

# Update in animal bite management: *Take a bite out of this*

Nancy N. Bermal, MD

Fellow- PPS, PIDSP



# Conflict of Interest Disclosure

Currently an employee of Unilab, Inc

Medical Director – ULIV

Head R and D – Synnovate Pharma Corp

PIDSP representative to the NRPCP TWG

# Objectives

- To provide update to rabies status in the Philippines
- To provide an update on the management of rabies exposures based on the **DOH AO no. 0013 S2018 dated Apr 16, 2018**
- Issue on counterfeit rabies vaccine – how to address

# Kahoot!

- True or False? Rabies is 100% fatal but 100% preventable?

# Kahoot!

The following are main strategies in rabies prevention

- A. Pre-exposure prophylaxis
- B. Post –exposure prophylaxis
- C. Dog vaccination program
- D. All of the above

# Kahoot!

- Which of the following is considered category 3 exposure and would require RIG and vaccine
  - A. abrasion on the nose induced to bleed
  - B. superficial scratch on the leg
  - C. puncture wound on the index finger
  - D. A and C are correct

# Kahoot!

You prescribed RIG and vaccine to your patient with Category 3. However the patient was only able to afford the RIG after he has completed the day 7 dose. He was afraid to have rabies since he found out that his neighbor's dog died and was positive for rabies. What will be your management.

- A. give the RIG since the biting animal is rabid
- B. No need to give the RIG since the patient has protective Rabies Ab from the vaccine
- C. give additional dose of rabies vaccine
- D. None of the above

# Kahoot!

Three months later, the patient came back due to another dog bite this time he sustained a 5 cm laceration on the left arm. This happened while he was playing with his pet dog.

- A. give complete PEP including RIG since it's a Category 3 bite
- B. give only complete course of rabies vaccine
- C. give booster dose of the vaccine
- D. no need to give any, advice patient to observe the dog for 14 days.



# Rabies Facts

Human infection that occurs after a transdermal bite or scratch by an infected animal

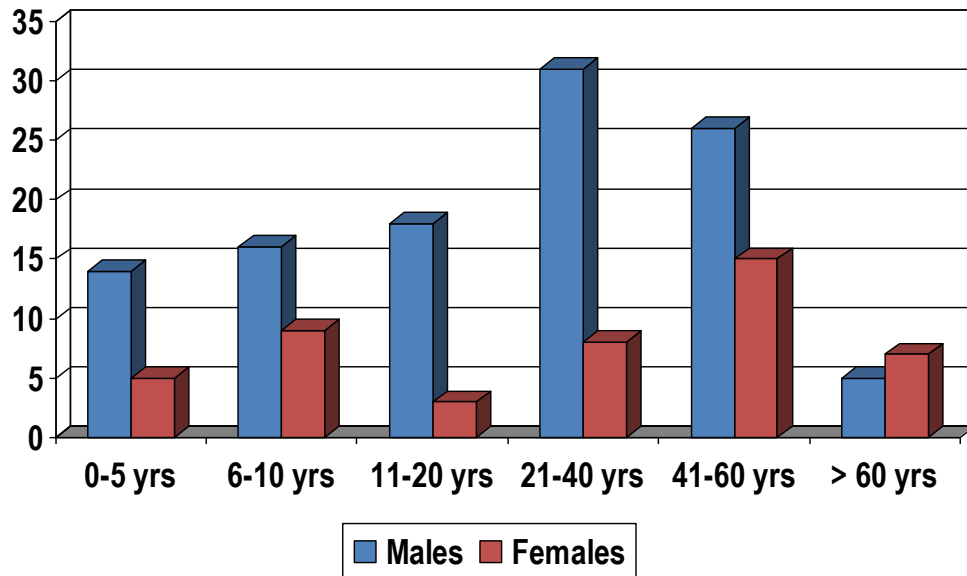
Neglected disease, **100%** fatal though **100%** preventable

**Rabies**

40% of human rabies cases - children aged under 15 years.

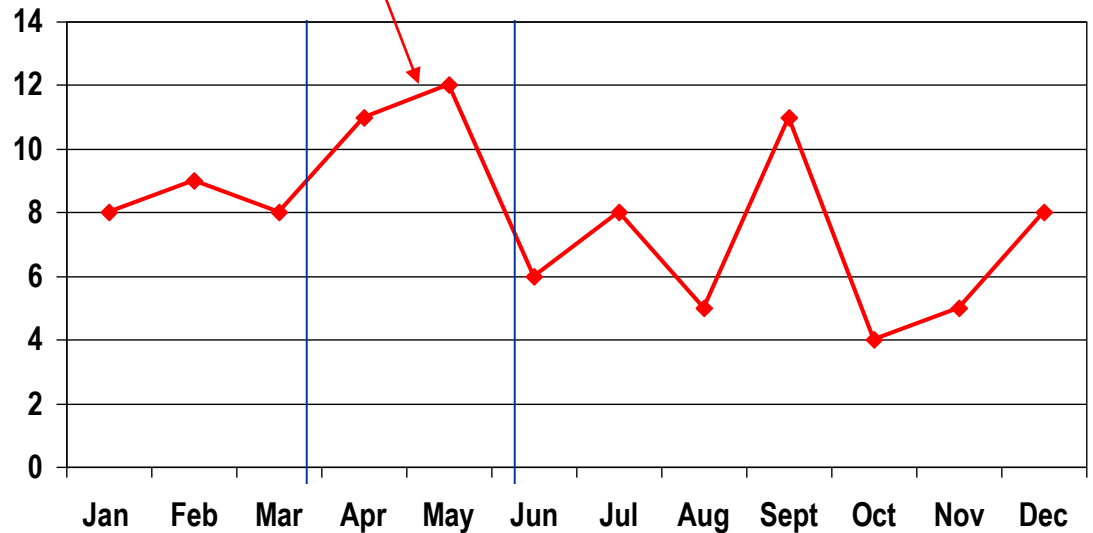


# Rabies in the Philippines

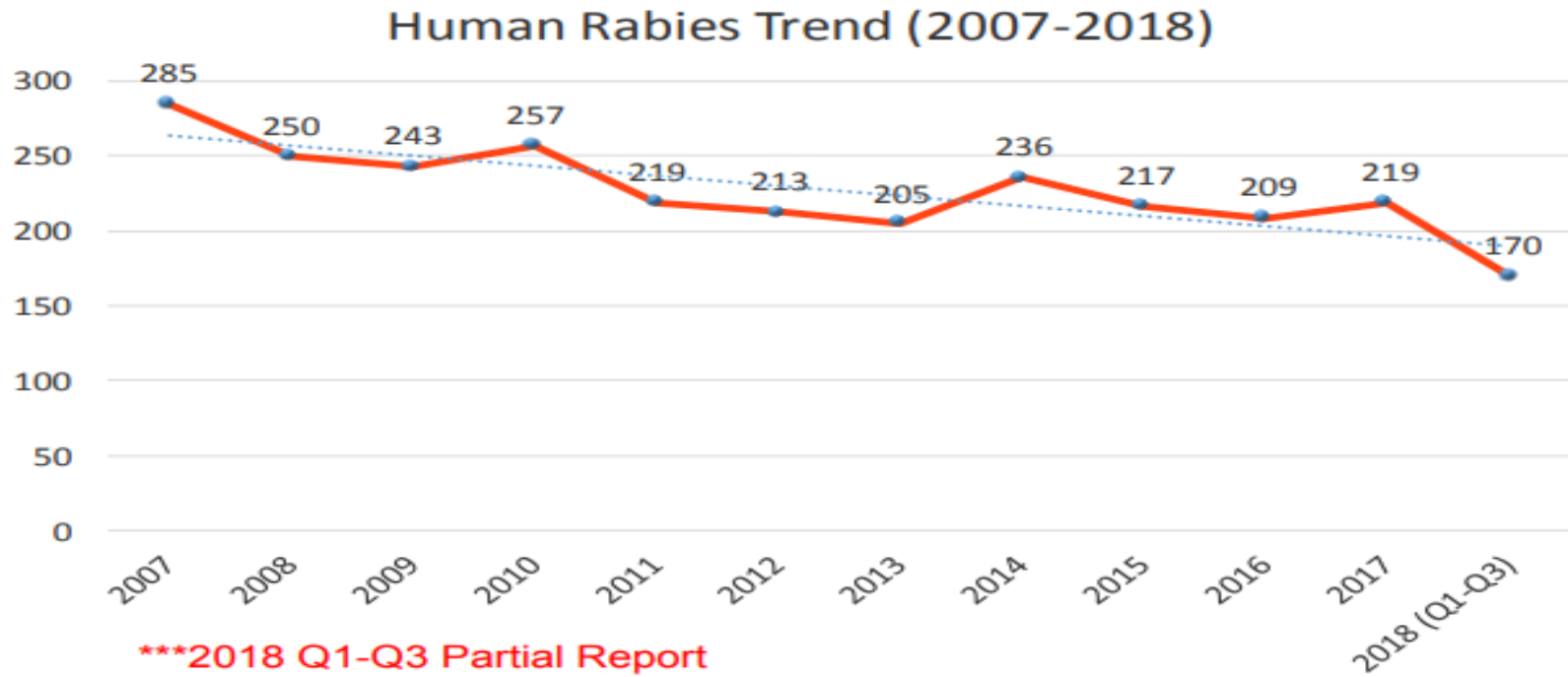


**Males > Females**

**Common during the  
summer months**



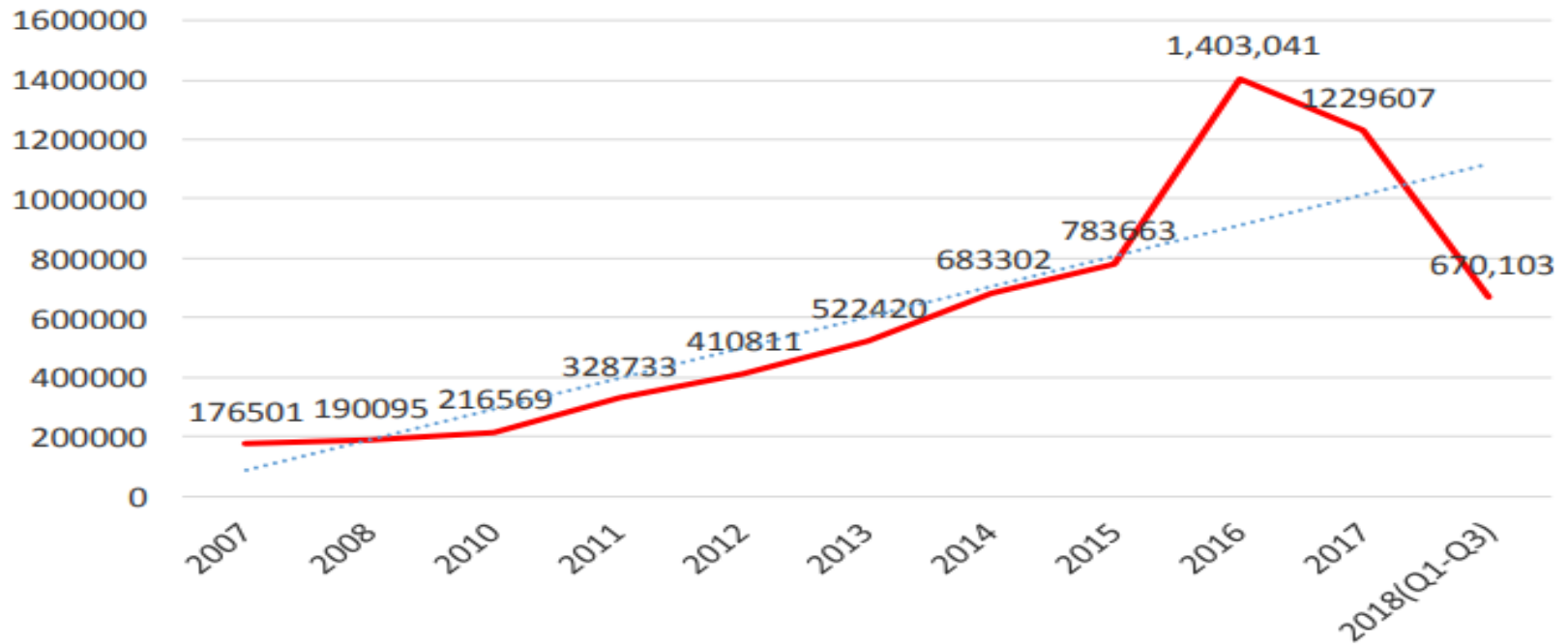
# Rabies in the Philippines



*Slide courtesy of Dr Ronaldo Quintana, NRPCP*

# Status of Animal Bites

Animal Bites 2007 - 2018



\*\*\*2018 Q1-Q3 Partial Report

Slide courtesy of Dr Ronaldo Quintana, NRPCP

# Animal Bite Treatment Centers ABTCs

Total of 613 in the entire country



RESEARCH ARTICLE

## The evaluation of Animal Bite Treatment Centers in the Philippines from a patient perspective

**Anna Charinna B. Amparo<sup>1\*</sup>, Sarah I. Jayme<sup>1</sup>, Maria Concepcion R. Roces<sup>2</sup>, Maria Consorcia L. Quizon<sup>2</sup>, Maria Luisa L. Mercado<sup>1</sup>, Maria Pinky Z. Dela Cruz<sup>1</sup>, Dianne A. Licuan<sup>1</sup>, Ernesto E. S. Villalon, III<sup>3</sup>, Mario S. Baquilod<sup>3</sup>, Leda M. Hernandez<sup>3</sup>, Louise H. Taylor<sup>4</sup>, Louis H. Nel<sup>4,5</sup>**

**1** Global Alliance for Rabies Control, Sta. Rosa City, Philippines, **2** South Asia Field Epidemiology and Technology Network (SAFETYNET), Quezon City, Philippines, **3** Disease Prevention and Control Bureau, Department of Health, Manila, Philippines, **4** Global Alliance for Rabies Control, Manhattan, United States of America, **5** University of Pretoria, Pretoria, South Africa

\* [chari.amparo@rabiesalliance.org](mailto:chari.amparo@rabiesalliance.org)



Published: July 26, 2018

# Methodology and principal findings

- 53% of households reported at least one animal bite /scratch injury over the past 3 years, similar across urban and rural barangays.
- Overall bite/scratch incidences in 2016–17 per 1000 population
  - ▣ 67.3 Nueva Viscaya
  - ▣ 41.9 Palawan
  - ▣ 48.8 Tarlac

# ABTCs Evaluation

- 50% higher amongst those under 15 years of age
- Household awareness of the nearest ABTCs : > 80%, but only 44.9% sought proper medical treatment , traditional remedies still frequently used.
- Proportion of patients seeking PEP not related to the distance or travel time to the nearest ABTC
  - For those that did not seek medical treatment, most cited a lack of awareness or insufficient funds and almost a third visited a traditional healer.
- No deaths from bite/scratch injuries were reported

# ABTCs Evaluation

Table 4. Characteristics of animal Injuries and their treatment across the three provinces in 2016–17.

	Nueva Vizcaya	Palawan	Tarlac	All provinces
<b>Number of wounds</b>	<b>402</b>	<b>358</b>	<b>351</b>	<b>1111</b>
Dog inflicted (%)	79.6%	60.3%	61.5%	67.7%
Cat inflicted (%)	19.7%	38.3%	37.0%	31.1%
Bites without scratches (%)	85.6%	62.6%	74.1%	74.5%
Bites with scratches (%)	1.7%	3.1%	1.1%	2.0%
Scratches only (%)	12.7%	34.4%	24.8%	23.5%
<b>Number of wounds treated in medical facility</b>	<b>178</b>	<b>181</b>	<b>140</b>	<b>499</b>
All wounds treated (%)	44.3%	50.6%	39.9%	44.9%
Bites treated (%)	49.6%	63.4%	45.5%	52.1%
Scratches treated (%)	7.8%	26.0%	23.0%	21.5%
Wounds treated in under 15 age category (%)	50.6%	53.2%	44.9%	49.6%
Wounds treated in over 15 age category (%)	39.9%	48.2%	35.9%	41.3%
Went to ABTC (%)	86.5%	75.7%	87.9%	83.0%
Went to other govn. facility (%)	10.7%	13.8%	8.6%	11.2%
Went to private facility (%)	2.2%	5.5%	3.6%	3.8%
No information (%)	0.6%	5.0%	0.0%	2.0%
Also went to a <i>tandok</i> * (%)	15.2%	0.6%	16.4%	10.2%

\*a tandok is a traditional healer



# ABTCs Evaluation

- A cohort of 1,105 patients were interviewed at six ABTCs in early 2017
  - OOPE varied across the ABTCs, from 5.53 USD to 37.83 USD per patient
  - primarily dependent on the need to pay for immunization if government supplies had run out
  - Overall, 78% of patients completed the recommended course
  - main reason for **non-completion was a lack of time, followed by insufficient funds.**
  - Dog observation data revealed that 85% of patients were not truly exposed to rabies, and education in bite prevention might reduce provoked bites and demand for PEP

## Regions with most number of Animal Bites

2017			2018 (Q1-Q3 Report)		
Rank	Region	Animal Bites	Rank	Region	Animal Bites
1	4-A	198,760	1	3	97,220
2	NCR	170,926	2	7	77,931
3	3	169,506	3	2	75,529
4	1	108,026	4	6	72,830
5	6	100,809	5	NCR	69,370
6	7	93,408	6	1	51,270
7	2	69,575	7	4A	49,031
8	10	67,710	8	10	41,925
9	11	58,581	9	5	25,283
10	12	46,225	10	11	22,965

*Slide courtesy of Dr Ronaldo Quintana, NRPCP*

# Regions with most number of human rabies

2017		
Rank	Region	Human Rabies
1	3	37
2	12	33
3	4A	28
4	7	21
5	5	18
6	6	14
	10	14
7	1	10
8	8	8
9	9	7
10	2	6
	CARAGA	6

2018 (Q1-Q3 Report)		
Rank	Region	Human Rabies
1	3	40
2	4A	24
3	7	15
4	1	12
	6	12
	11	12
4	2	11
6	9	9
	NCR	9
7	4B	8

Slide courtesy of Dr. Ronald Quintana, NRPCP

# Provinces/Cities with Most Number of Animal Bites

2016		
Rank	Province/City	Animal Bites
1	Bulacan	21,472
2	Cebu Province	20,777
3	Isabela	19,255
4	Iloilo	18,769
5	Pampanga	15,876
6	Taguig	14,362
7	Rizal	13,550
8	Quezon City	13,231
9	Cebu City	11,265
10	Laguna	10,455

2017		
Rank	Province/City	Animal Bites
1	Pangasinan	72,082
2	Bulacan	42,005
3	Pampanga	40,884
4	Iloilo Province	35,471
5	Davao City	30,848
6	Cebu Province	29,588
7	Isabela	29,061
8	Taguig	23,303
9	Cagayan	21,825
10	Quezon City	21,727

Slide courtesy of Dr. Ronald Quintana, NRPCP

# Disease Free Zone Initiative Rabies Free Areas Jointly Declared by DOH and DA

## 2015

29. Municipality of Tingloy, Batangas
30. Municipality of Balabac, Palawan
31. Municipality of Agutaya
32. Municipality Dinagat, Dinagat
33. Municipality of San Jose, Dinagat
34. Municipality of Loreto, Dinagat
35. Municipality of Cagdianao, Dinagat
36. Municipality of Libjo, Dinagat
37. Municipality of Basilisa, Dinagat
38. Municipality of Tabajon, Dinagat

## 2016

39. Municipality of Romblon, Romblon
40. Municipality of San Jose, Romblon
41. Island of Pan de Azucar, Concepcion, Iloilo

## 2017

42. Municipality of Monreal, Ticao Island, Masbate
43. Municipality of San Jacinto, Ticao Island, Masbate
44. Municipality of Batuan, Ticao Island, Masbate
45. Municipality of San Fernando, Ticao Island, Masbate
46. Municipality of Concepcion, Romblon
47. Municipality of Corcuera, Romblon
48. Municipality of Banton, Romblon
49. Pres. Carlos P. Garcia, Bohol

## 2018

50. **Province of Catanduanes**
51. Municipality of Capul, Northern Samar
52. Municipality of San Antonio, Northern Samar
53. Municipality of Patnanungan, Quezon
54. Municipality of Jomalig, Quezon
55. Municipality of Magdiwang, Romblon
56. Municipality of San Fernando, Romblon
57. Municipality of Cajidiocan, Romblon
58. Sitio Bago-Ise, Brgy. Taloto-an, Concepcion, Iloilo
59. Sombrero Island (Sitio Botlog Gamay),  
Brgy. Tambaliga, Concepcion, Iloilo
60. Brgy. Malangabang, Concepcion, Iloilo
61. Brgy. Salvacion, Concepcion, Iloilo
62. Sitio Baliguian, Brgy. Malangabang, Concepcion, Iloilo

### Total: 62 Rabies-Free Areas

- 7 Provinces
- 46 Municipalities
- 9 island Barangays

\*\*\*2018: rabies-free areas

\*\*\*By 2019 based on agreements the baseline  
will be Rabies-free province

# Rabies prevention

- 2 main strategies:
  - Dog Vaccination to interrupt virus transmission to humans
  - Human Vaccination
    - Pre-exposure prophylaxis (PrEP) – before exposure, to high risk individuals
    - Post-exposure prophylaxis (PEP) – for exposed individuals
- Others
  - Education, Legislation, Dog population control

# Management Guidelines

- **DOH Administrative Order on animal bite management**
  1. AO no. 27 S1996, dated July 26, 1996
  2. AO no. 15A S1997, dated Aug. 15, 1997
  3. AO no. 164 S2002 dated Oct 16, 2002
  4. AO no. 0022 S2005, dated Aug 25, 2005
  5. AO no. 0029 S2007 dated Sept 2007
  6. AO no. 0027 S2009 dated June 8, 2009
  7. Joint DA-DOH AO 0002 S 2011 dated Feb 2, 2011
  8. AO no. 0012 S2014 dated March 17, 2014
  9. **AO no. 0013 S2018 dated Apr 16, 2018**

# Rationale

no. 0013 S2018 dated Apr 16, 2018

- Increase demand on human rabies vaccine
- Global shortage of vaccine due to production issue of one WHO pre-qualified vaccine
- Update the guidelines on PreP and PEP – based on WHO recommendation on shorter and more feasible regimens
- Provide guidance on the selection and use of human rabies vaccine



# Post-exposure Prophylaxis

- **Components:**
  - Wound washing and care
  - Vaccination = Active immunization
  - Administration of RIG = Passive immunization

# Wound Care



As much as 40% of rabies infection rate can be reduced by energetic wound cleaning

*Kaplan MM, Cohen D, Koprowski H, et al Studies on the local treatment of wounds for the prevention of rabies. Bull WHO 1962;26:765-75*

An iodine-containing or similarly viricidal topical preparation should be applied to the wound



Wounds that require suturing should be sutured loosely and only after RIG infiltration

# Category 1

Description	Treatment
Touching or feeding animals, licks on intact skin, exposure to rabid patient (sharing of eating/ drinking utensils, casual contact)	Wound Care



# Category 2

Description	Treatment
Nibbling of uncovered skin, minor scratches or abrasions without bleeding including those induced to bleed All Category II exposures on the head and neck	Wound care Rabies vaccine Observe biting animal



# Category 3

Description	Treatment
Single or multiple transdermal bites or scratches; contamination of mucous membrane with saliva from licks; licks on broken skin; exposure to bat bites or scratches	Wound care Rabies Vaccine RIG Observe biting animal



# Passive Immunization

## *RIG Recommendation*

- should be given as a single dose for all Category III exposures, in combination with anti-rabies vaccine
- Administer as soon as possible and not beyond 7 days after the first vaccine dose
- ***Skin test to eRIG is NOT NECESSARY***
- Maximum dose (there is no minimum dose)
  - hRIG – 20 iu/kg
  - eRIG- 40 iu/kg
- should be infiltrated around and into the wound as much as anatomically feasible, even if the lesion has begun to heal
- **Remaining dose does NOT need to be administered IM** at a distant site but can be fractionated in smaller syringes to be used for other patients aseptically

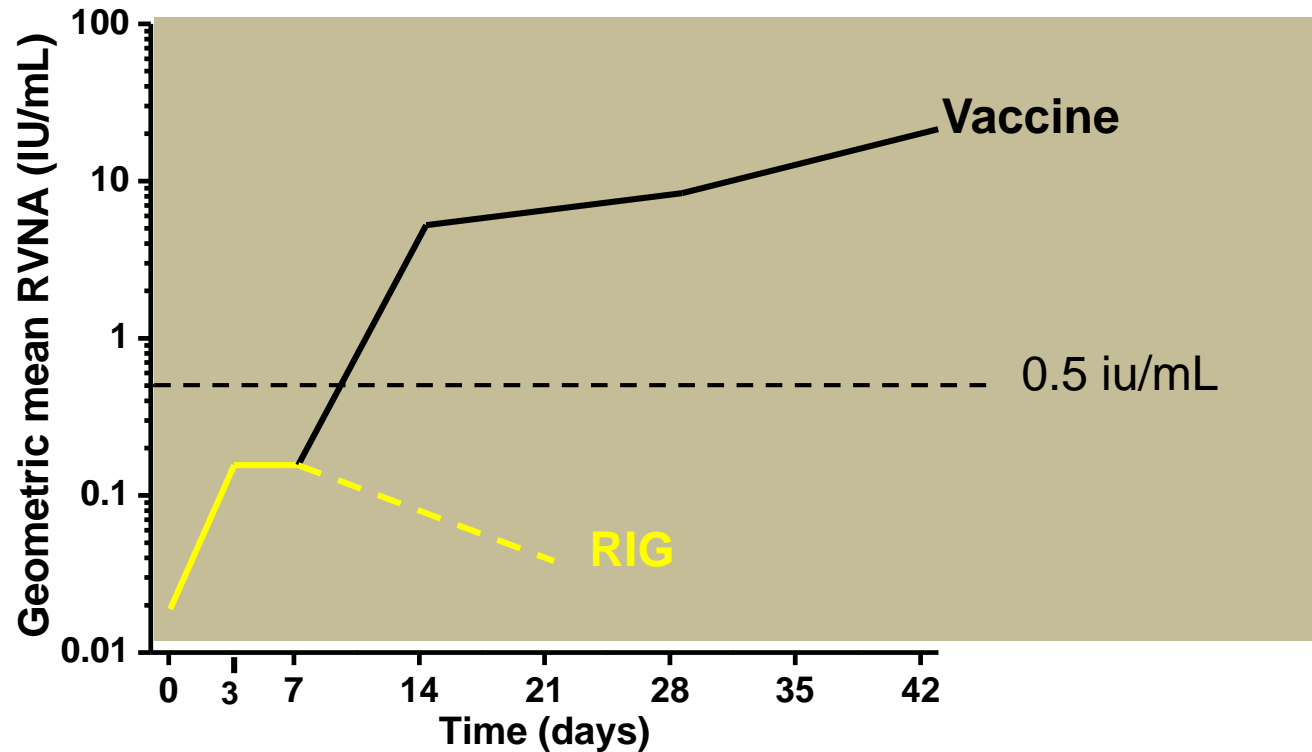
# Passive Immunization

## *RIG Allocation*

- Multiple bites
- Deep wounds
- Bites in highly innervated parts of the body such as head, neck, hands and genitals
- Patients with severe immunodeficiency
- Hx of biting animal indicative of confirmed or probable rabies
- Bite or scratch or exposure of mucous membrane by a bat that can be ascertained for rabies testing

# 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 1<sup>st</sup> dose





# Management of the Biting Animal

- Observe biting animal for 14 days
- During 14 days observation period:
  - Provide adequate care/food/drink during observation period
  - Consult veterinarian if animal becomes sick
  - If the animal dies or sickens, sacrifice the animal and submit the head for testing

# Types of Rabies Vaccines

Generic Name	Preparation	Dosage
Purified Vero cell Rabies Vaccine (PVRV)	0.5 ml/vial	ID – 0.1 ml IM – 0.5 ml
Purified Chick Embryo Cell Vaccine (PCECV)	1.0 ml/vial	ID – 0.1 ml IM – 1.0 ml















# WHO Pre-Qualified Rabies Vaccines

Generic Name	WHO PQ	Non WHO PQ
Purified Vero cell Rabies Vaccine (PVRV)	Sanofi	<ul style="list-style-type: none"> <li>- Liaoning Chengda Co, LTD (Speeda)</li> <li>- Changchun Changsheng Life Sciences Ltd – Rabiesvax -</li> <li>- Indian Immunologicals</li> </ul>
Purified Chick Embryo Cell Vaccine (PCECV)	GSK	

# Non WHO-prequalified vaccines

- Recommended only during shortage of WHO-PQ vaccines
- Conditions
  - Vaccine is registered with and approved by FDA
  - Vaccine proven safe and efficacious for PEP when administered by ID route using WHO recommended schedule (published clinical trials on safety and immunogenicity)
  - Potency of 0.5 iu/ID dose (shown in lot release certificate)
  - Product insert contains approved ID dose in CPR

# PEP Regimens - Intramuscular

IM	Day 0	Day 3	Day 7	Day 14	Day 21	Day 28
5 dose IM						
4 dose IM						
2-1-1 IM						

For WHO PQ and non WHO PQ vaccines

# PEP Regimens - Intradermal

ID	Day 0	Day 3	Day 7	Day 28
TRC				
IPC*				

ID dose = 0.1 ml for all vaccines

\*IPC regimen - \*IPC – Institute Pasteur Cambodge  
for **WHO PQ** vaccines only

# Vaccination Regimens

Regimen	# vaccine vials	# Clinic Visits	# Days Completed
<b>OLD</b>			
5 dose IM	5	5	28
2 dose ID	1-2	4	28
<b>NEW</b>			
4 dose IM	4	4	14
2-1-1 IM	4	3	21
IPC ID*	1-1.5	3	7

\*IPC regimen - for **WHO PQ** vaccines only

# Guidelines

- Changes in the vaccine product and/or route of administration, if unavoidable during the same PEP course, are acceptable to ensure PEP course completion
- Should a vaccine dose be delayed for any reason, the PEP regimen should be resumed, (not restarted)
- Individuals with immunodeficiency should be evaluated in a case-by-case basis and receive a complete course with RIG



# Previously Immunized Animal Bite Patients

Risk of Exposure	Criteria – ANY ONE OF THE FOLLOWING:	Recommendation
<b>High Risk</b>	<ol style="list-style-type: none"> <li>1. Biting animal cannot be observed, dies or is sick</li> <li>2. Site of bite is in highly innervated parts of the body – neck, head, genital area, hands and toes</li> <li>3. Multiple deep bites</li> <li>4. Patient is coming from GIDA* areas, i.e. infrequent transportation to and from ABTC/ABC</li> </ol>	<p>Immediately provide the booster injections to the patient</p> <p><b><u>Booster doses:</u></b>  <span style="color: red;">0.1 ml ID at 4 sites on day 0</span>  <b>OR</b>            0.1 ml ID/IM at 1 site on days 0 and 3</p>

GIDA – geographically isolated and disadvantaged area

# Previously Immunized Animal Bite Patients

Risk of Exposure	Criteria	Recommendation
<b>Low Risk</b>	<p>- Last dose of vaccine was within the previous 3 months <b>AND</b> - Biting animal is healthy, owned, kept on a leash or can be confined and is available for observation</p> <p><b><u>AND ANY ONE OF THE FF:</u></b></p> <ol style="list-style-type: none"><li>1. Biting animal is the same animal that bit the patient previously <b>OR</b></li><li>2. Biting animal is previously immunized <b>OR</b></li><li>3. Bite is on the extremities</li></ol>	<p><b>Observe</b> biting animal for 14 days. If animal remains healthy, withhold booster dose</p>

# Previously Immunized Animal Bite Patients

## LOCAL WOUND TREATMENT











PEP/PrEP History	Give RIG	Management
Patients received complete PrEP or at least day 0 and 3 doses of PEP <b>AND</b> <b>Immunocompromised</b> <b>OR</b> bitten by bat	Yes if indicated	Give full course PEP

# Previously Immunized Animal Bite Patients










## LOCAL WOUND TREATMENT

PEP/PrEP History	Give RIG	Management
Patient did not complete PrEP <b>OR</b> Patient received only 1 ID/IM dose of PEP	Yes, if indicated	Give full course PEP

# PrEP Regimens

ImmunoCOMPETENT	Day 0	Day 7	Day 21/28
<b>OLD</b>			
Intramuscular - 1 site			
Intradermal - 1 site			
<b>NEW</b>			
Intramuscular - 1 site			
Intradermal - <b>2 sites</b>			

# PrEP Regimens

Immuno <b>COMPROMISED</b>	Day 0	Day 7	Day 21/28
OLD			
Intramuscular - 1 site			
NEW			
Intramuscular - 1 site			
Intradermal - <b>2 sites</b>			

ID dose = 0.1 ml

# Counterfeit anti-rabies vaccine used in hospital made in PH -

## FDA

The Medical City in Pasig City earlier **admitted** that it had injected fake anti-rabies vaccine to some of its patients last year, but that it has since coordinated with the FDA and the Department of Health (DOH) to have the batch tested.

ABS-CBN News

Posted at Jan 31 2019 01:01

The FDA has since confirmed that the Verorab vaccine, with batch number H1833, was indeed counterfeit, said Michelle Lapuz, director of the a

The Food and Drug Administration has ordered the temporary closure of Geramil Trading, the company allegedly responsible for selling of counterfeit anti-rabies vaccine. [File](#)

ABS-CBN NEWS

HOME NEWS BUSINESS ENTERTAINMENT LIFE SPORTS OVERSEAS SPOTLIGHT WEATHER TV P



Home > News

Share



## FDA orders preventive closure of firm linked to counterfeit anti-rabies vaccine

ABS-CBN News

Posted at Feb 03 2019 01:17 AM

MANILA—The Food and Drug Administration (FDA) has ordered the temporary closure of Geramil Trading, the company allegedly responsible for selling counterfeit anti-rabies vaccine.

This was confirmed by Health undersecretary Eric Domingo to ABS-CBN News on Saturday.

"The FDA served a preventive closure order while the case against the company is being heard," Domingo said.



Republic of the Philippines  
Department of Health  
**FOOD AND DRUG ADMINISTRATION**



**FDA ADVISORY**  
No. 2018-138

11 APR 2018

**TO:** ALL HEALTHCARE PROFESSIONALS AND THE GENERAL PUBLIC

**SUBJECT:** Public Health Warning Against the Purchase and Use of the Verified Counterfeit Drug Product Purified Chick Embryo Cell Rabies Vaccine (Inactivated) (Rabipur) 2.5 I.U./mL Lyophilized Powder For Injection (ID/IM)



Republic of the Philippines  
Department of Health  
**FOOD AND DRUG ADMINISTRATION**



**FDA ADVISORY**  
No. 2018-334

27 DEC 2018

**TO:** ALL HEALTHCARE PROFESSIONALS, LOCAL HEALTH CENTERS, HEALTH INSTITUTIONS AND THE GENERAL PUBLIC

**SUBJECT:** Public Health Warning Against the Purchase and Use of the Verified Counterfeit Drug Product Verorab Rabies Vaccine



# Management

*For patients who are suspected or confirmed to have been given a counterfeit human rabies vaccine*

Animal is  
healthy

- No need to give further doses
- If re-exposed , give full course of the vaccine +/- RIG

Potentially  
rabid , can't  
be observed

- Bitten within the past 6 months: Give a full course of vaccine or do Ab test if + - give PreP, if – give full course
- > 6 months : Give 2 extra doses of vaccine, day 0 and 7 so that they have Pre-exposure Prophylaxis (PreP) and will need only boosters if bitten again

# Counterfeit



# Registered Product



For more information, inquiries and reporting:  
[info@fda.gov.ph](mailto:info@fda.gov.ph)  
[report@fda.gov.ph](mailto:report@fda.gov.ph)

eReport, [www.fda.gov.ph](http://www.fda.gov.ph)  
Center for Drug Regulation and  
Research at telephone number  
(02)809-5596.



**World Health  
Organization**

20, AVENUE APPIA – CH-1211 GENEVA 27 – SWITZERLAND – TEL CENTRAL +41 22 791 2111 – FAX CENTRAL +41 22 791 3111 – WWW.WHO.INT

Ref. EMP/SAV/Alert\_n1.2019

30 January 2019

**Medical Product Alert N°1/2019**  
**Falsified Rabies Vaccines circulating in the Philippines**

- ***Increased vigilance should include hospitals, clinics, health centres, wholesalers, distributors, pharmacies and any other suppliers of vaccines.***
- ***All medical products must be obtained from authentic and reliable sources***
  - ***authenticity and condition should be carefully checked***
  - ***Seek advice from a healthcare professional in case of doubt.***



Always take sides. Neutrality helps the oppressor, never the victim. Silence encourages the tormentor never the tormented.

**Elie Wiesel**

Romanian-born American Jewish writer, professor, political activist,  
Nobel Laureate and Holocaust survivor.



treatment human USA 28 september Europe aerophobia incurable  
care virology **virus** cats paralysis viral **infection** science  
outbreak **RABIES** spit jackals incubation period immunology  
**foxes** zoonosis **medical** graftage fever  
hazard **disease** bite diagnosis **animal**  
rabies serum prevention **dogs**  
cell vaccination attack **pet** **cure**  
graft **Rabies virus**  
sickness jab illness injection angry calves Babes-Negri village pica  
wild animals biohazard zoonotic **danger** Rhabdoviridae town  
city Canada **organism** **dog** India **hydrophobia** sick inoculation  
*emergency* badgers rabies virus **dog** skunks **infected** epidemic grafting  
**Louis Pasteur** biology aggression isolate **epidemic** Asia prevention *blood*  
rabies Australia **vaccine** drooling world **infected** disease healthcare  
**pets** WHO **deadly** exciter **illustration** encephalitis **warning** **bats**  
rodents World Health Organization

# Thank You!



# Top Provinces with Most Number of Human Rabies

2016		
Rank	Province	Human Rabies
1	Pangasinan	18
2	Bulacan	13
3	Camarines Sur	12
4	Bukidnon	9
5	Leyte	8
	South Cotabato	8
	Nueva Ecija	8
6	Zamboanga del Sur	6
7	Davao Del Sur	5
	Abra	5
	Batangas	5
8	Surigao Del Sur	4
	Tarlac	4
	Misamis Occidental	4
	Camarines Norte	4
	Olongapo	4
	Bataan	4

2017		
Rank	Province	Human Rabies
1	South Cotabato	18
2	Cebu	13
3	Nueva Ecija	11
4	Zambales	10
	Camarines Sur	10
5	North Cotabato	9
6	Pangasinan	8
	Negros Occidental	8
7	Bukidnon	7
8	Batangas	6
9	Negros Oriental	5
	Sarangani	5
	Quezon	5
	Cavite	5
	Leyte	5
	Olongapo	5
	Bataan	5

Slide courtesy of Dr. Ronald Quintana, NRPCP

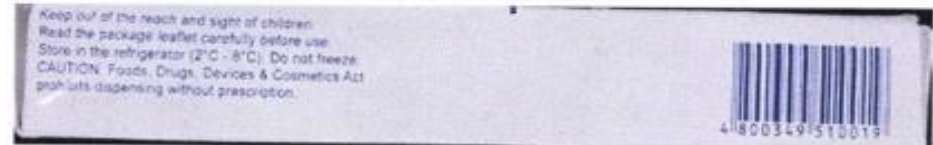
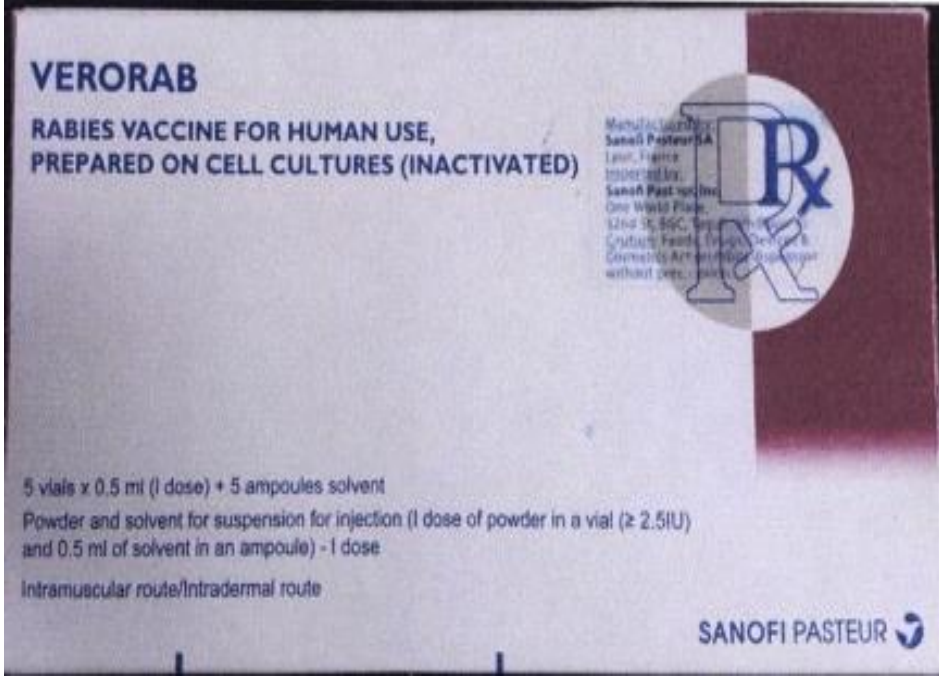
# Intradermal Regimen

- Multisite vaccination technique - elicits a prompt and highly protective immune response with a small dose
- Immune response induced by ID rabies vaccination is the same as with the IM regimens
  - Rabies antigen is inoculated into the dermis of the skin which helps trigger a high immune response
  - Ag presenting cells in the skin are more effective than the ones in muscle



# Counterfeit

# Registered Product

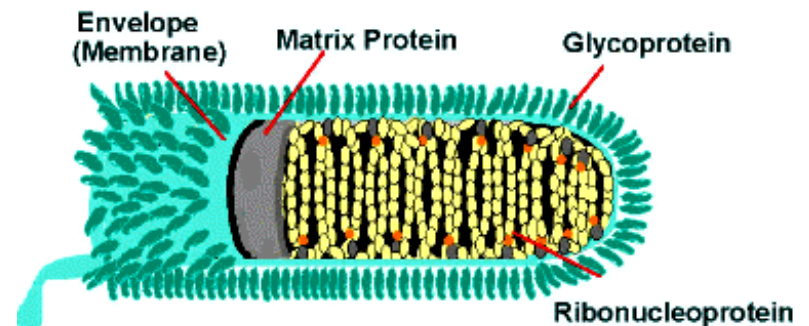


# Pre-exposure prophylaxis

- Given prior to exposure
- Benefits
  - The need for RIG is eliminated
  - PEP vaccine regimen is reduced from five to two doses
  - Protection against rabies is possible if PEP is delayed
  - Protection against inadvertent exposure to rabies is possible
  - The cost of PEP is reduced

# Rabies Virus

- Bullet-shaped single-stranded RNA-virus belonging to the genus Lyssavirus, family Rhabdoviridae
- Sensitive to heating/ boiling, drying, UV and x-ray, sunlight, ether, detergents. Rabies virus becomes noninfectious when it dries out and when it is exposed to sunlight
- Cannot cross intact skin



# Dog Vaccination

Region	2014	2015	2016
I	29.50%	35.28%	34.14%
II	28.19%	63.69%	53.44%
III	44.20%	60.98%	54.48%
IV-A	31.72%	38.49%	39.01%
IV-B	-	39.70%	31.51%
V	53.15%	71.29%	63.91%
VI	71.95%	44.40%	53.42%
VII	73.00%	74.74%	73.88%
VIII	40.75%	39.84%	44.91%
IX	75.11%	31.19%	27.65%
X	-	38.44%	44.77%
XI	31.92%	34.52%	48.81%
XII	31.15%	34.45%	47.35%
CARAGA	30.04%	46.15%	49.82%
CAR	64.95%	67.37%	57.76%
NCR	-	28.51%	33.58%
NIR	still with Reg6	71.45%	78.17%
ARMM	36.03%	21.16%	53.40%
<b>Total</b>	<b>33.48%</b>	<b>45.50%</b>	<b>47.43%</b>

# Rabies in the Philippines

## VECTORS

- Majority due to exposure to dogs
- **No bats** found to have active infection although 9.5% of bat sera were positive for neutralizing Ab against ABLV (Australian Bats Lyssavirus), which causes indistinguishable clinical syndromes in infected mammals