Rabies Management in Thailand

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MOU on the implementation of One Health Initiatives for National Health Security, 2016

Chain of Command of Livestock Administration

DLD Headquarters (planning units for disease control & prevention)

9 Regional Livestock Offices

77 Provincial Livestock Offices

888 District Livestock Offices

7,800 subdistricts (>2,500 livestock assistants)

30,000 Village Livestock Volunteers

9 Livestock Regions
# Dogs and Cats Population

## Number of animals

<table>
<thead>
<tr>
<th>Category</th>
<th>With owners</th>
<th>Without owners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dog</strong></td>
<td>8,477</td>
<td></td>
</tr>
<tr>
<td><strong>Cat</strong></td>
<td>4,768</td>
<td></td>
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</tbody>
</table>

**Total**

- **With owners**: 5,516,466 (99.76%)
- **Without owners**: 13,245 (0.24%)

**Map of Thailand**

- Color-coded areas indicating the number of animals (0 - 5,000, 5,001 - 10,000, 10,001 - 20,000, 20,001 - 50,000, > 50,000)
Positive Rabies Cases

http://www.thairabies.net/dashboard/Default.aspx
Rabid cases in Animals

Type of Animals

- Dog 88.21%
- Cattle 7.11%
- Cat 3.67%
- Others 1.01%

Pet Ownership

- With owners 55.3%
- Without owners 35.42%
- Unknown 9.27%

http://www.thairabies.net/dashboard/Default.aspx
Prevention policy on rabies

1. Survey and registration of dogs
2. Immunization: Vaccine
3. Dog population control
4. Laboratory surveillance
5. Outbreak management
6. Animal shelter
Dog population control

- Thailand has about 7 millions dog population and about 10% are stray dogs.
  - Sterilization
Controlling policy on rabies

Disease investigation conducted by human health and animal health after disease notification

- Outbreak investigation
- Quarantine and control movement
- Ring vaccination (5 km around index cases)
- Collaboration with other units such as Ministry of Public Health
- Announcement and publication about rabies information
- Control dog and cat population
- Surveillance (6 month)
Surveillance on rabies

1. Passive Surveillance
   - Suspected animals
   - Report from network of disease notification
   - Confirm rabid cases by lab.
   - Report online via Thai rabies.net

2. Active Surveillance
   - Confirm: area status
   - Random: 0.01% of dog population 1 sample / 1 sub-district
The Strategy of Animal Free of Rabies: Human Are Safe from the Disease Project Under the Wish of Her Royal Highness Princess Chulabhorn (Valayaluk) (2017-2020)
Strategies of Rabies Elimination
Animal Rabies Laboratory Diagnosis

- DLD lab. (national & regional lab.)
- Queen Saowabha Memorial Institute
- Some University lab.
Welcome to NIAH
**DLD Laboratories**

- **1 National lab**
- **8 Regional labs**
- **2 Other labs**

- Veterinary Biologics Assay Division (VBAD) (Pakchong, Nakhon Ratchasrima)

- Regional Reference Laboratory for Foot and Mouth Disease in South East Asia (RRL) (Pakchong, Nakhon Ratchasrima)

**OIE Reference Laboratory for Brucellosis @ NIAH**
ISO/IEC 17025: 2005

- Established since 2006,
- Accredited in 2008 by Bureau of Laboratory Quality Standards, Department of Medical Science, Ministry of Public Health
- 88 scopes accredited
  - (NIAH:15, VRDCs:70, RRL:3)
Facilities

- Disease Diagnosis
- Research
International Collaboration

NIAH, RVRDCs

French Agency for Food, Environmental and Occupational Health & Safety

United States Department of Agriculture

Food and Agriculture Organization of the United Nations

Animal Production and Health Commission for Asia and the Pacific

Department of Disease Surveillance and Response CDC-Thailand, World Health Organization

Australian Animal Health Laboratory, CSIRO

Animal and Plant Quarantine Agency

National Institute of Animal Health, Japan

United States Department of Agriculture

Food and Agriculture Organization of the United Nations

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Rabies Diagnostic Techniques
Current Diagnosis methods

- Agent identification
  - Direct fluorescent antibody test (FAT)
  - Molecular technique
- Serological test
  - ELISA
  - Fluorescent antibody virus neutralisation test (FAVN)
Gold standard: 99% SE, 95% SP (Cliquet, 2018)

Fluorescein-labeled monoclonal antibodies against nucleocapsid protein

• **Purpose**
  – Rabies diagnosis from brain tissues e.g. dogs, cats, cattle etc.

• **Quality assurance**
  – ISO 17025 accreditation
  – Interlaboratory comparison
**PCR**

- **Purpose**
  - To test other specimens besides brains e.g. saliva
  - For research (do not use in routine diagnosis for rabies)
  - Sequencing

- **Quality assurance**
  - Protocol from Australian Health Laboratory (AAHL)/OIE: nested PCR, real-time PCR
  - Positive & negative controls
  - Validation and standardization are needed.
Platelia II kit: Anti-glycoprotein G antibodies quantitative test, cut-off 0.5 EU/ml

Propose

• To determine responses to rabies vaccination
• For large epidemiological survey in animals

Quality assurance

• Standard control in the kit
• Validation the test kit with FAVN
FAVN

- **Purpose**
  - To determine responses to rabies vaccination and the effectiveness of rabies vaccination campaign
  - To follow the requirement for international travel of animals e.g. Taiwan, Singapore, Indonesia etc.

- **Quality assurance**
  - Proficiency testing with (AAHL) in 2013-2014 supported by FAO
  - Standard serum control
  - Standard virus: CVS-11 strain
  - Well-trained staffs
Thank you