

Summary of the WHO position paper on rabies vaccines, 6 August 2010

This document incorporates the most recent developments in the field of human rabies vaccines, in particular with regard to immunization schedules, and replaces the position paper on rabies vaccines published in the *Weekly Epidemiological Record* in December 2007.

Rabies is a viral zoonosis of mammals. Rabid dogs are the dominant source of infection in humans, in whom rabies virus causes an acute, progressive encephalitis that is invariably fatal. Each year, rabies causes about 55 000 human deaths, many in children living in rural areas of Asia and Africa. The disease is grossly underreported; it is estimated that without post-exposure prophylaxis about 327 000 persons would die from rabies in Africa and Asia each year.

In industrialized countries and in most urbanized areas of Latin America human rabies is close to being eliminated owing to the vaccination of domestic dogs and the implementation of other control measures.

Cell-culture-based rabies vaccines have proven to be safe and effective in preventing rabies and have been administered to millions of people worldwide. All these vaccines can be administered intramuscularly, but some are also recommended for vaccine-saving intradermal use.

When used according to WHO's recommendations, neutralizing antibody concentrations of ≥ 0.5 IU/mL are achieved in practically 100% of healthy vaccinees and so far, no cases of rabies have been reported in individuals with such antibody concentrations.

Cell-culture-based vaccines are safe and usually well tolerated although in 35–45% of vaccinees, minor and transient erythema, pain and or swelling may occur at the site of injection, particularly following intradermal administration. Mild systemic adverse events such as transient fever, headache, dizziness and gastrointestinal symptoms, have been observed in 5–15% of vaccinees. (The old nerve-tissue vaccines induce more severe adverse reactions and are less immunogenic than CCVs; therefore their production and use are not recommended by WHO).

Pre-exposure prophylaxis is recommended for anyone who will be at continual, frequent or increased risk of exposure to rabies virus, either by nature of their residence, travel or occupation. Children living in or visiting rabies-affected areas are at particular risk. The protection is long-lasting (at least 10 years) and booster doses are only recommended for people whose occupation puts them at continual or frequent risk of exposure.

The indication for *post-exposure prophylaxis* depends on the type of contact with the suspected rabid animal: category I – touching or feeding animals, licks on intact skin; category II – nibbling of uncovered skin, minor scratches or abrasions without bleeding; category III – single or multiple transdermal bites or scratches, contamination of mucous membrane with saliva from licks, licks on broken skin, and exposures to bats.

For category I exposures, no prophylaxis is required; for category II, immediate vaccination is recommended; and for category III, immediate vaccination and administration of rabies immunoglobulin are recommended.

The position paper provides details on various WHO-recommended schedules for intramuscular as well as intradermal pre- and post-exposure vaccination, the correct use of rabies immunoglobulin, as well as on other measures to be observed following possible exposure to rabies virus.