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# Manual of Procedure of Rabies rapid response with rabies data share system (RaDSS)



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## EXCLUSIVE SUMMARY

Rabies continues to be a significant public health problem in Asia and Africa, due in part to the poor mechanisms for surveillance of animal rabies. Surveillance has been identified as a critical element in the elimination of rabies. Thus, early detection of rabid animals and prompt removal of potential sources of the virus in the population are important. Effective case management of rabid animal and prompt containment and control measures should be immediately conducted. Rabies rapid response with Rabies Data share System (RaDSS) aims to establish (i) diagnostic flow (with/without field rabies diagnosis), (ii) real-time data sharing using information technology and (iii) prompt case response including active case investigation, finding of human and animal contacts (contact tracing), alert and education campaign, restriction of free-roaming animal and ring vaccination. This guideline provides a step-by-step approach for rabies case management for personnel involved in rabies control and eradication. Rabies rapid response with RaDSS is a case management system that streamlines containment and control procedures upon detection of a laboratory-confirmed animal rabies case. Prevention and control interventions, such as mass dog vaccination, health promotion, dog population management, post-exposure prophylaxis, creation of animal bite treatment centres and promotion of responsible pet ownership are crucial to eliminate rabies in an area. Thus, Rabies rapid response with RaDSS is an invaluable tool to reduce rabies' morbidity and mortality, particularly in areas with high number of cases.

LIST OF ABBREVIATIONS	
ABTC	Animal Bite Treatment Center
CHO	City Health Office
CVO	City Veterinary Office
DA-BAI	Department of Agriculture-Bureau of Animal Industry
DepEd	Department of Education
dFAT	direct fluorescent antibody test
DILG	Department of Interior and Local Government
DOH	Department of Health
ERIG	Equine Rabies Immunoglobulin
HRIG	Human Rabies Immunoglobulin
JAPOHR	Japan and Philippines One Health Rabies
LCAR	Laboratory confirmed animal rabies
LGU	Local Government Units
MAO	Municipal Agriculture Office
MESU	Municipal Epidemiology and Surveillance Unit
MHO	Municipal Health Office
MVO	Municipal Veterinary Office
PEP	Post Exposure Prophylaxis
PHO	Provincial Health Office Office
PrEP	Pre-Exposure Prophylaxis
PVO	Provincial Veterinary Office
RaDSS	Rabies Data share System
RFFIT	Serum Rapid Fluorescent Focus Inhibition Test
RICT	Rapid immunochromatographic test
RIG	Rabies Immunoglobulin
RT-PCR	Reverse-Transcription Polymerase Chain Reaction
WHO	World Health Organization

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## 1 INTRODUCTION

### 1.1 WHO SHOULD USE THIS MANUAL?

This guideline is intended for rabies management staff, veterinarians, medical doctors, nurses, other allied health professionals and community health volunteers.

### 1.2 BACKGROUND

Rabies is one of the most feared zoonotic diseases, with almost 100% case fatality rate once the symptoms appear. Although the rabies virus can infect any mammal, dog-mediated rabies (referred to as urban rabies) has been identified as the primary source of animal-to-human

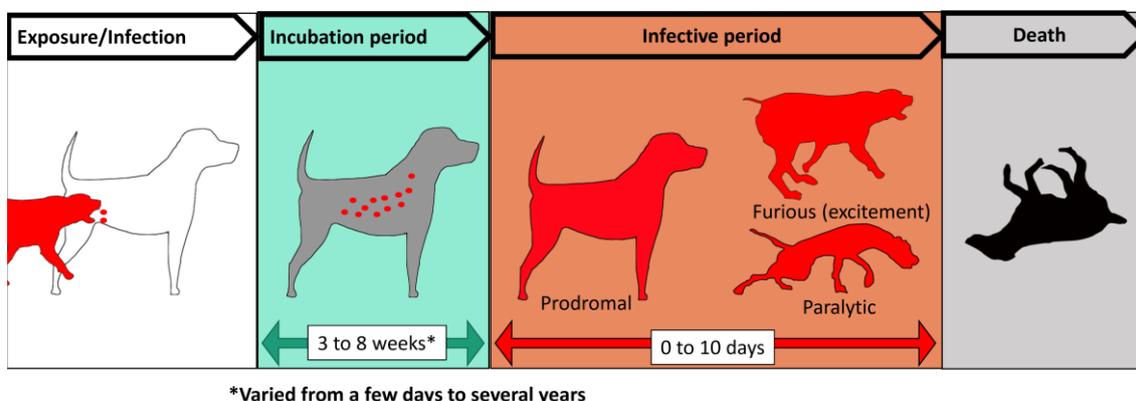
transmission, with some resulting in death. Despite the existence of an effective vaccine control strategy, rabies continues to be a significant public health problem in many developing countries[1,2]. Globally, this fatal zoonotic disease accounts for approximately 55,000 deaths per year and poses a threat to more than 3.3 billion people. Most human cases occur in Asia (56%) and Africa (44%) where rabies is mainly transmitted by dog bite[3–5].

In the Philippines, rabies continues to be a public health problem, with 200–250 human rabies cases being reported each year. The Philippines is among the top 10 countries worldwide with the highest number of human rabies deaths [3–5]. The Anti-Rabies Act of 2007 for the control and elimination of rabies was enacted in May 2007[6,7]. However, the implementation of the provisions of the law is far from satisfactory in most areas. According to the statistics from the Infectious Diseases Office, National Center for Disease Prevention and Control, Department of Health (DOH) and the Bureau of Animal Industry-Department of Agriculture (DA-BAI), the number of human rabies cases in the Philippines declined only by 23% during the first 10 years of the implementation of the law (from 285 cases in 2007 to 219 cases in 2017). However, more than 200 cases per year were continuously reported recent years in the Philippines (2015, 245; 2016, 259; 2017, 262)[4,8]. Reports of positive canine cases have also shown an increasing trend in recent years (2015, 702; 2016, 779; 2017: 998, 2018: 1227) [4,8]. The goal of Anti-Rabies Act of 2007 is ‘To eliminate rabies and declare the Philippines Rabies Free by the year 2030’. However, achieving this target may be difficult without implementation of more robust surveillance, case investigation and response interventions.

### 1.3 CLINICAL COURSE OF CANINE RABIES

Although all mammals are susceptible to rabies virus, domestic dogs are the primary vector causing human deaths in the Philippines[5,7]. In most human rabies cases, the infection is acquired from an infected dog or cat through bites, scratches or licks on non-intact skin. Dog slaughtering is also one of the modes of transmission in areas where dog meat is consumed. The incubation period of canine rabies is normally between 3 and 8 weeks but can vary from a few days to several years<sup>9</sup>. Rabies infection in dogs is manifested mainly in three different phases/stages, the prodromal, the furious (excitement) and the paralytic stage[9]. The clinical course in animals is typically progressive, sometimes overlapping between stages, although the clinical signs may vary. The prodromal period lasts from 2 to 3 days, while the furious

(excitement) stage may last up to a week. The disease may progress from the furious stage to the paralytic stage within several days. However, it can directly progress from the prodromal phase to the paralytic stage. During the prodromal phase, the animal may show various behaviours and symptoms. In the furious stage, the animal suddenly becomes vicious and behaves erratically. During the paralytic period, animal develops paralysis, first in the wounded limb and then in the neck and head. Normally, rabid dogs die within 10 days after clinical onset. The infective period is considered to start before 10 days prior to onset of clinical signs until death of the animal. Although the virus shedding starts at the end of the incubation period, the risk of infecting other animals is higher when the animal shows the apparent clinical signs or during the hyperactive period compared to that in the pre-clinical or paralytic period. This is because bite incidence often occurs in animals showing signs of aggressive behaviour (Figure1). The infective period is relatively short, and nearly 100% of dogs die within 10 days. The definitive diagnosis of rabies is not based on clinical signs alone and must be confirmed by laboratory testing. Once the laboratory diagnosis is made, active surveillance should immediately be conducted. Prompt surveillance and notification can save bite victims and help contain virus transmission in the area.



**Figure 1. Clinical course of canine rabies**

#### 1.4 CONTROL MEASURES

Interventions to control human rabies include vaccination programme for animals, animal birth control, promotion of responsible pet ownership, education campaign and expansion of human post-exposure prophylaxis (PEP). PEP in combination with rabies vaccines and rabies

immunoglobulin (RIG) are the essential treatments to save humans bitten by rabid animals. However, investing on PEP without concomitant implementation of other essential measures such as mass dog vaccination is ineffective in controlling rabies. Anti-rabies vaccination of dogs should be prioritised to prevent infection in both dogs and humans[10]. Accumulating evidence suggests that mass dog vaccination is the most effective and sustainable intervention to prevent rabies[11,12]. Effective surveillance with early detection and reporting of cases is also crucial for rabies control. Eradication programme is unlikely to be successful in the absence of an effective surveillance system. In endemic areas, the surveillance system is often not sufficient because of the limited access to diagnostic facilities.

## 1.5 CONTROL MEASURES IN THE PHILIPPINES

The Philippines has a National Rabies Prevention and Control Program (NRPCP) operated under the Republic Act 9482 (also known as the Anti-Rabies Act of 2007). This programme promotes cooperation among government agencies, non-government organizations (NGOs) and people's organization (POs).

Rabies control activities include mass dog vaccination, creation of a central database of registered dogs, control of stray dogs, community education, treatment of animal bite victims and encouragement of the practice of responsible pet ownership. The Philippines has expanded the network of animal bite treatment centres (ABTCs) by operationalising more than 500 government-run ABTCs in 2017. Since 2016, free anti-rabies vaccines and subsidised RIG are being provided at these facilities. Since 2016, more than 1 million people have received PEP every year. However, despite the notable increase in the treatment of human bite victims, there has been no significant decline in human rabies cases; worst, approximately 150–200 deaths are reported every year[4,8,13]. While PEP is effective in preventing deaths in people exposed to rabies, it is a comparatively expensive intervention that has little impact on rabies transmission, which is mainly caused by domestic dogs. More resources should be invested to control canine rabies, and more attention should be paid to domestic dogs. The Department of Agriculture (DA) of the Philippines has made substantial efforts to improve access to high-quality animal rabies vaccines. However, due to lacking robust data on dog population, it is difficult to assess the adequacy of vaccine coverage.

## 1.6 BARRIERS AND GAPS IN THE PHILIPPINES

Barriers to successful canine rabies control in the Philippines include low canine vaccination coverage, lack of reliable estimates of the dog population, lack of education particularly about pet ownership and poor mechanism for canine rabies surveillance. Poor surveillance and lack of outbreak response activities may lead to failure in promptly removing the source of infection for both humans and other animals. Detection, reporting and response to dog rabies cases are crucial elements for effective containment and elimination of circulating rabies infection. Several factors contribute to the poor rabies surveillance: (i) The number of diagnostic facilities are limited. Long distance from the diagnostic facility and inadequate transportation system make it difficult for owners or bite victims to submit samples. (ii) The current reporting system is not streamlined, which prevents real-time sharing of information. (iii) There are no guidelines or manuals for case investigation and response. Furthermore, there is no existing case management system involving human and animal sectors upon identification of a **laboratory-confirmed animal rabies (LCAR)** case. Incubation period of human rabies is long but relatively short of the incubation period of the canine rabies. Therefore, detection of canine rabies in an area invariably implies active transmission in the area and should trigger prompt intervention to prevent further transmission. Case management focusing on canine rabies is important as a single canine rabies case can risk several humans and animals getting exposed to the deadly virus, unlike a human rabies case. Active contact tracing in humans should be implemented to save human lives. Comprehensive case investigation can provide more robust information than the present passive surveillance system, and prompt control interventions can help contain and eliminate circulating rabies infection in communities.

## 1.7 PURPOSE OF THIS DOCUMENT

The aim of this document is to provide detailed guidance for the implementation of the Rabies rapid response with Rabies Data Share System (RaDSS). The Rabies rapid response with RaDSS is characterised by prompt case investigation, sharing of information and execution of timely actions upon identification of a rabies-infected animal in an area or during an outbreak of rabies. The Rabies rapid response with RaDSS aims to limit the on-going transmission of rabies in the immediate vicinity of the confirmed rabid animal. Rabies rapid response with RaDSS has unique features, including: (1) simple trigger (LCAR), (2) Internet-based reporting and sharing system and (3) prompt response to contain virus transmission. This manual provides a step-by-step approach for case management and RaDSS for personnel working in agencies responsible for rabies management.

## 2 CONCEPT AND MAIN WORK FLOW OF RABIES RAPID RESPONSE WITH RADSS

### 2.1 WHAT IS RABIES RAPID REPOSE WITH RADSS?

#### 2.1.1 SUMMARY OF RABIES DATA SHARE SYSTEM: WHAT IS THE RADSS

RaDSS is an Internet-based reporting and data-sharing system. The application can be accessed anywhere using a personal computer or mobile phone. This system provides a convenient means for rapid sharing of information about LCAR to the relevant personnel (animal details, place and time of occurrence). RaDSS incorporates an SMS/email alert system. Upon reporting an LCAR case, relevant rabies coordinators in the vicinity of the case will receive SMS/email alert message containing the case link. Registered rabies coordinators can access the link and obtain information about the LCAR. The user guide for RaDSS is provided in a separate procedure manual.

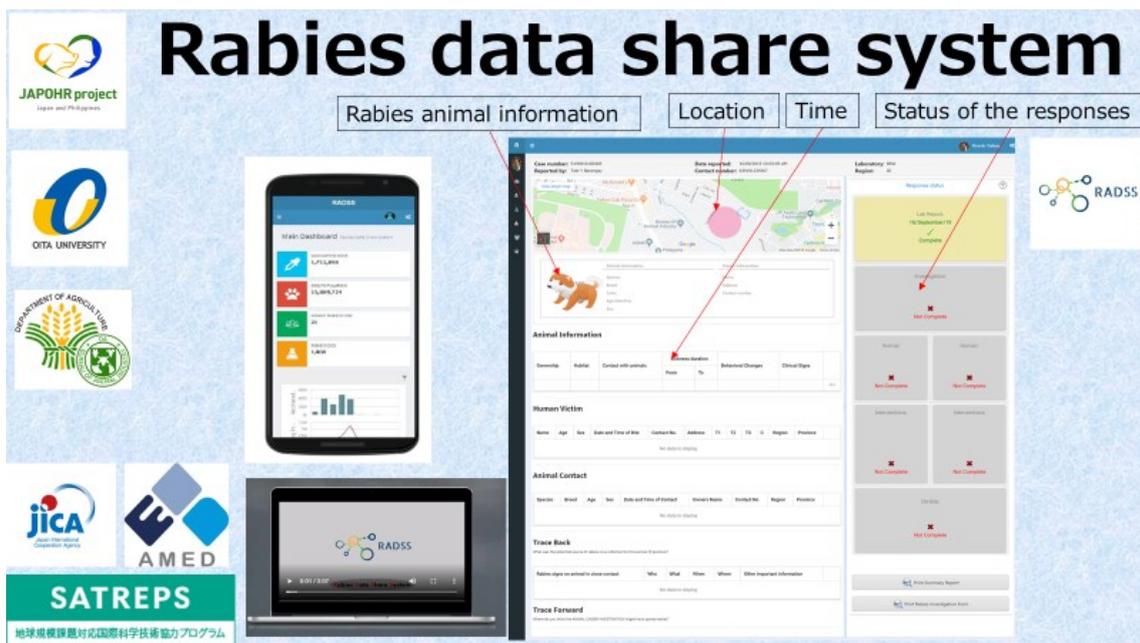


Figure 2. Image of Rabies Data Share System (RaDSS)

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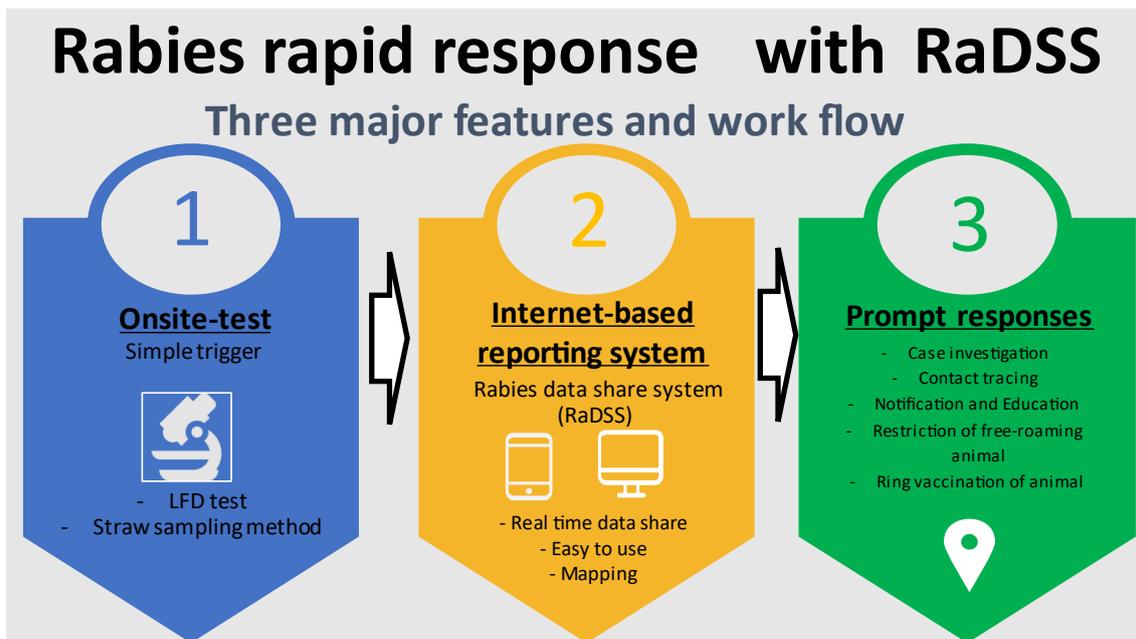
## 2.1.2 SUMMARY OF RABIES RAPID RESPONSE WITH RADSS: WHAT IS THE RABIES RAPID RESPONSE WITH RADSS?

Rabies rapid response with RaDSS includes establishment of prompt animal surveillance using a simple diagnostic method and rabies case (or outbreak) management .

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## 2.1.3 MAIN FEATURES AND WORKFLOW OF RABIES RAPID RESPONSE WITH RADSS

- Onsite test (LCAR) by LFD and straw sampling method
- Internet-based reporting system (rabies data sharing system)
- Prompt responses

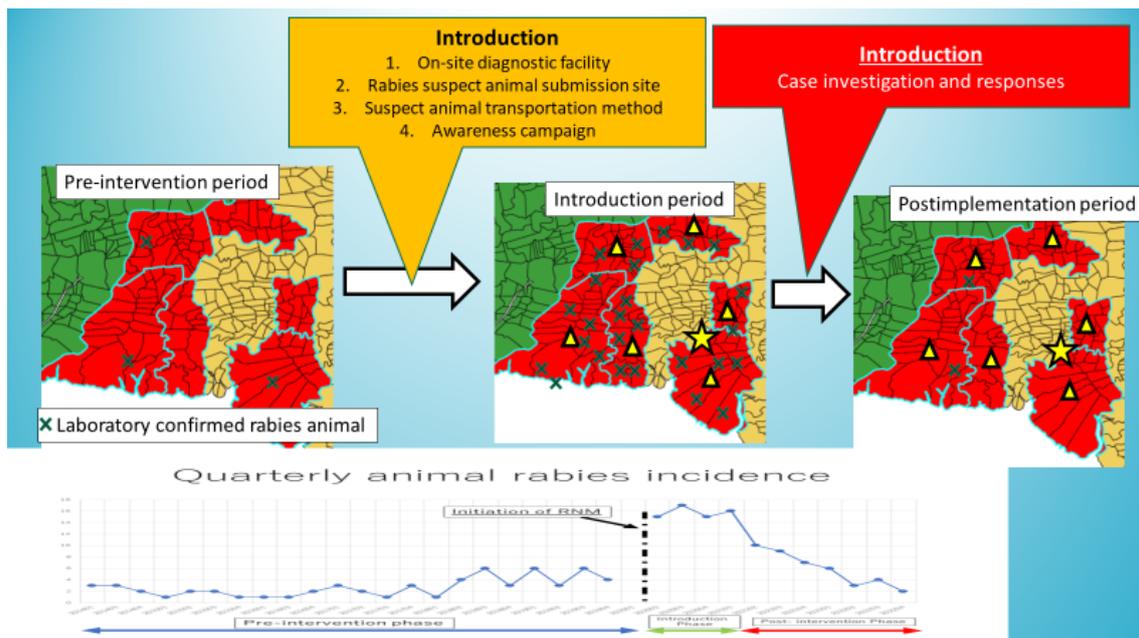


**Figure 3. Major features of Rabies rapid response with RaDSS**

## 2.1.4 EXPECTED OUTCOMES

Rabies rapid response with RaDSS is designed to facilitate containment of on-going virus transmission among domestic animals and to identify human victims bitten by LCAR. The system for real-time data sharing may enable prompt case response by rabies coordinators. Once LCAR or a disease outbreak is detected, the challenge of prioritising and implementing effective interventions begins.

During the introduction of Rabies rapid response with RaDSS, the incidence of LCAR may increase because of prompt surveillance. In addition to providing real-time information, the Rabies rapid response with RaDSS is capable of mapping the spread of the disease. On-going implementation of the Rabies rapid response with RaDSS and the associated case response and mass animal vaccination are expected to decrease its incidence.



**Figure 4. Expected outcome**

### 3 IMPLEMENTATION STEPS AND STRATEGY (HOW RABIES RAPID RESPONSE WITH RADSS IS IMPLEMENTED?)

#### 3.1 SUMMARY OF THE IMPLEMENTATION STRATEGY FOR RABIES RAPID RESPONSE WITH RADSS

A robust implementation strategy is important for setting up an effective Rabies rapid response with RaDSS. This strategy should be adapted to the local regulations and context. Several steps need to be considered before the implementation. (i) First, it is desirable to arrive at an agreement (verbal or written agreement such as memorandum of agreement) MOA) among all stakeholders, although not always necessary. Next step is the establishment and setup of the diagnostic flow (ii) and establishment of data system (iii) followed by training (iv). After these steps, the Rabies rapid response with RaDSS should be implemented. Analysis of the results should be conducted after the completion of each case. Subsequently, the system should be modified based on the analysis. This strategy is based on the plan-do-study-act (PDSA) cycle. Thus, model, which will help improve the interventions over time.

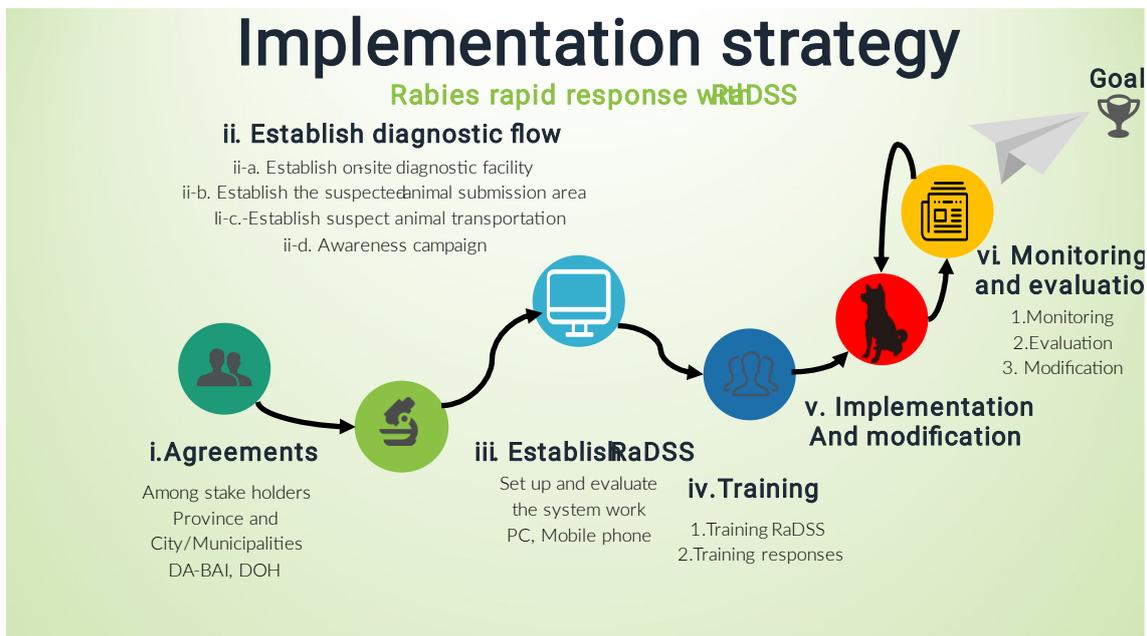


Figure 5. Implementation strategy

## 3.2 II. ESTABLISHING THE DIAGNOSTIC FLOW

### 3.2.1 WHY IS IT NECESSARY TO ESTABLISH A DIAGNOSTIC FLOW?

To ensure effective surveillance of animal rabies, establishment of diagnostic flow and diagnostic facilities (if possible) is the initial step of Rabies rapid response with RaDSS. In many places in the Philippines, animal rabies is largely under-diagnosed due to poor surveillance and case investigation.

The main contributing factor for this is the limited number of diagnostic facilities which are often located too far from the location of the animal with suspected rabies. Most places lack a reliable transportation system. Moreover, sample transport and submission relies mainly on the owner or neighbours instead of qualified personnel such as those working in a government facility. According to the data of the Regional Animal Disease Diagnostic Laboratory of region 3 (RADDL3), most samples in 2019 were transported and submitted by the owner, bite victims or their relatives (general population) (Figure 5)[14]. It is assumed that many people have difficulties in bringing samples (animal head) to the diagnostic facilities, thus resulting in under-diagnosis. To create an effective animal surveillance system, Rabies rapid response with RaDSS includes the establishment of diagnostic flow (sample submission and transportation).

Geographical locations where samples were submission in Region3  
(n=60 April 2019 ~ Jun 2019)

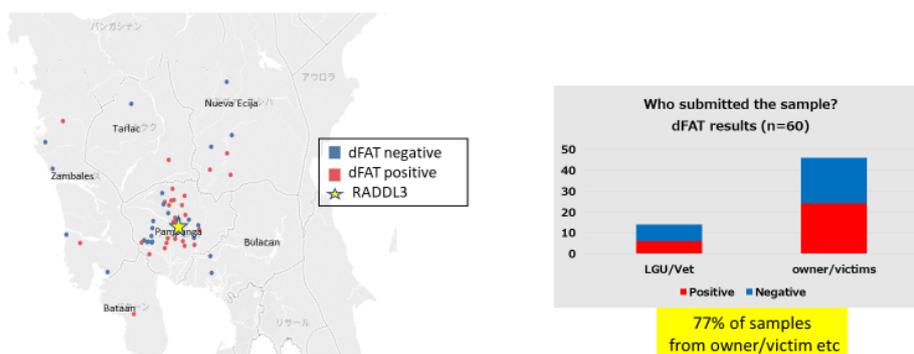


Figure 6. Detail of submitted samples in RADDL3 in 2019[14]

Steps for establishing the diagnostic flow:

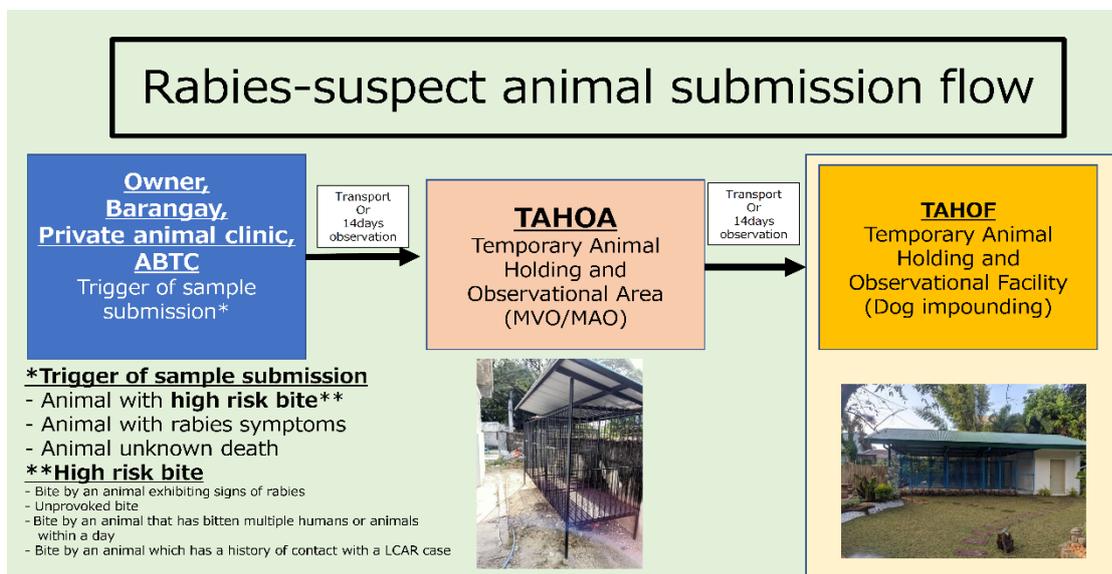
- Establish rabies-suspect animal submission flow
- Establish a method for sample transportation
- Establish field diagnosis facility

### 3.2.2 ESTABLISH RABIES-SUSPECT ANIMAL SUBMISSION FLOW

The detailed flow of a rabies-suspected animal and the diagnostic flow is shown in Annex.

#### WHO IS THE MOST COMMON PERSON TO FIND SUSPECT ANIMALS?

According to a prospective survey in RADDL3 conducted in 2019 and 2020, animal bite incident was the most common reason to submit suspected animals[14,15]. Therefore, ABTC can help identify the bite victim and animals with suspected rabies. Barangay, animal owner and private veterinarians may also identify animal with suspected rabies. Government Veterinary offices of local government unit (LGU) are responsible for education and orientation of people about its diagnostic and submission flow.



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## WHEN SHOULD PEOPLE SUSPECT RABIES AND REPORT TO VETERINARY OFFICE?

Some criteria for sample submission

### **\*Trigger of Reporting**

- Animal with **high-risk bite\*\***
- Animal with rabies symptoms
- Animal death of unknown cause

### **\*\*Definition of High-risk Bite**

- Bite by an animal exhibiting signs of rabies
- Unprovoked bite
- Bite by a stray or free-roaming animal
- Bite by an animal that has bitten multiple humans or animals within a day
- Bite by an animal which has a history of contact with a LCAR case

Animals involved in aggressive bite incidents are much more likely to have rabies than healthy animals sampled from the general population. Any animal with clinical signs of rabies should be reported immediately to veterinary office.

If the suspected animal is already dead, if the veterinarian and/or the owner decided to euthanise the animal or if the animal dies while under observation, the carcass should be immediately transported to the relevant laboratory for appropriate diagnostic testing.

Healthy animals (without rabies) causing high-risk bite should be evaluated by a veterinarian at the first sign of illness during confinement, should be confined and observed for 14 days or should be submitted to veterinary office. If the animal dies during the observation period, the

severed head of the animal should be submitted to diagnostic facilities (RADDL). Details of the quarantine method are provided in Annex (Manual of Animal quarantine).

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### 3.2.3 ESTABLISHING METHOD FOR TRANSPORTATION OF SAMPLE TO DIAGNOSTIC FACILITIES

A transportation method should be established and maintained at the provincial or municipal level. Suspected animals and animals who have died (or their severed head) should be transported to RADDL or other accredited diagnostic facilities.

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### 3.2.4 ESTABLISHING ANIMAL OBSERVATION POINTS

Temporary Animal Holding and Observational Facility (TAHOF)

Temporary Animal Holding and Observational Area (TAHOA)

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#### TEMPORARY ANIMAL HOLDING AND OBSERVATIONAL FACILITY (TAHOF)

TAHOF also serves as a dog impounding facility. The details of the facilities are shown in the national guideline '**POLICIES AND GUIDELINES IN THE ESTABLISHMENT AND MAINTENANCE OF ANIMAL POUNDS**'.

Simple diagnostic method (Straw sampling method and lateral flow device (LFD)) can be performed in this facility. TAHOF is equipped with enclosure/animal area and facilities for euthanasia, surgery and adoption.

The roles and activities of TAHOF are as follows:

- Observation/euthanasia of suspected rabid dog/high-risk animals
- Laboratory diagnosis using Straw sampling method and LFD (optional)
- Transfer samples to RADDL
- Adoption

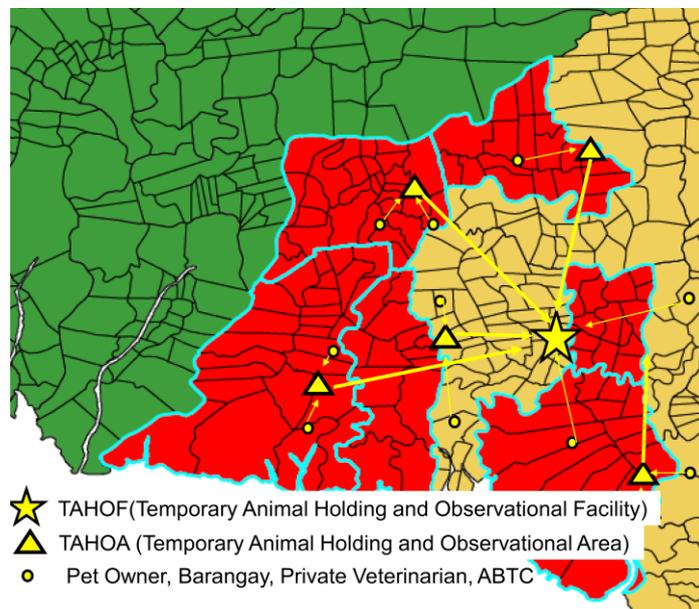
- Sterilisation operation

Veterinarians in PVO and MVO can perform the LFD tests in their respective facilities. If the test is positive for rabies, they are required to enter the data in the RaDSS. When the test is negative, samples should be submitted to RADDL for conformation. When the rabies test is performed in a non-RADDL facility, a validation test performed by RADDL is required. PVO and MVO should immediately consult with the RADDL. RADDL should decide whether the result can be shared immediately or whether an additional investigation is required. Frozen cut-off head samples should be transferred to RADDL for confirmation as soon as possible.

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### TEMPORARY ANIMAL HOLDING AND OBSERVATIONAL AREA (TAHOA)

Many municipalities are incapable of establishing and maintaining dog impounding facilities due to their limited resources. In this scenario, one TAHOA can be established per municipality. TAHOA is a simple observational area equipped with animal cages for animal observation. People living in the area, animal owners and barangay officials can submit animals with suspected rabies to the TAHOA (Figure7, 8).



**Figure 8. Image of Rabies-suspect animal submission flow**

Roles and activities of TAHOA:

- Accept the animals with suspected rabies or dead animals from people living in the area
- Observation of animals with suspected rabies
- Transfer the animals or deceased animals to TAHOF or RADDL

Owners who can observe the animal at their home can do so. The methods for quarantine and home quarantine are shown in Annex (Manual of animal quarantine)

### 3.3 (III) ESTABLISHING RADSS

RaDSS is an Internet-based reporting system that can be accessed through a PC or mobile phone. Preliminary evaluation of the local Internet system should be conducted before the implementation of this system. Devices such as a PC or mobile phone should be prepared in Local Government Units (LGUs). The detailed manual operations can be found in the RaDSS system operation manual (RaDSS system manual).

### 3.4 (IV) TRAINING

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#### 3.4.1 TRAINING FOR THE USE OF RADSS

All users must be trained in the use of RaDSS application in advance. DA-BAI is responsible for providing training to the users regularly.

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#### 3.4.2 TRAINING ON THE RESPONSES

Training is required for conducting proper and prompt responses. A simple manual will be used for training as a reference for response. This training should be conducted regularly.

### 3.5 (V) IMPLEMENTATION AND MODIFICATION (VI) MONITORING AND EVALUATION

Following completion of each case response, evaluation should be conducted. This evaluation can help identify systemic or local problems in the implementation of case response. The results of evaluation can be used for necessary modifications.

## 4 LABORATORY DIAGNOSIS AND CASE DEFINITION

### 4.1 LABORATORY DIAGNOSIS

Suspected animals should be observed for 14 days or, in case of highly suspected rabies cases, be humanely euthanised with no damage to the head. The head or whole body should be submitted to the laboratory for testing. The samples must be stored in an airtight bag and placed in an icebox (at approximately +4°C) during transportation. It is important to send the specimen as quickly as possible to avoid any degradation of the brain. This manual adopts direct fluorescent antibody test (DFAT) or LFD as the confirmatory test.

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#### 4.1.1 DIRECT FLUORESCENT ANTIBODY TEST (DFAT)

DFAT is the gold standard for the diagnosis of rabies. It is a rapid and sensitive test based on fluorescent microscopic examination. DFAT is recommended by both the World Health Organization and the World Organization for Animal Health. In experienced laboratories, the specificity and sensitivity of the test is almost 99%; however, a trained specialist/technician is required to perform the test. At least two observers must spend enough time on each slide once the quality of the sample has been ensured. Results are typically available within a few hours. Only fresh samples can be used for DFAT. A decomposed brain is not suitable for this test.

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#### 4.1.2 LATERAL FLOW DEVICE (LFD)

Rabies lateral flow device (LFD), also called immunochromatographic test (ICT) or rapid immunochromatographic test (RICT), has been used for enhanced laboratory-based surveillance of rabies. The sensitivity and specificity of this test approaches 100% when compared with that of the DFAT. Although DFAT is mandatory in regional animal laboratories, there are several potential benefits in terms of using LFD. The procedure of LFD is much easier, and the completion time is shorter than that of DFAT. LFD can potentially be used in the field, a simple laboratory, or at a dog impounding facility where fluorescent microscopy and skilled technicians are not available. The results of LFD can be used as a trigger in RaDSS to initiate quick response at the local level. The evaluation of LFD compared to dFAT was conducted in 2019 in RADDL3, the Philippines[15]. The diagnostic accuracy is equivalent to dFAT (Sensitivity 94%, Specificity 100%).

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#### 4.1.3 STRAW SAMPLING METHOD AND LFD TEST

Ideally, the brain is collected following the opening of the skull in a necropsy room in regional animal laboratory. However, in the case of on-site diagnosis outside regional animal laboratory, straw sampling method can be used together with LFD. The straw sampling method is less hazard because of unnecessary of opening the skull. When submitting sample to RADDL. Removing head is recommended (Annex). Straw sampling method can be done easily when removing animal head then LFD diagnosis can be performed with collected samples by straw sampling method even in the field condition (Annex Manual of Straw sampling method and LFD). Mananggit MR et al. conducted a prospective on-site study to evaluate the diagnostic accuracy of the LFD with the straw sampling method compared with that of the dFAT with the skull opening procedure for post-mortem canine rabies diagnosis in the Philippines[16]. The sensitivity and specificity of LFD with straw sampling method were 94.3% (95% confidence interval [CI], 84.3–98.8%) and 100% (95% CI, 92.0–100%), respectively.

## 4.2 CASE DEFINITION OF CONFIRMED ANIMAL RABIES CASE (TRIGGER OF RADSS)

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### 4.2.1 LABORATORY-CONFIRMED ANIMAL RABIES (LCAR) CASE DEFINITION

The LCAR cases are used in RaDSS as the trigger. An LCAR case is defined as a case with a positive result of DFAT or LFD.

#### 4.2.2 Non-rabies Case definition

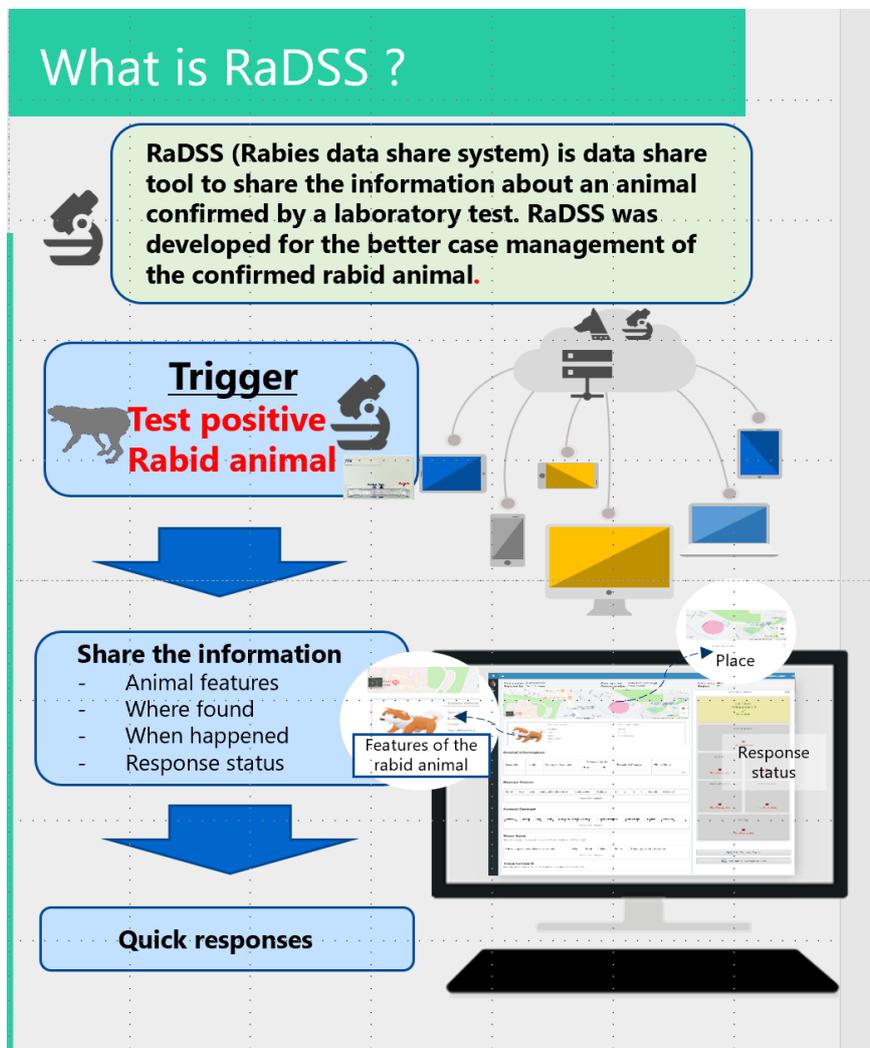
Animals that are healthy after the observation period OR

Animals that test negative by rabies laboratory test

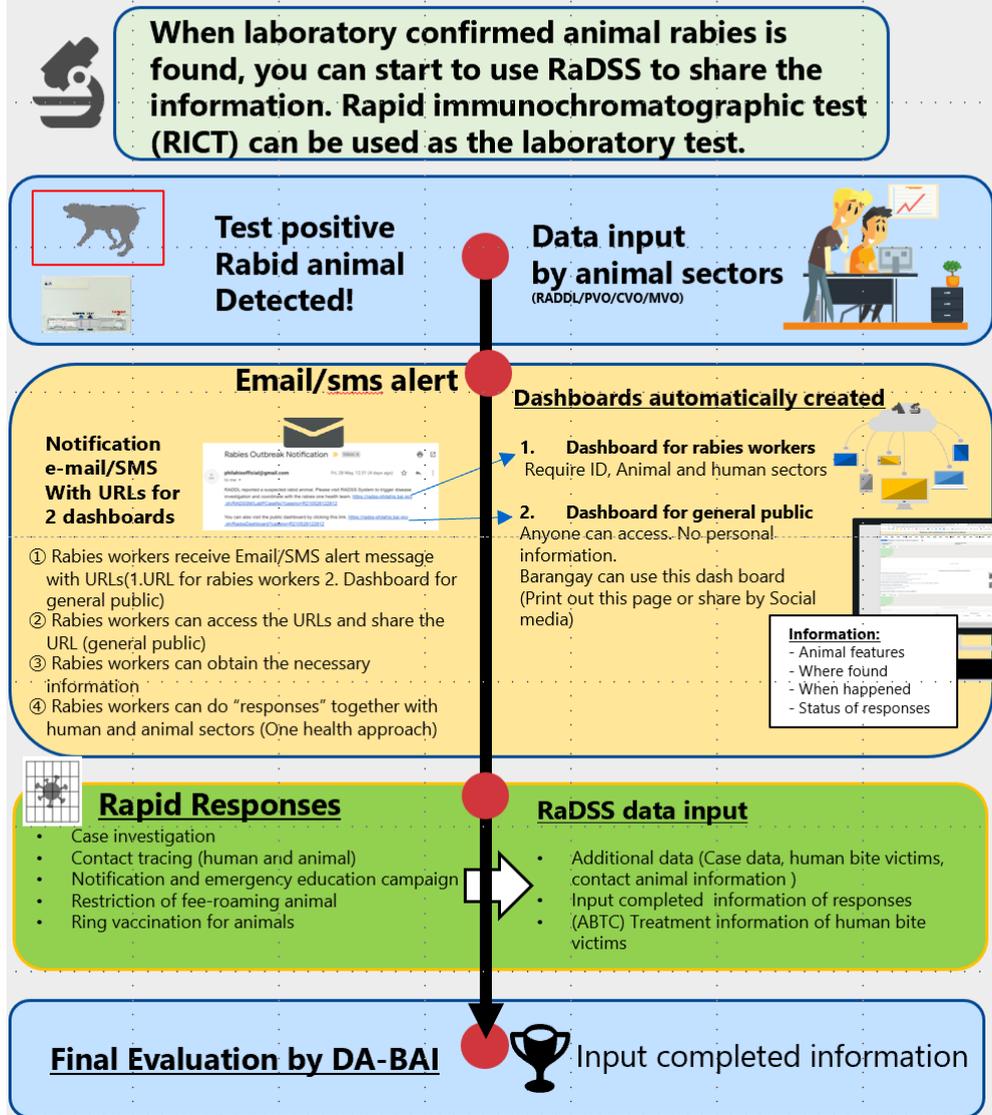
## 5 DETAIL MANUAL AND STEPS OF RABIES RAPID RESPONSE WITH RADSS

### 5.1 STEP 1 OF RADSS: DATA ENTRY AND SHARE

Upon confirmation of the diagnosis of rabies in the laboratory, the laboratory personnel are required to enter the data in the RaDSS. Initial data entry should be performed by a veterinarian working in the rabies laboratory. Entry of data in the system automatically triggers an SMS to relevant workers in the vicinity of the LCAR case (PVO/PHO/CVO/CHO/MVO/MAO/MHO). The message will include a URL to access the RaDSS or dashboard. The RaDSS dashboard will then show all rabies cases. The aim of RaDSS is to provide real-time information about LCAR cases and facilitate a quick response. After completing each step of the response, the relevant department has to update the information in the system.



# What is the flow ?



## 5.2 STEP 2: RESPONSE ACTIVITIES

The rapid response with RaDSS includes five response activities to control the spread of rabies. All personnel who are likely to come into contact with potentially rabid animals during response activities in the field (e.g. dog catchers and veterinarians/vaccinators) should receive pre-exposure prophylaxis.

### 5.2.1 REPONSE 1: ACTIVE CASE INVESTIGATION

## RESPONSE 2: CONTACT TRACING (ANIMAL AND HUMAN)

Detection of LCAR should trigger an active case investigation. The animal diagnostic facility often has limited information about the suspected animal. Further investigation is required in the area of incidence of animal rabies. The case investigation team should be organized at the municipal or city level; however, in case of inadequate human resources at the local level, the investigation team should be organized at the provincial level. The team should include personnel from health office, such as Municipal Health Office (MHO) (MESU: Municipal Epidemiology and Surveillance Unit) and barangay rabies coordinator. The Veterinary office of municipal or city LGU is the default team leader; alternatively, PVO can be a team leader when the local human resources are limited. The investigation team conducts case investigation including tracing the human and animal contacts of the LCAR case.

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### ANIMAL CONTACT TRACING (CONTACT FINDING)

Tracing is the method to identify the source and to determine the extent of spread of the outbreak. Animal contact tracing is aimed at identifying the source of the infection as well as the exposed animals.

Trace back: Detection of the origin/infectious source

Trace forward: Detection of animals exposed to an LCAR case

Tracing back is often difficult because the animal infectious source has typically died a few months prior to the reporting of an LCAR. Tracing forward is more important to contain the spread of infectious diseases.

Here, the case definitions of contact/exposed animal are shown. RaDSS include only (a) and (b) for quarantine methods.

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### CASE DEFINITION OF CONTACT ANIMAL WITH LCAR CASE

#### **(a). Confirmed Animal Exposure Case**

Animals with close contact (i.e. bite or scratch) with an LCAR case

#### **(b). Possible Animal Exposure Case**

Animal that stayed together with an LCAR case

**(c). Suspect Animal Exposure Case**

Stray animals in the vicinity of the LCAR case during the infectious period or close contact with (a) or (b)

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QUARANTINE OF ANIMALS EXPOSED TO OR IN CONTACT WITH AN  
LCAR CASE

During animal rabies investigations, it is not uncommon to find animals that have been bitten or otherwise exposed to suspected rabid animals. Exposed animals represent a risk to the community, as they may develop the disease in the weeks to months following the exposure. The average incubation period of rabies is more than 3 weeks. Observation and isolation of animals exposed to the confirmed rabid animal are necessary. If the animal owner can isolate the contact animal at home, then they are given the discretion to do so; however, the owner should avoid contact between the exposed animal and other animals. If the owner is not able to isolate the animal, the contact animal should be submitted to the veterinary office. If the animal develops symptoms of rabies during the observation period, the animal should be euthanised, and rabies confirmation tests should be performed.

Dogs and cats that have never been vaccinated and are exposed to a rabid animal should be euthanized immediately according to RA9482. However, if the owner is unwilling to have this done, the animal should be placed in strict isolation for up to 6 months and rabies vaccine should be administered upon entry into isolation or within 96 hours of exposure.

Healthy animals with a history of rabies vaccination in the preceding 1 year should be administered a booster dose of the vaccine, and the veterinary office should monitor the animal for 3 months. If the animal develops symptoms, the owner should immediately contact the veterinary office. The veterinary office should enter information of the animal status in the RaDSS until the completion of the observation period.

### Management of animals exposed to LCAR

- Animal with no vaccine history in the preceding 1 year: Euthanasia or placed in isolation for 6 months and vaccinated within 96 hours of exposure or upon entry into isolation

- Animal with a history of vaccination within the preceding 1 year: Booster vaccination and observation for 3 months

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### HUMAN CONTACT TRACING (CONTACT FINDING):

Contact tracing/contact finding (only forward) in humans can help reduce human deaths. Suspected animal rabies cases can bite an average of four to seven people before dying from the disease. Active case investigation aims to actively seek out bite victims. People who are bitten, scratched or licked by the LCAR case should be transferred to an ABTC. The team should enter the data of victims and inform the case number of the positive animal. ABTC should provide priority treatment to victims who are registered in the RaDSS and can show the case number in ABTC. ABTC can identify the victim in the RaDSS and enter the treatment-related data. Health offices should confirm that all victims have completed the PEP. If a victim fails to receive PEP, the Health offices shall contact the victim and request him/her to complete the PEP.

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### CASE DEFINITION OF HUMAN CONTACT TO RABIES CASE

#### **(a). Confirmed Human Exposure to Rabies Case**

Person with close contact (i.e. bite or scratch) with LCAR case

#### **(b). Possible Human Exposure to Rabies Case**

Person having high-risk bite or exposure in the area of LCAR

(High-risk bite around the area)

- Bitten by an animal exhibiting signs of rabies
- Unprovoked bite
- Bitten by a stray or free-roaming animal
- Bitten by an animal which has bitten multiple humans or animals within a single day.

### **(c). Suspect Human Exposure to Rabies Cases**

Person with non-high-risk bite or exposure in the area of LCAR

### **(d). Non-exposure**

Persons who stayed in the same area or house without any contact with LCAR case

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#### 5.2.2 RESPONSE3: NOTIFICATION AND EDUCATION CAMPAIGN

Awareness campaign to alert the general public should be immediately conducted in the vicinity of the rabies case. Health offices and veterinary office shall carry out the awareness campaign and disseminate information in the affected area together with barangay health worker (BHW). RaDSS can create a dashboard showing rabid animal information (breed, colour, location, possible infectious period) for the general public. Anybody can access the dashboard without ID. The dashboard also shows the first aid, the nearest ABTC, and the contact number for consultation. The BHW can print out the page and distribute it as an educational material. Campaigns to increase awareness of rabies can help increase sample submission in the affected area. Guidance for preventing dog bite and treatment of bites by suspected rabid animals can be life-saving. Rabies educational campaign should include information about rabies, animal bite prevention, bite management and responsible pet ownership.

By the time of detection of a rabid animal, the virus has typically been already transmitted to other dogs in the area. These animals can potentially be in the infectious stage in the next 2–3 weeks. Stray dogs are major reservoirs of infection in the community. Therefore, pet owners should not allow their pets to freely roam in the street and must keep their pets at their house. Education campaign about pet ownership should be promptly conducted. These education campaigns should promote the use of behavioural restrictions such as leashing and animal bite prevention.

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#### 5.2.3 RESPONSE 4: RESTRICTION ON FREE-ROAMING ANIMAL

As previously mentioned, free-roaming domestic animals are a potential reservoir of rabies virus. During an outbreak, owners should confine their pets at home as a preventive measure against infection. Control of free-roaming animals is necessary to prevent the spread of the disease. Veterinary offices also have a role in catching animals if the owner fails to comply with

any control provisions. LGU should work adhere to animal welfare policies for monitoring of stray animals and when considering options for control. Strict implementation of pet ownership with a penalty (500 PHP) should be considered.

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#### 5.2.4 RESPONSE 5: RING VACCINATION

Intensive mass vaccination of dogs (and cats) (ring vaccination) is an effective way for reducing the number of susceptible animals in a high-risk area. This approach should cover specific barangays located within the 3-km radius of the place from where an LCAR is reported. RaDSS automatically creates the map showing the circled area within the area. Dogs and cats with no history of vaccination in the past year should be vaccinated. The veterinary office will lead the ring vaccination campaign together with the barangay. Dogs should receive tags or temporary marks at the time of vaccination so that the proportion of dogs vaccinated can be determined shortly after the vaccination. These areas should receive additional resources as well as priority attention for the establishment of the major programme components, support activities and networking management. After completion of ring vaccination, the veterinary should enter the information in the RaDSS.

# Responses: What to do?

 <p><b>Response 1</b> Case investigation</p>	<ol style="list-style-type: none"> <li>1. Create one health case investigation team (Print out case investigation form in <a href="#">RaDSS</a>. Already known information can be automatically printed out in the form)</li> <li>2. Visit the site/house/area</li> <li>3. Interview Barangay staff, bite victims, owner, families etc</li> <li>4. Obtain additional information about the rabid animals</li> <li>5. Find bite human victims and contact animal</li> <li>6. Enter the additional data to <a href="#">RaDSS</a></li> </ol> <p>If you find contact people or contact animal with rabid animal, <b>Perform below</b>            -(Human contact)→Refer to ABTC →enter the status to <a href="#">RaDSS</a>            -(contact animal)→Quarantine of animal→enter the status to <a href="#">RaDSS</a>            (see SOP: Animal quarantine)</p>
 <p><b>Response 3</b> Notification and Education campaign</p>	<ol style="list-style-type: none"> <li>1. Create education team (PHO, PVO, MHO, MAO/MVO, Barangay)</li> <li>2. Conduct awareness campaign (Community assembly)</li> <li>3. Disseminate information <a href="#">RaDSS</a> public dashboard page is easily shared through Facebook and also the page can be printed out. BHW can distribute the printed copy to residents.</li> </ol> <p><b>Notify this message to residents</b>            ****Any bite victims who are bitten, scratched or licked by any animals around the affected area if they have not attended ABTC, they should be transferred to ABTC immediately. ****</p>
 <p><b>Response 4</b> Restriction of free-roaming animal</p>	<p>MAO/MVO office also has a role in catching animals if the owner fails to comply with any control provisions. LGU should work adhere to animal welfare policies for monitoring of stray animals and when considering options for control. Strict implementation of pet ownership with a penalty (500 PHP) should be considered.</p>
 <p><b>Response 5</b> Ring vaccination</p>	<ol style="list-style-type: none"> <li>1. Evaluate the vaccine coverage in the area</li> <li>2. Identifies the adjacent barangays within the 3. kilometer radius from the positive case</li> <li>3. Dogs and cats with no history of vaccination in the past year should be vaccinated.</li> <li>4. Enter the completion information (the total number of vaccinated animals) to <a href="#">RaDSS</a></li> </ol>

## 6 ROLES AND RESPONSIBILITIES OF THE IMPLEMENTING ORGANISATIONS

### Roles and Responsibilities of the Implementing Organizations

#### **Veterinary Office**

- 1 ESTABLISH temporary holding and observational area and on-site diagnose facility
- 2 TEST the submitted samples (on-site diagnosis) or submit the samples to RADDL.
- 3 Enter the data into RaDSS upon laboratory confirmation of rabies (trigger) and implement control interventions such as ring vaccination
- 4 ORGANIZE case investigation team comprising of animal and human health workers in the event of a positive canine case
- 5 CONDUCT active case investigation and contact tracing with health office
- 6 REVIEW the vaccination status of the rabid animal and the barangay where rabid animal was found
- 7 IDENTIFY/IMPOUND other animals that came in contact with the positive dog, and humanely sacrifice, if necessary.
- 8 CONDUCT ring vaccination in the event of a positive canine or human rabies case
- 9 INTENSIFY stray dog management in the affected and nearby barangays

#### **Health Office**

- A) CONDUCT the case investigation and contact tracing with veterinary office
- B) COORDINATE with BHW for the case investigation and contact tracing
- C) REFER bite victims of the positive animal to ABTC for PEP
- D) CONDUCT educational campaign
- E) COORDINATE with rural health midwife/BHW (or other relevant posts) regarding follow-up of defaulters
- F) COORDINATE the treatments and management of patients bitten by the laboratory-confirmed animal cases with ABTC
- G) ENSURE follow-up of all patients bitten by laboratory-confirmed animals and completion of PEP

### **Department of Agriculture (Central Office)**

- 1 ORGANIZE/MAINTAIN the IT system and the application of RaDSS
- 2 PERFORM training in the use of RaDSS
- 3 PROVIDE vaccine support through DA-RFOs
- 4 PROVIDE laboratory support to RADDL/other diagnostic laboratories
- 5 EVALUATE/MONITOR the performance of each case management and the response
- 6 DEVELOP/DISTRIBUTE information, education and communication (IEC) materials and other support through DA RFOs
- 7 ISSUE public alert for each positive case

### **Department of Health (Central Office)**

- 1 PROVIDE inputs and direction to the project on the human health side
- 2 MONITOR the overall progress of the project including attainment of the objectives
- 3 CHAIR the annual JCC meetings
- 4 PROVIDE supply of human rabies vaccines and rabies immunoglobulin (RIG) through DOH CHD
- 5 PROVIDE/DEVELOP IEC materials on rabies through DOH CHD

### **Department of Health Center for Health Development (DOH CHD)**

- 1 EVALUATE/MONITOR the case management and response on the human side for each positive canine case
- 2 PROVIDE human rabies vaccines and rabies immunoglobulin (RIG) to patients bitten by positive animal rabies cases through DOH CHD and ABTC
- 3 PROVIDE assistance for establishment of a priority lane for animal bite victims through DOH CHD
- 4 PROVIDE/DEVELOP IEC materials on rabies

### **Regional Animal Disease Diagnostic Laboratory (RADDL) and DA Regional Field Offices**

#### **(DA-RFOs)**

- 1 TEST the samples submitted in RADDL and encode the data in RaDSS when the test is positive (trigger)
- 2 VALIDATE/CONFIRM the laboratory result submitted by other diagnostic facilities
- 3 PROVIDE laboratory support and technical assistance for field diagnosis
- 4 EVALUATE/MONITOR the case management and response on the animal side for each positive canine case
- 5 REVIEW and APPROVE the case investigation reports
- 6 PROVIDE vaccine supply for ring vaccination
- 7 ASSIST in the case response activities such as ring vaccination and stray dog management

#### **Animal Bite Treatment Center (ABTC)**

- 1 PROVIDE the standard PEP treatment to human animal bite victims
- 2 ESTABLISH priority lane for the patients bitten by proven rabid animals
- 3 REPORT high-risk bite (category III/unprovoked bite) and information about the animal to CVO/MVO/MAO
- 4 ENSURE completion of PEP by patients bitten by proven rabid animals

#### **Barangay**

1. ASSIGN/DESIGNATE one BHW per barangay as barangay rabies coordinator
2. ASSIST in the case investigation conducted by MAO/MVO/CVO/PVO
3. ASSIST in the response activities (ring vaccination and restriction of free-roaming animals) conducted by MAO/MVO/PVO
4. CONDUCT educational campaign together with MHO/PHO
5. OBSERVE the suspected animal and animal with episode of high-risk bite
6. RESTRICT free-roaming dogs
7. SUBMIT/TRANSFER suspect animals or animals that die of unknown reason to MAO/CVO/MVO

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