

Human Rabies

Diagnostic Techniques, Surveillance and Case Management



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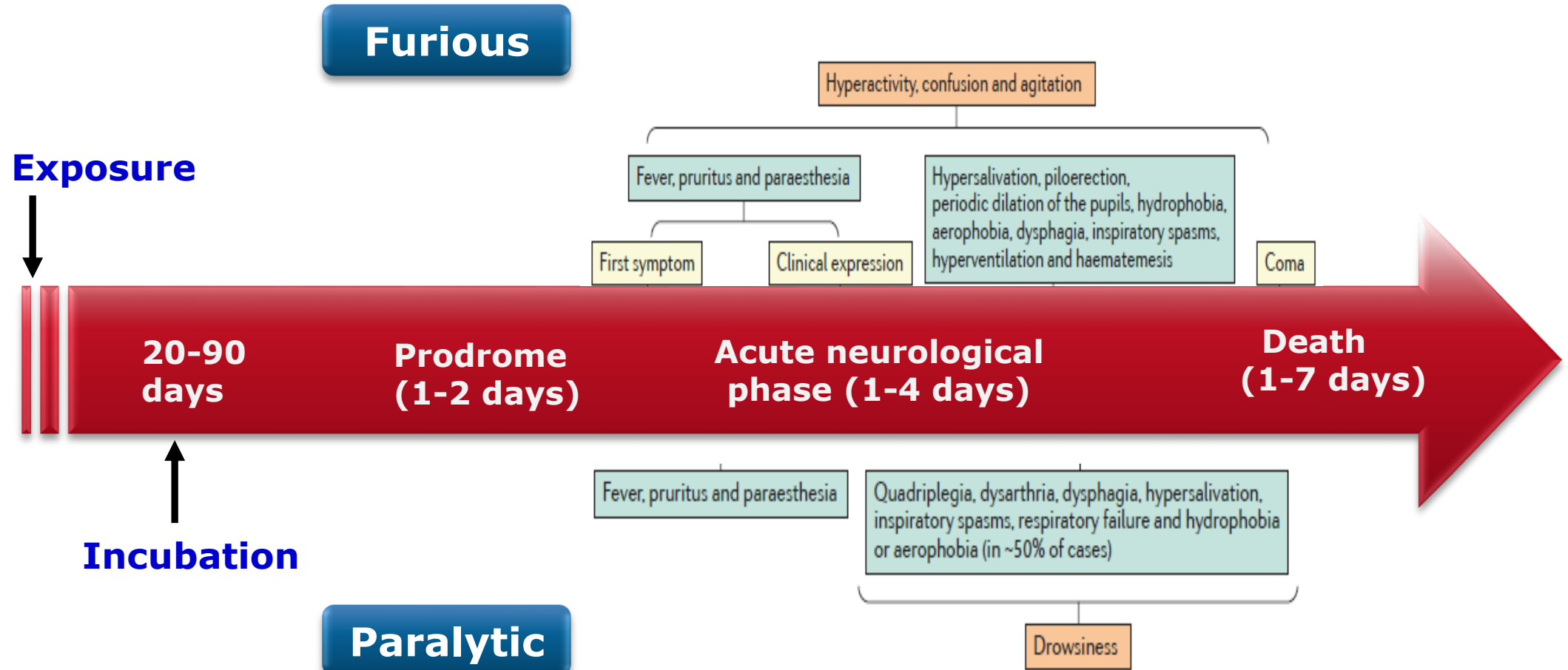
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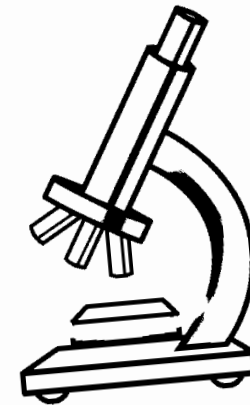
Bangalore, India

Human rabies: Clinical course



Need for Laboratory Diagnosis

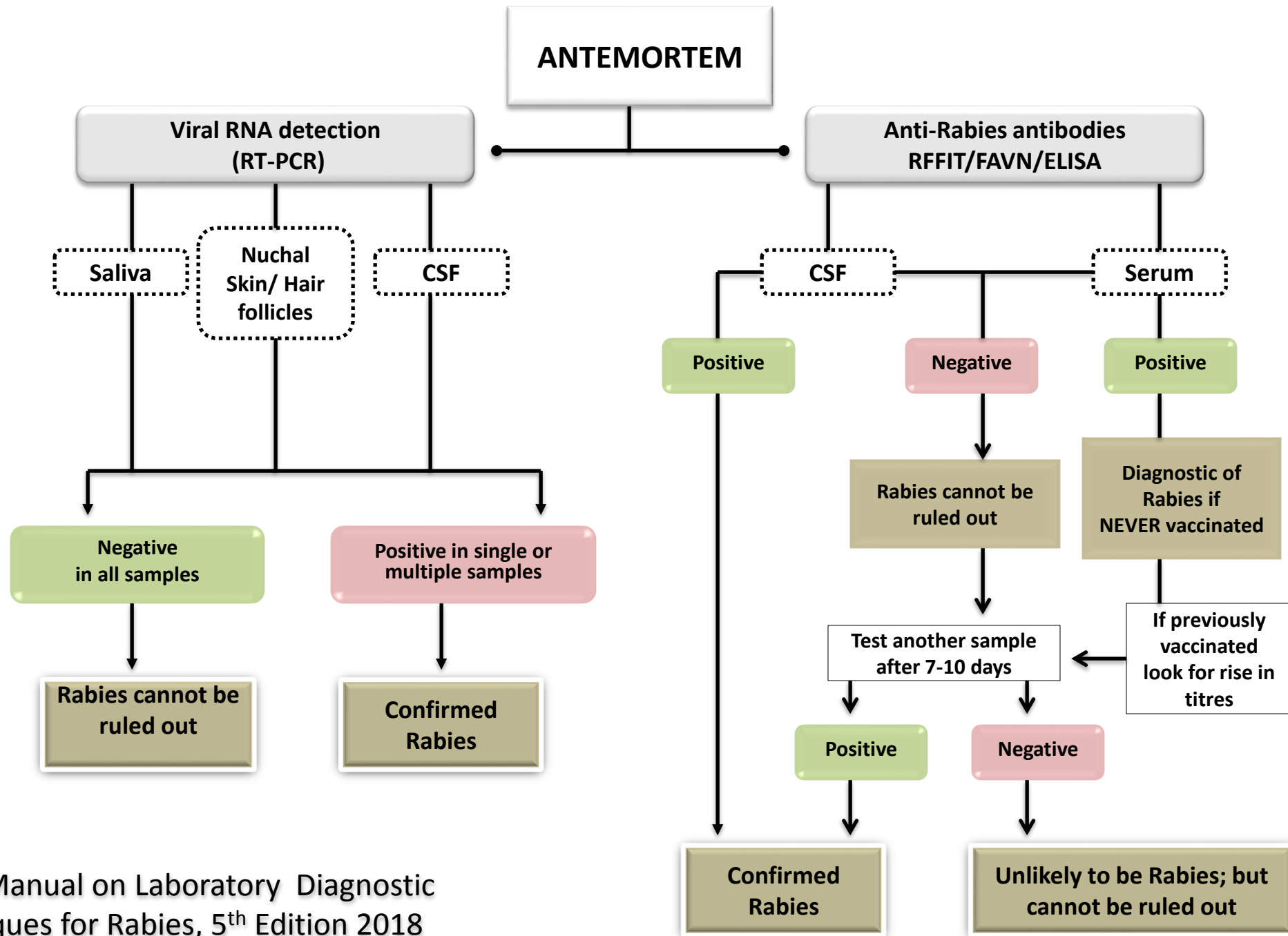
- **Distinguish from other clinical mimics**
- **Avoid unnecessary tests and treatment**
- **Patient management**
- **Case closure and grief counseling**
- **Infection control protocols**
- **Prophylactic vaccination to close contacts**
- **Characterization of causative agent**
- **Surveillance and estimation of disease burden**
- **Monitor 'rabies-free' areas**



Laboratory Confirmation

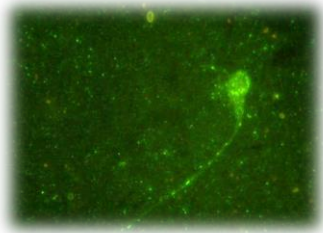
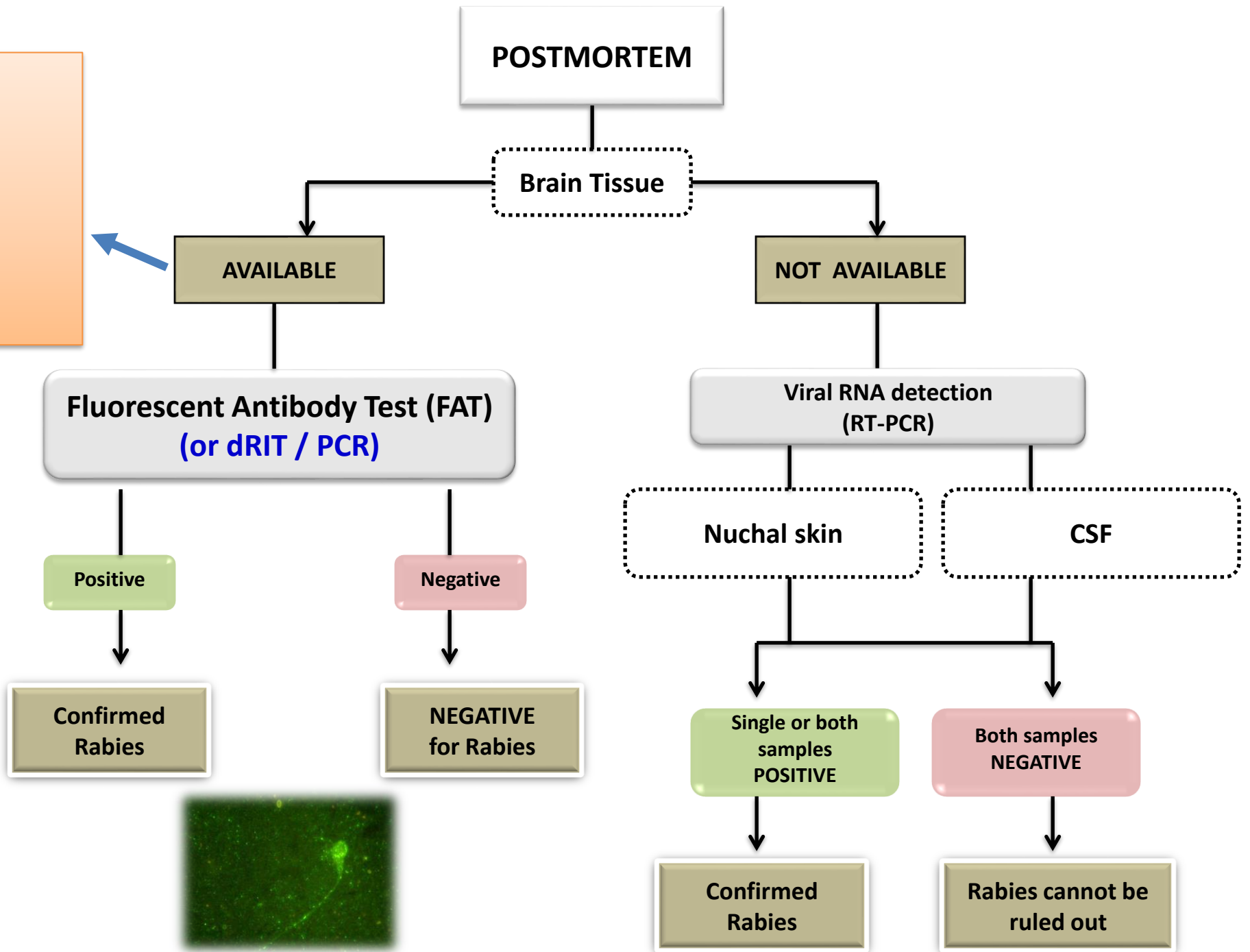
Confirmation of a clinical case (one or more tests below)

- Presence of viral antigens in samples (e.g. brain tissue, skin)
- Isolation of virus from samples in cell culture/lab animals
- Presence of viral-specific antibodies in the cerebrospinal fluid (CSF) or serum of an unvaccinated person
- Presence of viral nucleic acids in samples (e.g. brain tissue, skin, saliva)



Obtained by

- Craniotomy
- Sub-occipital cisternal puncture
- Retro-orbital
- Trans-nasal route



Diagnostic Challenges

- 'Gold standard'-Antigen detection by FAT in brain tissue (post-mortem)
- Obtaining consent for autopsy is a challenge
- Few laboratory facilities for antemortem diagnosis in endemic areas
- Sensitivity of antemortem diagnosis low-**multiple tests on several/serial clinical samples required to confirm diagnosis**
- **Antemortem tests can 'rule in' rabies but cannot 'rule out' rabies**

Surveillance

- **Effective control & elimination of rabies requires effective surveillance**
- **Public health surveillance:**

Continuous, systematic collection, analysis, interpretation and dissemination of information on health events

 - **Demonstrate the presence and distribution of the disease (in humans & animals)**
 - **Inform public health policies**
 - **Track impact of interventions and progress towards specific goals**
 - **Document the absence of disease**

Case Definitions

A suspected clinical case of human rabies

“an acute neurological syndrome (i.e. encephalitis) dominated by forms of hyperactivity (furious rabies) or paralytic syndromes (paralytic rabies) progressing towards coma and death, usually by cardiac or respiratory failure, typically within 7–10 days of the first signs if no intensive care is instituted.”

Human case definitions-Surveillance activities

CASE	DEFINITION	SURVEILLANCE ACTIVITY
Suspected	A case that is compatible with the clinical case definition	<ul style="list-style-type: none">•Notify authorities•Collect samples•Conduct verbal autopsy
Probable	A suspected case with reliable history of contact with a suspected/probable/confirmed rabid animal	Identify contacts of the patient and/or animal involved for follow-up
Confirmed	A suspected or probable case that is confirmed in a laboratory	<ul style="list-style-type: none">•Record lab findings•Link to verbal autopsy•Notify authorities

WHO expert consultation on rabies: third report. WHO technical report series 1012, 2018

Key Concepts for Effective Surveillance

- **Disease must be made notifiable**
- **Training to health workers: case recognition & surveillance methods**
- **Community participation**
- **Strengthening diagnostic laboratories**
- **Effective communication and dissemination of data**
- **Co-ordination between human and animal health sectors**
- **Sustained surveillance-long term commitment of stakeholders**

Case Management

Suspected/Confirmed
Human Rabies

Palliative Care

Home/Hospital
Quiet, draft-free room

- Sedation
- Rehydration
- Analgesics/anti-pyretics
- Avoid invasive procedures

Aggressive Management

Dedicated Hospital

Critical Care

Experimental Therapy

THANK-YOU