



RABIES CLINICAL AND LABORATORY DIAGNOSIS ADVISORY

An update for Physicians, Accident & Emergency Practitioners and Laboratorians

26 January 2022

Outbreak Response Unit, Division of Public Health Surveillance and Response National Institute for Communicable Diseases (NICD)
24-hour clinician hotline number: 0800 212 552

In 2021 an increase of human rabies cases have been noted in South Africa.

Rabies is endemic in South Africa with an increase in the number of confirmed dog rabies cases which relates to the increase in human cases. The provinces most severely affected by dog rabies outbreaks include the Eastern Cape (notably Gqeberha and Buffalo City and surrounds), Limpopo (notably Vhembe district), and KwaZulu-Natal (notably Ethekwini and King Cetshwayo districts). Refer to KZN Department of Agriculture and Rural Development for updates on EC and KZN cases (<https://www.kzndard.gov.za/latest-news/item/309-rabies-update>). Sporadic cases in domestic dogs and a focal outbreak in jackal have been reported in the Western Cape (Khayalitsha and Gordon's Bay areas) and Gauteng (Cradle of Humankind area) provinces, respectively during the course of 2021. As of 25 January 2022, no human cases were associated with these outbreaks.

What is rabies?

- Rabies is a fatal viral disease, but is preventable in humans.
- The rabies virus is transmitted to humans through virus-laden **saliva** from a rabid animal, mostly **dogs**. The virus is shed in the saliva of an infected animal and can be introduced into another body through **bites, scratches and any other wounds that transect the skin**. Contact of the infected saliva with mucous membranes is also thought to be a possible route of infection, whereas contact of infected saliva with intact skin is not considered an exposure.
- Rabies is preventable through pre-exposure prophylaxis (PrEP) for individuals at high and continual risk, and post-exposure prophylaxis (PEP). The draft guidelines for the prevention of human rabies in South Africa is available from the NICD website, <https://www.nicd.ac.za/diseases-a-z-index/rabies/>

Case definition for suspected cases:

A person presenting with an **acute neurological syndrome (encephalitis)** dominated by forms of **hyperactivity (furious rabies) or paralytic syndromes (dumb rabies) progressing towards coma and death**, usually by respiratory failure, **within 7-10 days after the first symptom** if no intensive care is instituted with or without animal exposure history.

Clinical presentation, diagnoses and management:

- **Incubation period** for the rabies virus varies but is typically 20 to 90 days. During this period, there is no symptoms and no laboratory testing to confirm infection.
- **Acute phase:** Nearly two thirds of patients develop furious rabies, which may include the following signs: hyperexcitability, generalised arousal, hydrophobia, aerophobia, aggression, confusion, etc. The remaining cases present with the paralytic form, which is similar to Guillain-Barre syndrome. Most patients succumb within a week of the onset of symptoms. Even within an intensive care setting, survival rarely exceeds one month. Clinical diagnosis is based on the observation of **progressive encephalitis** in a patient without an alternative confirmed diagnosis.
- **Management is supportive.** Rabies vaccination or immunoglobulin therapy are not useful upon the onset of clinical illness, and may thwart diagnostic testing efforts.
- **Infection prevention and control:** patients do not need to be isolated for IPC measures, standard precautions apply. For compassionate reasons, private accommodation is recommended. Rabies post-exposure prophylaxis are considered on a case-to-case basis for health care workers that may have been exposed to the patient's saliva and other secretions.
- **Differential diagnoses** for rabies include bacterial/viral meningitis, cerebritis or encephalitis, acute flaccid paralysis, but also non-infectious causes such as snake bite and psychosis. An epidemiological link involving possible exposure to a rabid animal will strengthen the suspicion of rabies, but such histories are not forthcoming in all cases.
- **Specialised laboratory tests** for rabies are always required to confirm or exclude the diagnosis.

Response to a suspected case of rabies:

1. Establish that the patient meets the case definition for a suspected clinical rabies case.
2. Rabies is a category I notifiable medical condition in South Africa. Please notify suspected cases immediately (<https://www.nicd.ac.za/nmc-overview/>)
3. Submit samples to NICD for laboratory testing.

Sample collection and submission for rabies testing:

1. Detailed sample collection and submission guidelines are available on the NICD website, <https://www.nicd.ac.za/diseases-a-z-index/rabies/>
2. Submit the ante-mortem samples (saliva, skin biopsy, CSF) or post-mortem samples (brain samples and skin biopsies).
3. Complete the case investigation form as available on NICD website (in addition to NMC notification). Submit the form with the samples.
4. Samples are referred to NICD through using routine referral protocols. The samples should be packaged in accordance with the guidelines for the transport of dangerous biological goods (triple packaging using absorbent material) and transported directly to:
National Institute for Communicable Diseases (NICD), National Health Laboratory Service (NHLS); Center for Emerging Zoonotic and Parasitic Diseases. No. 1 Modderfontein Rd Sandringham, 2131 Gauteng, South Africa.

Laboratory contact details:

Dr Naazneen Moolla, naazneenm@nicd.ac.za / 011 386 6338 / 0663806029 (WhatsApp or SMS only)
Dr Jacqueline Weyer, jacquelinew@nicd.ac.za / 082 903 9131 / 011 386 6376

For more information:

24-hour clinician NICD hotline number (Clinicians Only!): 0800 212 552
NICD website: <https://www.nicd.ac.za/diseases-a-z-index/rabies/>
Updated specimen collection guide: <https://www.nicd.ac.za/wp-content/uploads/2021/03/RabiesSpecimenCollectionGuide2021.pdf>