



VACCINE: RABIES



1. Vaccine indication

Rabies vaccination is indicated for the primary active prevention of rabies in persons at increased risk of infection with the rabies virus, and also as a post-exposure prophylactic in persons infected with the rabies virus, to prevent the development of rabies clinical disease.

2. Rationale for vaccination

Rabies is currently an incurable disease, with antiviral drugs, interferon, and rabies immunoglobulin been used to treat human disease only prolonging the disease and having no impact on the fatalities. However, rabies vaccine used as pre-exposure prophylaxis is 100% effective in preventing death due to rabies.

3. Type of vaccine

Inactivated rabies vaccine.

4. Composition of the vaccine

Rabies vaccines are prepared from inactivated rabies virus strains cultured in the following cell lines (i) human diploid cell culture; (ii) vero cell culture; (iii) chick embryo cell culture; and (iv) duck embryo cell culture. The virus strains are inactivated by β -propiolactone and purified by zonal centrifugation and ultrafiltration. The vaccine is stored at 2°C to 8°C, is never frozen and must be protected from light.

5. Immunogenicity of vaccines

An immune response to the rabies vaccine can be detected 7 days after vaccination. Three doses of the rabies vaccine induce antibody production in 100% of the vaccinees. Persons above 50 years of age respond less well than younger persons but all seroconvert after 5 doses.

6. Efficacy and long-term protection

Rabies vaccine is highly effective in preventing disease although booster doses are recommended every 2 to 3 years for individuals frequently at risk of exposure.

7. Candidates for vaccination

Rabies vaccine is not available as part of the EPI (SA) schedule, however there are persons who are at an increased risk of rabies virus infection and should be vaccinated. They include the following:

- Children under 15 years of age
- Laboratory staff
- Veterinarians

- Animal handlers
- Game rangers with frequent exposure to potentially infected animals
- Travellers to rabies endemic regions

8. Vaccination regimen and route of administration

The vaccine is given by intramuscular injection to the deltoid muscle.

- Pre-exposure prophylaxis

Three doses of the vaccine are given on days 0, 7, and 28, with a booster dose after 1 year.

- Post-exposure prophylaxis

As post-exposure prophylaxis (PEP), rabies vaccine should be given according to WHO guidelines. Exposure to rabies-infected material is classified into 3 categories, and PEP is administered based on these categories

Category	Type of contact	Recommended treatment
I	Touching or feeding of animals Licks of intact skin	None, if reliable case history is available
II	Nibbling on unbroken skin Minor scratches without bleeding Licks on broken skin	Administer rabies immunoglobulin and vaccine immediately. Further doses of the vaccine are given on days 3, 7, 14 and 28. Stop treatment if animal remains healthy after 10 days of observation or laboratory tests are negative for rabies
III	Single or multiple transdermal bites or scratches Contamination of mucous membrane with saliva	Administer rabies immunoglobulin and vaccine immediately. Further doses of the vaccine are given on days 3, 7, 14 and 28. Stop treatment if animal remains healthy after 10 days of observation or laboratory tests are negative for rabies

9. Interchangeability of vaccines

It is recommended that one type of vaccine be used to complete a vaccination schedule. However, when completion of a vaccination schedule with the same vaccine is not possible, the switch can be done provided it is one of the WHO recommended cell culture vaccines.

10. Side effects and special precautions

The current rabies vaccines are safe. The common side effects are pain, swelling and itching at the site of injection accompanied by mild fever.

Where to find us:

South African Vaccination and Immunisation Centre (SAVIC)
PO Box 173, University of Limpopo – Medunsa Campus
0204, PRETORIA, Gauteng Province, South Africa

Tel: + 27(12)521 3077, Fax: + 27(12)521 4284, Email: info@savic.ac.za; <http://www.savic.ac.za>