

RABIES IN MYANAMR,
PREVALENT, PREVENTABLE,
BUT NOT PRORITIZED

TINT TINT KYI

20-1-2018



OUTLINE OF PRESENTATION



- ❑ **Epidemiology of rabies in Myanmar:**
- ❑ **Activites in Myanmar: what are we doing?**
- ❑ **Immunoglobulin and Vaccine for Dog bite**

Human – vaccine, Immunoglobulin

Animal– population control

canine vaccination

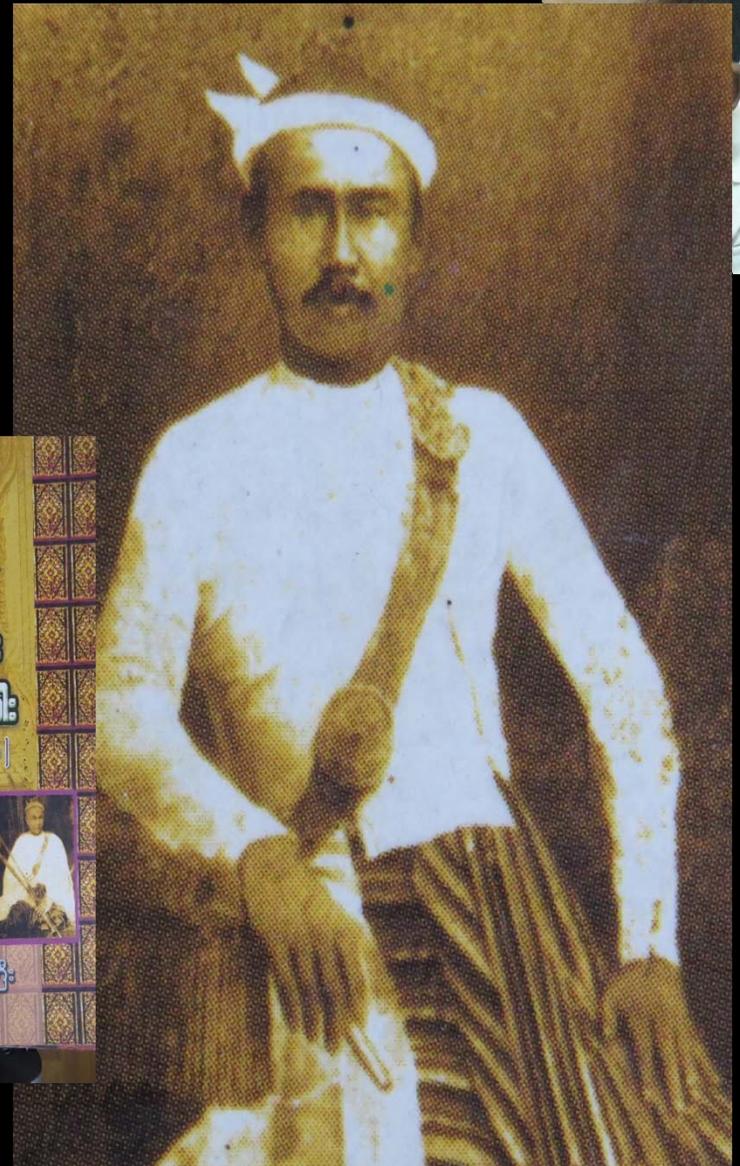
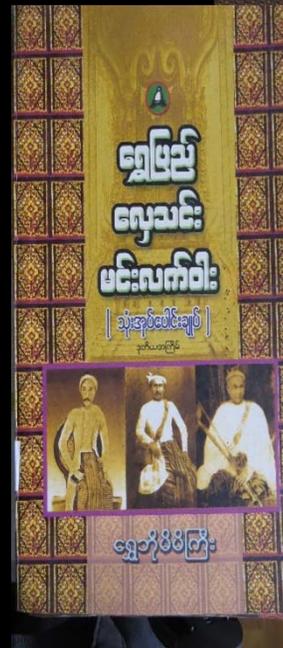
- ❑ **Disease Prevention**

RABIES IN MYANMAR'S HISTORY

လှေသင်းအတွင်းဝန်
ဦးရွှေမောင်

ADMIRAL SHWE MG
BORN : 29-9-1843,
1-10-1910 DIED OF
RABIES

(First Rabies Vaccine used on a human on July 6, 1885 in French , Louis Pasteur and Emile Roux)



25 years after 1st vaccination in the world , but he did not aware about vaccination, died



RABIES ENCEPHALITIS IN MYANMAR , 2014, YANGON



Diseases Under National

Surveillance(DUNS)



1. Diarrhea
2. Dysentery
3. Food Poisoning
4. Typhoid & Paratyphoid
5. Measles
6. Neonatal tetanus
7. Other tetanus
8. Whooping Cough
9. Diphtheria
10. Malaria
11. ARI(Pneumonia)
12. Viral hepatitis
13. Meningitis
14. Snake bite
15. Anthrax
16. Rabies
17. TB

TABLE 1
Deaths from rabies and malaria (per 100,000 population) in Myanmar 2006–2015

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Rabies deaths	0.50	0.47	0.45	0.37	0.43	0.51	0.39	0.40	0.28	0.20
Malaria deaths	3.86	2.27	2.37	2.24	1.73	1.17	0.73	0.50	0.25	0.12

Data from the Health Management Information System, Department of Public Health, Union of the Republic of Myanmar.

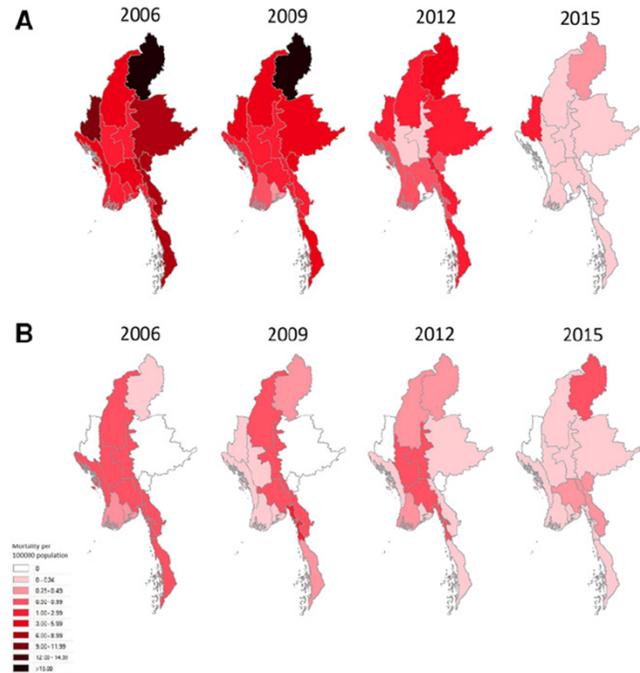


FIGURE 1. Deaths from malaria (panel A) compared with deaths from rabies (panel B) in Myanmar 2006–2015 (Data from the Health Management Information System, Department of Public Health, Union of the Republic of Myanmar). This figure appears in color at www.ajtmh.org.

rabies now kills more
people than
Malaria in Myanmar

RABIES DEATH IN MM



	Kachin	Kayah	Kayin	Chin	Sagaing	Tanintharyi	Bago	Magway	Mandalay	Mon	Rakhine	Yangon	Shan	Ayeyarwaddy	Naypyitaw	Union
2006	0.07	0.00	0.62	0.00	0.52	0.71	0.50	0.81	0.66	0.66	0.77	0.43	0.00	0.38		0.50
2007	0.29	0.75	0.45	0.00	0.76	0.44	0.72	0.49	0.82	0.69	0.06	0.30	0.08	0.31		0.47
2008	0.29	0.00	0.68	0.00	0.93	0.38	0.64	0.44	0.71	1.07	0.09	0.17	0.07	0.21		0.45
2009	0.36	0.00	0.50	0.20	0.60	0.25	0.53	0.22	0.83	1.01	0.12	0.17	0.00	0.14		0.37
2010	0.92	0.00	0.35	0.00	0.85	0.21	0.78	0.62	0.61	0.57	0.22	0.08	0.13	0.13		0.43
2011	0.35	0.36	0.14	0.00	0.82	0.29	0.97	0.66	0.76	0.38	0.12	0.34	0.18	0.46		0.51
2012	0.35	0.00	0.21	0.00	0.41	0.16	0.92	0.81	0.56	0.51	0.23	0.08	0.02	0.26	0.62	0.39
2013	0.21	0.37	0.44	1.44	0.45	0.00	0.70	0.98	0.66	0.18	0.28	0.11	0.06	0.21	0.51	0.40
2014	0.48	0.71	0.34	0.20	0.21	0.22	0.45	0.22	0.38	0.36	0.00	0.14	0.29	0.32	0.59	0.28
2015	0.88	0.35	0.33	0.00	0.15	0.07	0.42	0.24	0.24	0.04	0.09	0.05	0.14	0.14	0.48	0.20

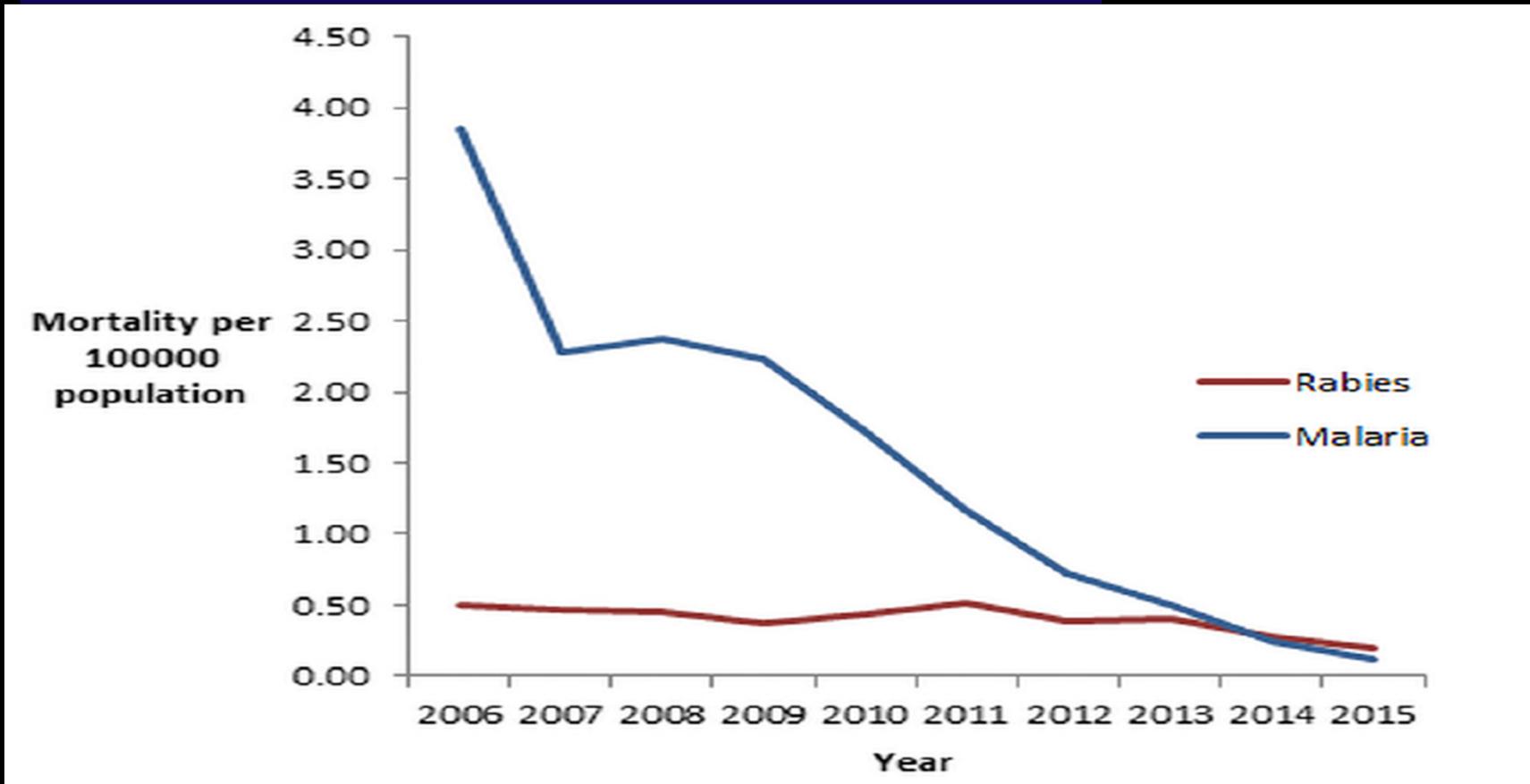
Unit: Per 100,000 Population

Source: Health Management Information System (HMIS), Myanmar

Operational Definition of Rabies: Rabies (excluding rabid dog bites) is characterized by a sense of apprehension, headache, fever, malaise and aero- and/or hydrophobia, delirium with occasional convulsions.

Remark: Calculation based on reported cases and may be underreporting

DEATHS FROM RABIES AND MALARIA (PER 100,000 POPULATION) IN MYANMAR 2006–2015



(Data from the Health Management Information System, Department of Public Health, Union of the Republic of Myanmar).

DATA?



- ❑ Likely to be under estimate of the country's true rabies burden
- ❑ To diagnose the rabies, only the Largest city, Yangon has a laboratory that is equipped to diagnose rabies and autopsies performed very rarely
- ❑ Most cases are diagnosed clinically

WHY UNDERESTIMATE



- (1) The disease disproportionately affects disadvantaged, rural populations precisely the locations with the poorest diagnostic and reporting systems**
- (2) These HMIS figure only include the patient presenting for medical care, significant proportion of rabies victims in Myanmar dies at home rather than hospital**
- (3) It is not a notifiable disease in Myanmar**

(HMIS= Health Management Information System)

WHY UNDERESTIMATE



- ❑ **Furious rabies can be diagnosed clinically ie fluctuating consciousness, hydrophobia or inspiratory spasms and signs of autonomic dysfunction**
- ❑ **20 percent of rabies would be ascending paralytic(dumb) rabies which may be easily misdiagnosed as Guillain-Barre Syndrome, a condition that is extremely common in Myanmar**
- ❑ **Mostly patient died at home**

CHANGING EPIDEMIOLOGY OF 2 DISEASES



National malaria control Programme is very successful

it is achieved in resource limited setting with Sustained political, financial and scientific commitment

Dramatic reduction in estimated malaria deaths in the country in recent years

WHAT ARE WE DOING FOR RABIES
PREVENTION ?





National Workshop for Development of Guidelines on Clinical Management of Human Rabies

Nay Pyi Taw

30.6.2014 to 2.7.2014



2014 June, Guideline Meeting

SUCCESS



- ❑ How to manage dog bites in the community level
- ❑ Inadequate access to primary health services
- ❑ Lack of education and awareness about the use of postexposure prophylaxis
- ❑ Phase out the inferior nerve tissue vaccine in 2013
- ❑ Adopt intradermal rabies vaccination

Republic of the Union of Myanmar



Ministry of Health
Department of Public Health

STANDARD OPERATING PROCEDURES
FOR

H U M A N
R A B I E S
P R O P H Y L A X I S

2015

The Republic of the Union of Myanmar



Ministry of Health
Department of Public Health

NATIONAL GUIDELINES FOR

H U M A N
R A B I E S
P R O P H Y L A X I S

2015



PATIENT RECORD BOOK



ကျန်းမာရေးဝန်ကြီးဌာန

စာအုပ်အမှတ် -

ခွေးရူးပြန်ရောဂါကာကွယ်ကုသခြင်း
လူနာမှတ်တမ်းစာအုပ်

ဆေးရုံ/ ဌာနအမည်

မြို့နယ်

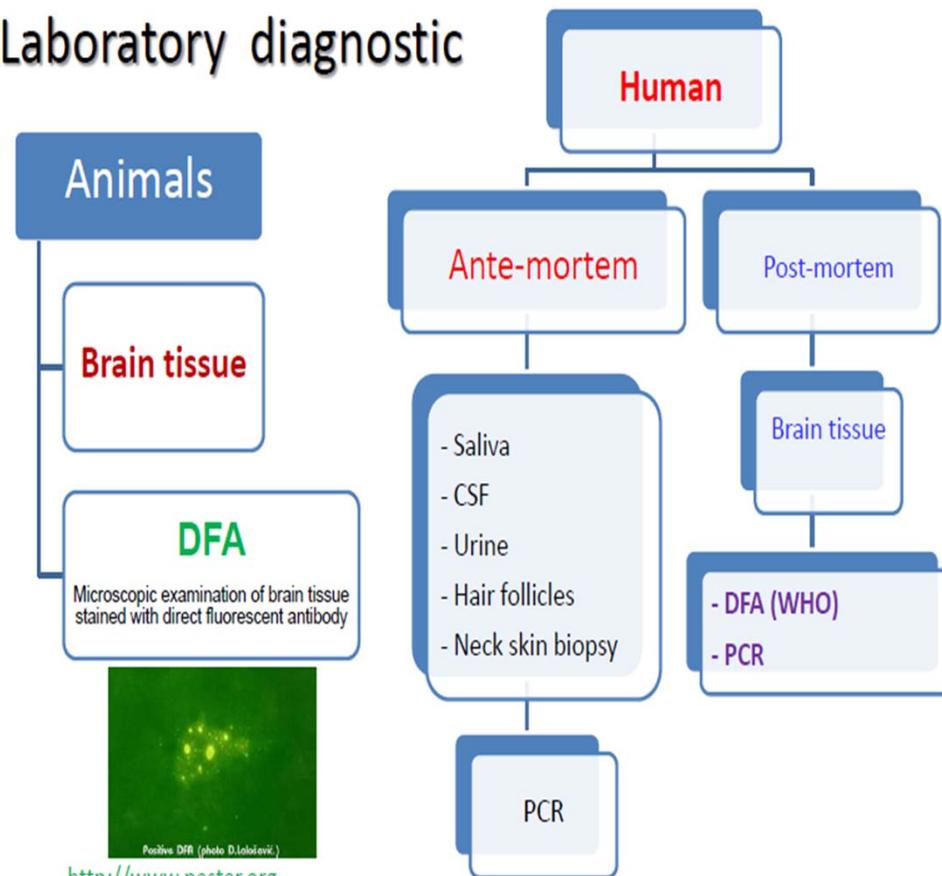
တိုင်းဒေသကြီး/ ပြည်နယ်

LABORATORY DIAGNOSTIC

WHO Collaborating Centre for Research and Training on Viral Zoonoses



Laboratory diagnostic



THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF HEALTH
DEPARTMENT OF HEALTH
NATIONAL HEALTH LABORATORY
35, HMAW KUN DAIK STREET, YANGON

Rabies Section

LABORATORY REPORT FORM

Laboratory No: 013/16

Date of Report: 15. 9 .16

Patient's name: -U Thein Tan

Age: 43yr, Sex: M

Hospital / Ward: bed (1000)

Naypyitaw Hospital

Referred by: Prof: Daw Tin Tin Kyi

Reg. No: MU 1,27130

Type of Specimen: Brain

Test Required: Rabies PCR

Date & Time of Receipt: 14. 9 .16

Real-Time Rabies PCR System results : **Rabies RNA Detected**



THE REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF HEALTH AND SPORTS
DEPARTMENT OF HEALTH SERVICES
NATIONAL HEALTH LABORATORY
35, HMAW KUN DAIK STREET, YANGON
Rabies Section
LABORATORY REPORT FORM

Laboratory No: 003/16

Date of Report: 15. 3.17

Patient's name: -Ko Htay Aung

Age: 22yrs, Sex: M

Hospital / Ward: Naypyitaw bed 1000 hospital

Referred by:

Reg. No: - 6028

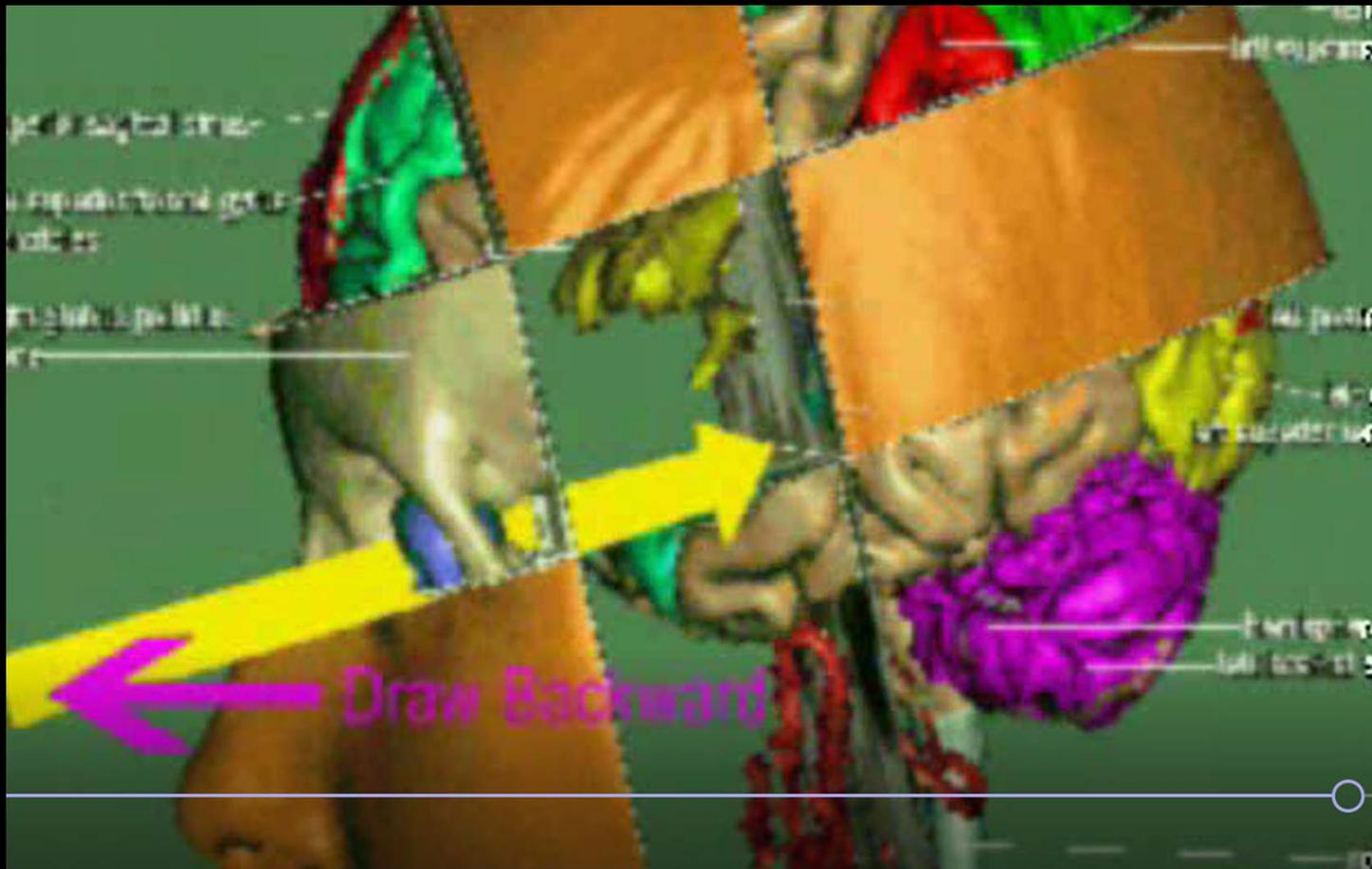
Type of Specimen: Brain

Test Required: Rabies PCR

Date & Time of Receipt: 13. 3 .17

Real-Time Rabies PCR System's Result: **Rabies RNA DETECTED**

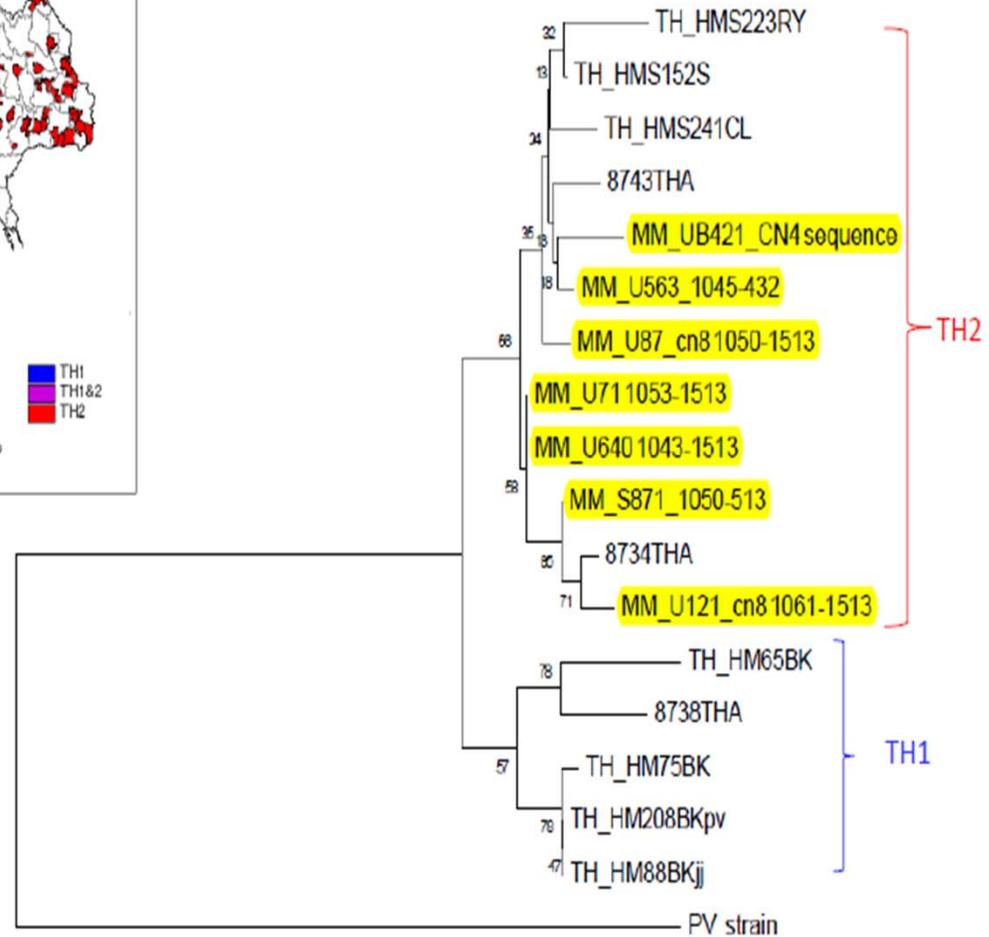
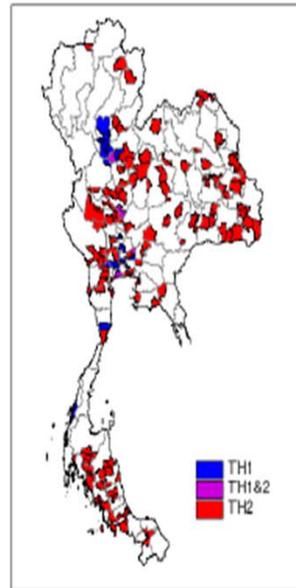
BEDSIDE TAKING BRAIN TISSUE



Lab screening should be involved in all suspected encephalitis surveillance and GB syndrome (paralytic rabies)

TH1 AND TH2 VIRUS TYPE

Thailand's evidence



RABIES VACCINE COST AND DISTRIBUTION SYSTEM



THE SAFER AND MORE EFFECTIVE CELL-
CULTURE VACCINES IS WELCOME, BUT
THESE VACCINES ARE EXPENSIVE

RABIES VACCINE PROCUREMENT BY MOHS (BY FISCAL YEAR)



**CMSD
(DoH)**

2012-2013 (140,000 Doses)
2013-2014 (300,000 Doses)
2014-2015 (250,000 Doses)

**P&S
(DoPH)**

- 2015-16(400,000)(3,918,000,000 MMK)
- 2016-17(400,000vials)(4,009,000,000MMK)
- 2017-18(450,000 vials)(3,667,500,000 Kyats)

RIG by CMSD

2013-2014 --- 1000 Vials

2014-2015 --- 70,000 Vials

2016-17----- 50,000 Vials---(825,000,000MMK)

(Source : DoPH, MoHS)

CURRENT RABIES VACCINE DISTRIBUTION MECHANISM

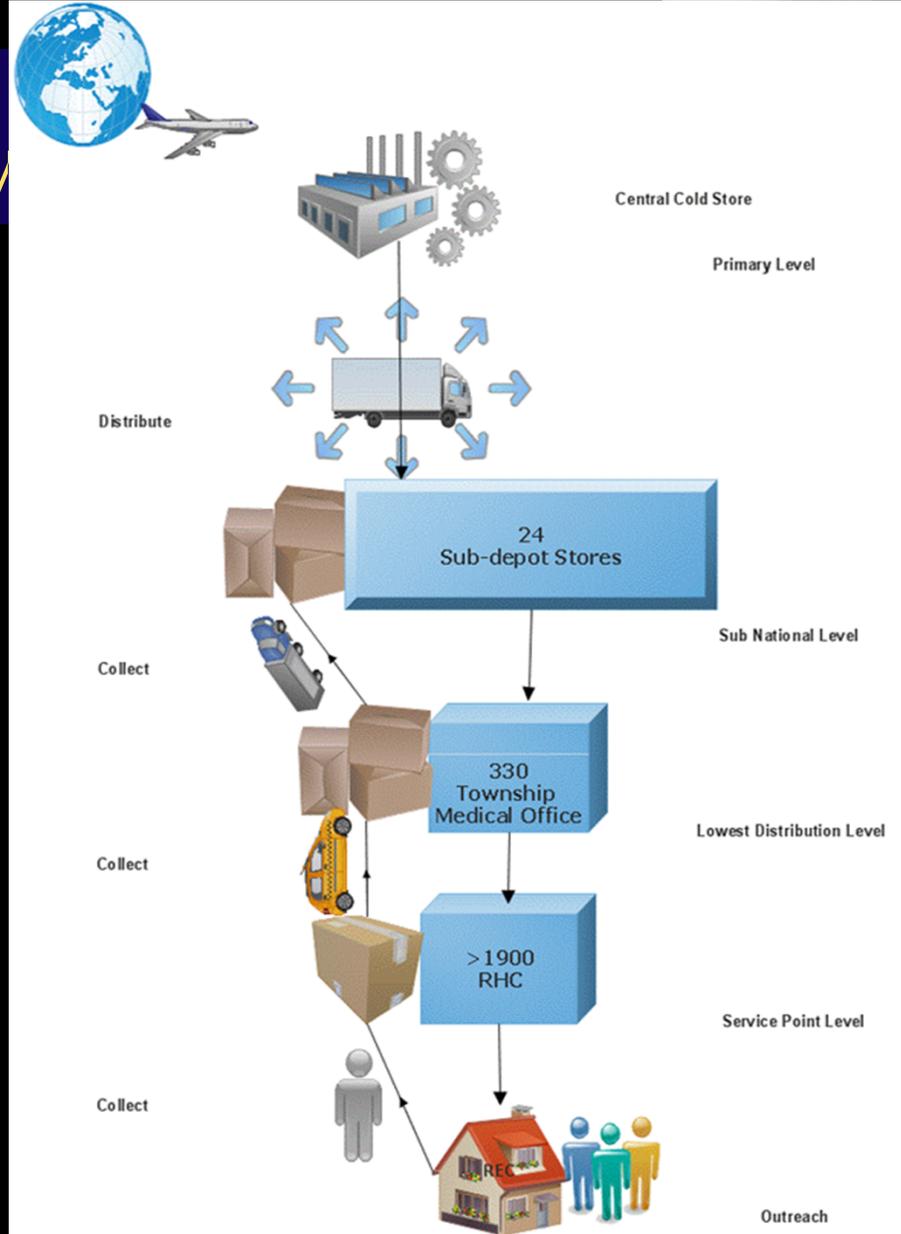
Central Cold Room

Regional Sub Depots

Township Cold Room

Station Hospital/RHC

Sub RHC



LOCAL TREATMENT OF WOUND



Since the rabies virus enters the human body through a bite or scratch, it is vital to remove as much saliva, as is possible.

Prompt local treatment of all bite wounds and scratches that might be contaminated with rabies virus is a very important step of PEP.

Administer RIG along with vaccine in all category II bites and category III bites in case of immune-compromised/commune-suppressed patients (persons on steroids, chloroquine and chemotherapy of malignant diseases, and HIV/AIDS patients.)

Table 1: WHO guidelines for risk assessment of rabies exposure

Category	Severity and Site of the Wound	Action
Category I: No Risk	<ul style="list-style-type: none"> • Touching or feeding of animals • Lick on intact skin 	<ul style="list-style-type: none"> • Reassurance only • No vaccine needed
Category II: Moderate Risk	<ul style="list-style-type: none"> • Nibbling of uncovered skin • Minor scratches or abrasion without bleeding 	<ul style="list-style-type: none"> • Wound management • Start Vaccination Day 0*
Category III: High Risk	<ul style="list-style-type: none"> • Single or multiple wounds on head and neck • Single or multiple transdermal bites/ scratches/ laceration with bleeding • Scratches with bleeding • Licks on broken skin • Contamination of mucous membrane of eyes, mouth, nose or wounds with saliva or discharges from rabid animals 	<ul style="list-style-type: none"> • Wound management • Infiltrate RIG into wound • Start Vaccination at same time: Day 0*

Day 0* denotes day of first vaccination, not necessarily day of bite.

Table 3: HRIG calculated as per body weight

Weight in Kg	IU	ml	# of vials of HRIG
15	300	2	1
30	600	4	2
45	900	6	3
60	1200	8	4 (maximum)

A 2 ml vial of HRIG contains 300 IU/ml. Dose is 20 IU/kg.
(maximum dose is 1200 IU or 4 vials)

Table 2: ERIG calculated as per body weight

Weight in Kg	IU	ml	# of vials of ERIG
25	1000	5	1
50	2000	10	2
75	3000	15	3
100	4000	20	4 (maximum)

A 5 ml vial of ERIG contains 1000 IU/ml. Dose is 40 IU/kg.
(Maximum dose is 4000 IU or 4 vials)



Figure 1: Administering RIG into the wound



ZAGRAB REGIMEN (INTRA MUSCULAR)



For health centre where 2-3 dog bitten persons a day

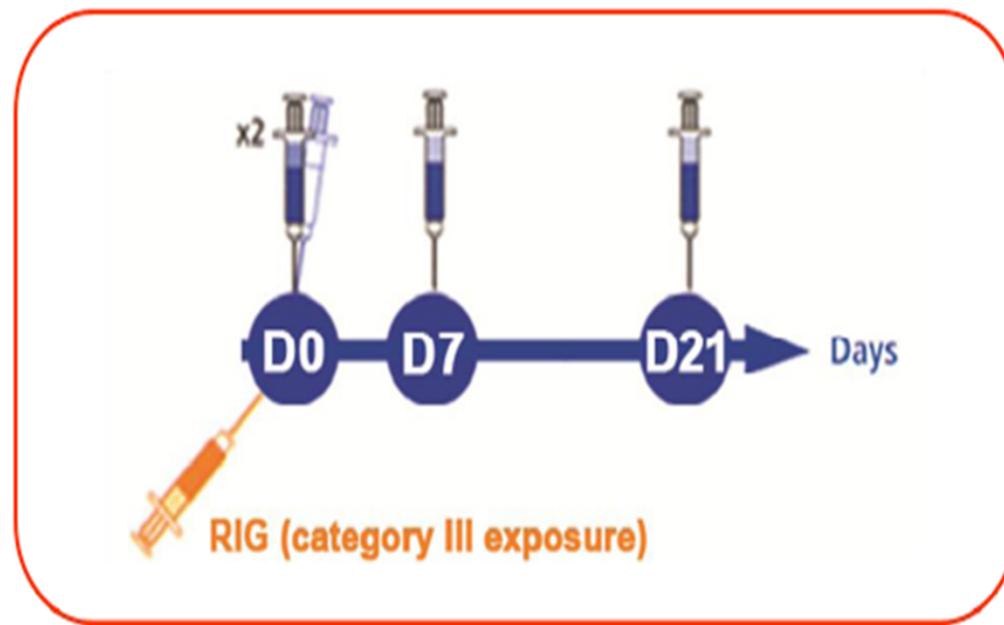


Figure 2: Zagreb Schedule

THAI REDCROSS REGIMEN (INTRADERMAL)



For health centre where ***there is more than 2-3*** dog bitten persons a day

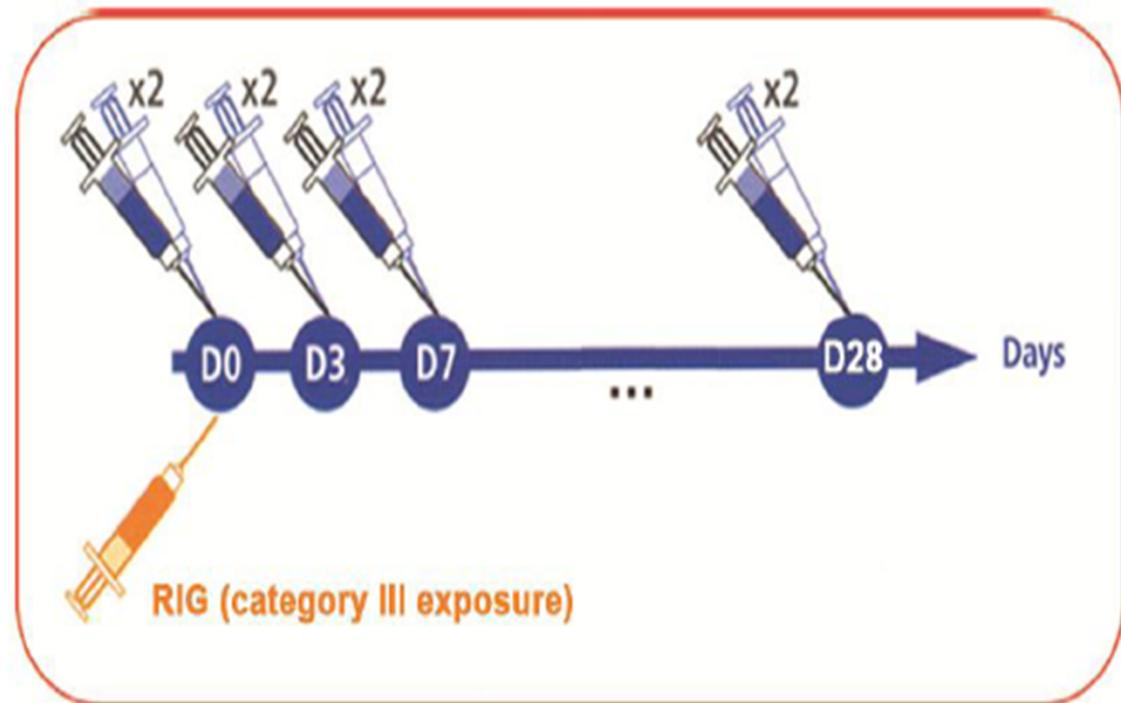


Figure 2: Thai Red Cross Schedule

Can give RIG within 7 days of after vaccine

PUBLIC AWARENESS TALK IN MYEIK, MAWLAMYAING, HPA AN, YANGON, MONYWA TOGETHER WITH MMA AND MVA 2014 TO 2016



Mawlamyine
15-11-2014

Myeik
12-10-2014



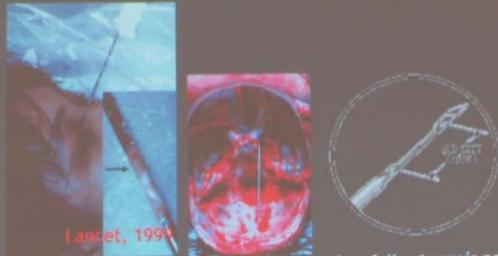
**12-10-
2014
MYEIK**



28-10-2016
MONYWA



3: Brain necropsy-post mortem



Trucut biopsy needle : for brain necropsy when full autopsy is not allowed

www.cueid.org





ACTIVITIES ON
ANIMAL HEALTH :
-POPULATION CONTROL
-RABIES VACCINATION

Rabies Vaccination Campaign supported by Chulalongkorn University



- Pilot Project
- More than 250 dosage of ARV used





ASIAN FAME MEDIA GROUP / AUNG NAING SOE



ASIAN FAME MEDIA GROUP / AUNG NAING SOE



ASIAN FAME MEDIA GROUP / AUNG NAING SOE



ASIAN FAME MEDIA GROUP / AUNG NAING SOE





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22 1 3

Bo Tun တစ်ကောင်ချစ်တတ်သူများ , People who love and kind to animals
11 hours ago

သံယောဇဉ်ကြီးမားလွန်းသူတွေပါ
ထူးထူးခြားခြားတွေ့ရလို့စပ်စုမိတော့မတင်ဘဲမနေနိုင်အောင်ဖြစ်သွားတယ်
ဒါလဲတဖက်ကမ်းကကူးလာပြီးဆိုက်ကားလာနင်းရင်းနဲ့သူ့ခွေးလေးကိုစိတ်မချလို့
နဲ့တိုင်းခေါ်လာပါတယ် သခင်ကခရီးသည်ရလို့လိုက်ပို့ရင်
သူကဘေးကနေပြေးလိုက်ပြီး
ခရီးသည်သွားမယ့်နေရာကိုမဟောနိုင်လို့ကပ်ရပါတယ်
ခရီးသည်ဆင်းသွားမှသူကဆိုက်ကားပေါ်တက်ပြီးဂိတ်ပြန်လာရပါတယ်
လမ်းမှာခရီးသည်ထပ်ရရင်အလိုက်တသိအောက်ဆင်းပြီးဘေးကခြေကျင်ပြန်လို
က်ပေါ့ တနေ့တနေ့အခေါက်တိုင်းလိုက်ပါရစမြဲပါ
နားမှအခုလိုအတူတူနေပြီးခရီးသည်စောင့်နေပုံလေးပါ
ကျွန်တော်ကသူ့လေးကိုဂုဏ်ပြုပြီးမှန်ဝယ်ကျွေးခဲ့ပါတယ်
ညနေအလယ်သိမ်းမှအတူတူဒါလဲဘက်ကိုသဘောနဲ့ကျွေးသွားပြီးတနေ့တာကုန်ဆုံး
ပေါ့တယ်



Write a comment



30-7-2014



Control dog population by Castration

DISEASE PREVENTION (ELIMINATION STRATEGY)



WHO strategy and One Health Approach

World Health Organization 2012

Strategic Framework for Elimination of Human Rabies Transmitted by Dogs in the South-East Asia Region



PERFORMANCE INDICATOR: *HUMAN HEALTH*



- 1. Proportion of peripheral health facilities with availability of rabies vaccines and RIG and trained human resources**
- 2. No. of pre-exposure vaccinations delivered per year**
- 3. No of people receiving post exposure vaccination after dog bites**
- 4. No of people receiving RIG after dog bites**

PERFORMANCE INDICATOR *ANIMAL HEALTH*



- No of dog samples received by rabies laboratory**
- Percentage of dog rabies cases confirmed in laboratory**
- Dog vaccination coverage**
- No of districts estimating dog populations and having proper dog population control plans in place**
- Percentage of female dogs sterilized**

IMPACT INDICATOR



- ❑ For human health: number and incidence of human rabies per year
- ❑ Proportion of districts / provinces with zero human rabies case reporting
- ❑ For animal health:
 - no of dog rabies cases per year
 - Percentage of dog rabies cases confirmed in laboratory

Canine vaccination and population control in Yangon General Hospital 2016



ရန်ကုန်ဆေးရုံကြီးတွင် ခွေးရူးရောဂါကာကွယ်ဆေးနှင့် ခွေးမျိုးဆက်ပွားမှု ထိန်းချုပ်ရေးစီမံချက် ဆောင်ရွက်

ရန်ကုန်၊ စက်တင်ဘာ ၂၈

ခွေးလေခွေးလွင့်များ ခွေးရူးရောဂါ ကာကွယ်ဆေးနှင့် ခွေးမျိုးဆက်ပွားမှု ထိန်းချုပ်ရေးစီမံချက်ကို စက်တင်ဘာလ ၂၈ ရက်နေ့ နံနက်ပိုင်းက ရန်ကုန်ပြည်သူ့ ဆေးရုံကြီးဝင်းအတွင်း၌ ပြုလုပ်ခဲ့ကြောင်း ရန်ကုန်မြို့တော် စည်ပင်သာယာရေးကော်မတီ တိရစ္ဆာန်ဆေးကုနှင့် သားသတ်ရုံများဌာန၊ လက်ထောက်ဌာနမှူး ဒေါက်တာလှမေဦးက ပြောကြားသည်။

“လေလွင့်ခွေးတွေကို ခွေးရူးရောဂါ ကြိုတင်ကာကွယ်ဆေးထိုးတယ်။ မျိုးပွားမှုထိန်းချုပ်တဲ့ ခွဲစိတ်ကုသမှုလုပ်တယ်။ ဒီဘဏ္ဍာရေးနှစ်မှာ ဒီမှာလုပ်ပေးတာ ဒုတိယအကြိမ်ပေါ့” ဟု ၎င်းကဆိုသည်။

ယင်းကဲ့သို့ဆောင်ရွက်ပြီးသည့်

ခွေး ၁၀ ကောင်ကို မှော်ဘီမြို့နယ်၊ ဝါးနက် ချောင်းကျေးရွာရှိ မျှော်လင့်ခြင်း ရောင်ခြည် ခွေးဂေဟာသို့ ပို့ဆောင်မည် ဖြစ်ပြီး ၂၀၁၆-၂၀၁၇ ဘဏ္ဍာနှစ်အတွက် ရရှိသည့်ဆေးဝါးများဖြင့် လမ်းမတော် မြို့နယ်တွင် ခွေးရူးရောဂါကာကွယ်ဆေး နှင့် ခွေးမျိုးဆက်ပွားမှု ထိန်းချုပ်ရေးစီမံ ချက်များကို ကွင်းဆင်းဆောင်ရွက်လျက် ရှိကြောင်း ရန်ကုန်မြို့တော် စည်ပင် သာယာရေးကော်မတီ တိရစ္ဆာန်ဆေးကု နှင့် သားသတ်ရုံများဌာနထံမှ သိရသည်။

“အကုန်လုံးကို ဒီလိုလုပ်ချင်ပေ မယ့် လုပ်နိုင်တဲ့ အကန့်အသတ်ကတော့ ရှိသေးတယ်။ ခွေးတွေကို ပြုစုစောင့် ရှောက်တဲ့ ဂေဟာတွေကို ပိုရတဲ့အခါမှာ

သူတို့က လက်ခံနိုင်တာကို ပြောပါတယ်။ လက်ခံနိုင်တာကို ပိုပေးတာပေါ့” ဟု ရန်ကုန် ပြည်သူ့ဆေးရုံ ဆေးရုံအုပ်ကြီး ဒေါက်တာ ဦးအေးကိုကိုက ပြောကြား သည်။

ရန်ကုန်ပြည်သူ့ဆေးရုံကြီး၏ ပရိဝုဏ်အတွင်း ခွေးလေခွေးလွင့် အကောင် ၁၅၀ နှင့်အထက်ရှိပြီး ခွေးလေ ခွေးလွင့် များပြားလာပါက မမျှော်လင့် သည့်ပြဿနာများ ရှိလာနိုင်သည့်အတွက် ရန်ကုန်မြို့တော် စည်ပင်သာယာရေး ကော်မတီနှင့် ယခုကဲ့သို့ ပူးပေါင်းဆောင် ရွက်ခြင်းဖြစ်ကြောင်း ယင်းဆေးရုံကြီး ထံမှ သိရသည်။

ONE HEALTH WORKSHOP IN NAYPYITAW (2016 FEB)



1. OH Workshop Aims, (X +

file:///E:/2016_rabies/2016_rabies/One_health_march2016/Day%201%20Presentations/1.%20OH%20Workshop%2

Workshop Aims

1. To strengthen collaboration
 - co-equal, all-inclusive
 - between Veterinary and Public Health sectors.
2. To expand interdisciplinary communication
 - in key aspects of health care
 - for humans, animals and the environment.



Priority areas for operationalization of One Health

- Zoonoses (Avian influenza, Rabies)
- Antimicrobial resistance (AMR)
- Food safety
- NCD Prevention and Control- Organic farming
- Climate change

Priority zoonotic diseases

- Avian influenza
- Anthrax
- Rabies
- Leptospirosis and
- Plague



SARE CHECKLIST

SOUTH EAST ASIA RABIES ELIMINATION

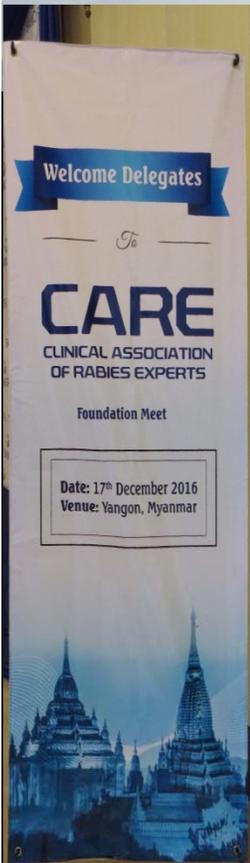


SARE Checklist

Stage 0	Yes	No	Remarks (you may explain your reply)	Gaps
A national rabies case definition (both for human and animal rabies) is available	Y	-		
Contacts to an international rabies reference laboratory or international organization are established	Y	-		
Several rabies suspect sample of either animals or humans is submitted to an international rabies reference laboratory for confirmation	Y	-	National Health Laboratory is the designated lab and BSL 3	
Result of rabies samples are shared appropriately with local and national authorities	Y	-		
Stage 1	Yes	No	Remarks (you may explain your reply)	Gaps
Identification of main national stakeholders in rabies prevention and control has been carried out	Y	-		

7-7-2016, THAILAND





Clinical Association of Rabies Expertis (2016 Yangon)

CONCLUSION



- ❑ **We have some procurement on rabies vaccine and RIG**
- ❑ **We need some collaboration with other Ministry to control rabies to start elimination strategy**
- ❑ **Recording and reporting system to be reviewed to get the definite data on dog bite and mortality on rabies**
- ❑ **Infrastructure like power supply will influence the storage of vaccine and RIG**
- ❑ **Financial, political**



Reference :

Am.J.Trop.Med. Hyg.,97(4), 2017,pp989-991,doi:104269/ajtmh,17-0198

**National Guidelines for Human Rabies Prophylaxis
(2015)**

**Ministry of Health , Department of Public Health,
The Republic of the Union of Myanmar**