

WOAH-WHO Regional Training Workshop on Rabies Diagnosis for South-East Asia, 21-25 October 2024

Concept Note

Background

Rabies remains a significant public health concern in the WHO South-East Asia Region, with eight countries—Bangladesh, Bhutan, India, Indonesia, Myanmar, Nepal, Sri Lanka, and Thailand—still being endemic. Despite being entirely preventable, rabies continues to pose serious threats to both human and animal health. Current surveillance data in both animals and humans are insufficient and often incompatible with the need to accurately describe the burden of disease. For instance, while estimates suggest over 27,000 annual human deaths in the Region, official reports for 2022 only accounted for 544 human cases across 8 countries and 799 animal rabies cases in 7 countries, as reported to WHO.

The lack of robust data limits the effectiveness of rabies elimination strategies. In humans, most cases are diagnosed solely based on clinical features and exposure history, if diagnosed at all. Often, rabies deaths are underreported and misdiagnosed as other common acute febrile diseases, such as cerebral malaria or viral meningitis. Detection rates are particularly low for atypical clinical manifestations or paralytic forms, as well as cases where animal exposures occurred weeks to months before disease onset and might not be linked.

Likewise, in animals too, most rabies cases go unnoticed/unreported owing to lack of rabies diagnostic capacity at the ground level.

A definitive, reliable diagnosis of rabies can only be made by appropriate laboratory methods. However, laboratory diagnosis of human and animal rabies cases is difficult as samples are often not available (lack of awareness for sample testing requirements, lack of competence for selecting optimal samples, lack of appropriate sampling capacity, difficulties in getting samples post-mortem due to sociocultural reasons, incomplete data provided), or laboratory capacity is missing.

Accurate laboratory diagnosis is not only crucial for assessing the disease burden, advocate for support, evaluate rabies programmes and monitoring progress towards the global goal of “Zero by 30” but also a fundamental pillar for Integrated Bite Case Management (IBCM) strategies. IBCM connects animal and human health sectors allowing for joint risk assessment of patients and suspect animals to make informed Post-Exposure-Prophylaxis (PEP) decisions and trigger appropriate rapid response actions. This advanced surveillance method not only reduces human and animal rabies deaths but also maximizes resources and is a prime example for implementing One Health.

The need for increased laboratory capacity was also expressed at the latest meeting of Programme Managers and the Regional Technical Advisory Group (RTAG) on dog-mediated human rabies in South-East Asia Region in March 2023 in Bangkok and in animal rabies workshops/trainings conducted by the World Organisation for Animal Health (WOAH). It was further reiterated at the Asia Pacific Rabies meeting organized by the Regional Tripartite in July 2024 in Bangkok.

WHO SEARO and WOAH have been collaborating on various rabies related activities in the region. Thus, in response to the needs of its members, a 5-day training workshop is being proposed to strengthen laboratory capacity for rabies diagnosis in animals and humans. This workshop will provide theoretical

and practical guidance as well as hands-on training on different ante- and post-mortem rabies diagnosis and minimally invasive sample collection methods, targeting young/mid-level professionals from both human and animal sectors in 8 priority countries (Bangladesh, Bhutan, India, Indonesia, Malaysia, Nepal, Sri Lanka, Timor-Leste) actively engaged in the field of rabies diagnosis but lacking previous training in this area.

Objectives

1. **Enhance laboratory diagnostic capacity** for rabies in endemic SEA countries.
2. **Improve rabies surveillance** capabilities on the ground, leading to enhanced disease detection, reporting, and control.
3. Establish a **foundation for implementing IBCM** as an advanced rabies surveillance method.
4. **Foster networking and coordination** among rabies diagnostic laboratories within the region.
5. **Facilitate collaboration** between human and animal rabies diagnostic laboratories at the national and regional levels.

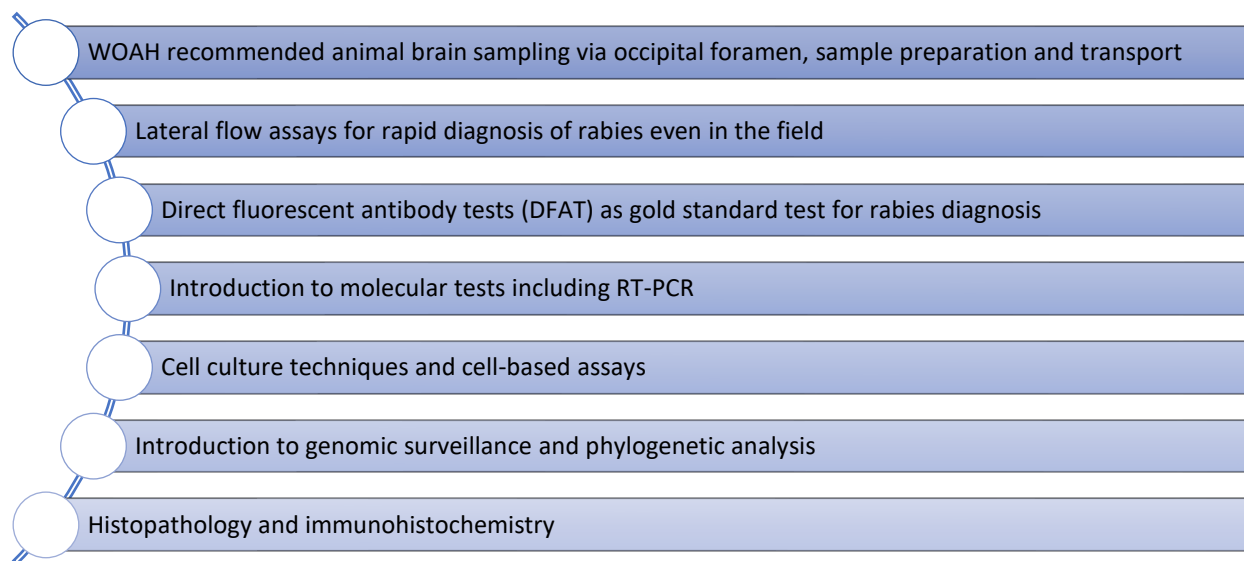


Figure 1. Specific topics included in the training

This workshop aims to empower participants with the knowledge, skills, and networks necessary to advance rabies diagnosis, surveillance, and control efforts across the South-East Asia Region following a One Health approach.

The concept of the training involving human and animal health participants is being pursued based on the following benefits:

- Better understanding of each sector's strengths and weaknesses on rabies diagnosis and rabies control situation which could encourage sharing of resources/expertise at country level.
- Better understanding of the concept of One Health when put into practice (such as IBCM, joint laboratory diagnosis, data sharing, joint research using molecular techniques)
- Encourages team building in countries between human and animal health laboratories and persons.

Trainees

Laboratory technicians/veterinarians working on animal and human rabies diagnosis at the national/sub-national rabies laboratories of 8 endemic countries will be the targeted participants in this training course. A total of 16 participants will be invited for the training: young mid-level professionals from human and animal health sectors from 8 priority countries (Bangladesh, Bhutan, India, Indonesia, Malaysia¹, Nepal, Sri Lanka, Timor-Leste) actively engaged in the field of rabies diagnosis but lacking previous training in this area.

Logistics

Trainers

Experts from the WHO Collaboration Centre for rabies at the National Institute of Mental Health & Neurosciences (NIMHANS) as well as from the WOAHP reference laboratory at KVAFSU-CVA Rabies Diagnostic Laboratory, Dept. of Microbiology, Veterinary college KVAFSU, Bengaluru will provide the training.

Date, duration, and training Venue

The 5-day training will be held from 21-25 October 2024 at NIMHANS and KVAFSU campus in Bengaluru, India, respectively.

Organisers

The training workshop will be organised by the following agencies:

- WHO South-East Asia Regional Office, New Delhi (SEARO) – lead
- WOAHP Regional Representation for Asia and the Pacific, Tokyo (WOAHP RRAP)
- National Institute of Mental Health & Neurosciences (NIMHANS)
- KVAFSU-CVA Rabies Diagnostic Laboratory (WOAHP Reference Laboratory for Rabies)

The organisers will bear the expenses for the meeting costs (venue hiring, working lunch/tea/coffee, stationeries, posters, banners etc.) as well as the costs of attendance of all the funded participants from the countries. Further details including travel arrangements, accommodation and local transport will be shared by the responsible event company after nominations have been received.

Contact persons

<u>WHO SEARO</u>	<u>WOAHP RRAP</u>	<u>NIMHANS</u>	<u>KVAFSU</u>
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Annex 1. Tentative Programme Schedule

¹ Malaysia is a rabies endemic country in the WHO Western Pacific Region and has been included in this training due to special request by the country.

Annex 1. Tentative Programme Schedule (21-25 October 2024)

WHO-WOAH JOINT TRAINING WORKSHOP ON RABIES DIAGNOSIS FOR SOUTH-EAST ASIA

Department of Neurovirology, National Institute of Mental Health & Neurosciences (NIMHANS) &
KVAFSU-CVA Rabies Diagnostic Laboratory, Dept. of Microbiology, Veterinary college KVAFSU, Bengaluru
Supported by World Health Organisation (WHO) and World Organization of Animal Health (WOAH)

Timing	Session	Resource Person
Day 1 (21 October 2024) – Location: NIMHANS		
8:30 - 9 am	Registration of participants	NIMHANS
9 - 9:45 am	Inauguration and welcome remarks: Director NIMHANS WHO and WOAH Representatives Introduction of participants; Pre-Assessment	NIMHANS, KVAFSU-CVA, WHO, WOAH
9:45 - 10 am	Scope and objectives of the workshop	WHO/WOAH
10 - 10:30 am	Tea break	
10:30 - 11:00 am	Lecture: Introduction to Integrated Bite Case Management (IBCM) for rabies; Reporting of rabies results (key rabies indicators, case definitions)	WHO/WOAH
11 - 11:30 am	Lecture: Diagnosis of human rabies	Dr Reeta
11:30 - 12:00 pm	Lecture: Diagnosis of animal rabies	Dr Isloor
12 - 12:30 pm	Lecture: Biosafety and Good Laboratory Practices	Dr Ashwin
12:30 - 1:30 pm	Lunch break	
2 - 2:30 pm	Lecture: Cell culture techniques	Dr Ashwini
2:30 - 3:30 pm	Batch A	Practical demo: Cell culture techniques
	Batch B	
3:30 - 4 pm	Tea break	
4 - 5 pm	Visit to NIMHANS Brain Museum	Dr Anita
Day 2 (22 October 2024) - Location: KVAFSU-CVA		
9 - 10 am	Lecture: Animal brain sampling, sample preparation and transport	Dr Isloor
10 - 10:30 am	Lecture: Lateral Flow Assays (LFA) and direct Rapid Immunohistochemical Test (dRIT)	Dr Isloor/Dr Sharada
10:30 - 11 am	Tea break	
11 am - 1 pm	Batch A	Demo/Hands-on: Brain sampling, LFA and dRIT
	Batch B	
1 - 2 pm	Lunch break	
2 - 2:30 pm	Lecture: Direct Fluorescent Antibody Test (FAT)	Dr Isloor
2:30 - 4 pm	Demo/Hands-on: FAT (Staining)	Dr Isloor/Dr Sharada
4 - 4:30 pm	Tea break	
4:30 - 5 pm	Demo/Hands-on: FAT (Interpretation)	Dr Isloor
Day 3 (23 October 2024) - Location: NIMHANS		
9 - 9:15 am	Lecture: RNA Extraction - Procedure	Dr Lonika
9:15 - 10:30 am	Batch A	Demo/Hands-on: RNA extraction
	Batch B	

	Batch C		Ms Shubhangi
10:30 - 11 am	Tea break		
11 - 11:15 am	Lecture: Real time PCR - Procedure		Dr Lonika
11:15 am - 1 pm	Batch A	Demo/Hands-on: Real-time PCR	Ms Sathyapriya
	Batch B		Ms Arpita
	Batch C		Ms Shubhangi
1 - 2 pm	Lunch break		
2 - 3 pm	Lecture: Human Pre & Post-exposure prophylaxis for rabies		Dr Reeta
3 - 3:30 pm	Batch A	Demo/Hands-on: Interpretation of PCR results	Ms Sathyapriya
	Batch B		Ms Arpita
	Batch C		Ms Shubhangi
3:30 - 4 pm	Tea break		
4 - 4:15 pm	Lecture: Point of Care RTPCR Assay		Dr Reeta
4:15 - 5 pm	Demo: Point of Care RTPCR Assay (Truenat)		Ms Soundarya, Mr Ranjith
Day 4 (24 October 2024) - Location: NIMHANS			
9 - 9:30 am	Lecture: Rapid Fluorescent Focus Inhibition Test (RFFIT)		Dr Ashwini
9.30 -10:30 am	Batch A	Practical Demo: RFFIT Procedure	Mr Mahesh
	Batch B		Ms Sujatha
10:30 - 11 am	Tea break		
11 am - 1 pm	Batch A	Practical Demo: RFFIT (Staining and Interpretation)	Mr Mahesh
	Batch B		Ms Sujatha
1 - 2 pm	Lunch break		
2 - 3 pm	Lecture: Virus sequencing techniques		Dr Varun
3 - 3:30 pm	Demo: Illumina Sequencing Technology		Dr Varun, Ms Shubhangi
3:30 - 4 pm	Tea break		
4 - 5 pm	Lecture: Rabies Clinical Cases		Dr Ashwini, Dr Lonika, Participants
Day 5 (25 October 2024) - Location: NIMHANS			
9 - 10:30 am	Lecture: Histopathology & Immunohistochemistry for Rabies Diagnosis		Dr Anita
10:30 - 11 am	Tea break		
11 am - 1 pm	Hands-on: How to go from here? Country-wise planning (capacity strengthening, implementation, needs assessment)		ALL Moderated by WHO/WOAH
1 - 2 pm	Lunch break		
2 - 2:30 pm	Post-assessment		Dr Varun, Dr Lonika
2:30 - 3:30 pm	Country-wise participants' presentations & Feedback (10 minutes each)		Moderated by WHO/WOAH
3:30 - 4:30 pm	Valedictory and closing remarks		NIMHANS, KVAFSU-CVA, WHO, WOAH
4:30 - 5 pm	Tea break		