially**
  - **Immunize only grade 1 school entrants in succeeding years**

Pre-exposure prophylaxis

- Target population
  - Personnel in rabies diagnostic or research laboratories
  - Veterinarians and veterinary students
  - Animal handlers, zoologists working with wildlife
  - HCW directly involved in care of rabies patients
  - Individuals directly involved in rabies control
  - Cave explorers and adventure travelers to rabies endemic areas
  - Field workers
  - It is recommended that children also be immunized because of the increased risk and severity of animal bites in this age group

Pre-exposure schedule

Day 0 **Day 7** **Day 21/28**

IM dose = 0.5 ml PVRV or 1.0 ml PCECV

ID dose = 0.1 ml PVRV, PCECV

Into the deltoid muscle or anterolateral thigh in young infants

rabies is 100% fatal

Rabies

- Highly fatal illness with no known cure
- Unsuccessful treatments:
  - Anti-virals – Vidarabine, ribavirin
  - Multisite ID vaccination with cell-culture vaccine
  - α-interferon and IV and intrathecal RIG
  - Anti-thymocyte globulin
  - High doses of steroids, inosine pranobex,
  - High doses of the antibody-binding fragments of RIG

Rabies

- Management should focus on
  - Confirmation of diagnosis
    - No tests are available to diagnose rabies infection in humans before the onset of clinical disease
  - Palliative care
  - Prevention and management of exposure to rabies patients

Diagnosis of Human Rabies

- Clinical Diagnosis
  - History
  - Clinical manifestations and course of the disease
  - Neuroimaging
- Laboratory Diagnosis
  - Rabies viral antigen
  - Rabies neutralizing antibody

Ante-mortem Laboratory Dx

Postmortem diagnosis in brain tissues provides definitive proof of Rabies Virus infection

Benefits of Ante-mortem Diagnosis

- eliminates the expense and discomfort of unnecessary diagnostic tests and inappropriate therapy
- allows institution of public health measures to limit contacts with patients
- rapidly confirms rabies infection in paralytic and atypical presentation of human rabies
- strengthens epidemiologic documentation by lab Dx of rabies infection, without the need for autopsy

Submission of Samples

	FAT	MIT	IgG ELISA/ RFFIT	RT-PCR
brain tissue	YES	YES	NO	YES
saliva / oral swab	NO	YES	NO	YES
CSF	NO	YES	YES	YES
serum	NO	NO	YES	NO
nuchal skin biopsy	YES	NO	NO	YES


National Rabies Prevention and Control Program
Rabies-Free Philippines

Legislative and Policy Support

Republic Act 9482 or Anti Rabies Act of 2007

Executive Order 84

Declaring March as the Rabies Awareness Month

GOAL: RABIES FREE PHILS IN 2020

Batas Pambansa(National Law) Bilang 97

Act providing compulsory immunization of livestock, poultry and other animals against dangerous and communicable diseases

DOH and DA administrative issuances

Disease Free Zone Initiative

Guidelines in the Management of Animal Bite

Joint DOH-DA guidelines for decalring rabies free zone

National Objectives for Health

Year 2011-2016

Strategic Objectives	Indicator	Latest Baseline	2016 Target
Number of deaths due to rabies is reduced	Mortality rate from rabies per 1,000,000 population	2.8/million pop	Less than 1.5 /million
PEP completion rate among cases is increased	% Post Exposure Prophylaxis (PEP) completion	<70 %	90%
RIG coverage is increased	% Rabies Immunoglobulin (RIG) coverage	25%	40%
Percentage of animal bite victims that practice washing of bite sites with soap and water is increased	% Bite victims who washed the bite site with soap and water	37 %	90%
Number of rabies-free areas is increased	Number of rabies free areas	5	10

Conclusion

- Rabies continues to be a global threat
- Majority caused by dog bites
- There is no effective cure
- Available cell culture vaccines for PEP and Prep
- Multisectoral approach - roadmap in reducing number of human deaths

Thank You

Submission of Samples

- Transport specimens in ice/cold packs
- If transport will be delayed or will take a long time, the brain should be frozen
- Specimens for FAT should not be soaked in formalin; can use buffered glycerol instead
- Samples should be contained within two shock-proof water- tight containers.
- If being sent by air-freight, samples should comply with International Air Transport Association (IATA) regulations
- Full details of the origin of each sample must be provided, together with all relevant epidemiological information which might assist in Dx