



Frequently asked questions on oral vaccination of dogs against rabies

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This document is an annex to the ‘Oral vaccination of dogs against rabies: Recommendations for field application and integration into dog rabies control programmes’ document published by FAO, WHO and WOAAH in 2023.

For more information, or to request technical advice or support for oral rabies vaccination programmes, please contact globalrabiescoordinator@woah.org

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Q1. What is in the vaccine bait?

- The vaccine bait contains a blister or sachet filled with the liquid vaccine.

See also section 2.3.1. Palatability, and 2.3.4. Bait handling by target species.

Q2. How does oral vaccination with a vaccine bait work?

- When a dog chews on the bait, the blister or sachet filled with the liquid vaccine will be perforated and the vaccine released into the oral cavity where vaccine uptake takes place.

See also sections 2.3.1. Palatability, and 2.3.4. Bait handling by target species.

Q3. What do I do if I find a bait or discarded sachet?

- It is best to leave it alone unless the bait is in an area where your child or pet might come in contact. If you need to remove and dispose of the bait, place the bait in a bag while avoiding direct contact, cover the bait with 1:10 dilution of household bleach, wipe down any surfaces that the bait has been in contact with using bleach solution and place the cleaning materials in the bag with the bait. You may then dispose of the bag in your regular rubbish disposal. Wash your hands thoroughly with soap and water.

Q4. Why do I need to wear gloves when handling an oral rabies vaccination (ORV) bait?

- An intact bait won't harm you, but it is difficult to know if the bait may be leaking vaccine. If you come into contact with the liquid vaccine contained within the bait, wash the affected area thoroughly with soap and water and call the number listed on the bait, or your health department for further instructions.

See also sections 1.3. Risk assessment in humans, 7.11. Bait contact and adverse reaction reporting, and Annex 2. CDC suggested SOP for Rabitec Oral Rabies Vaccination Bait Contacts.

Q5. Has there been any reported human vaccine-induced rabies cases with ORV?

- No. There has been no vaccine induced rabies case reported due to ORV. Only

vaccines with the highest safety profile according to international standards should be used for ORV of dogs.

See also sections 1.2. Safety, and 1.3. Risk assessment in humans.

Q6. Is there a risk for vaccinators or other people who handle the vaccine bait?

- ❖ No. Touching or handling an intact bait system does not pose a risk. However, anyone involved in dog rabies control activities or mass dog-vaccination campaigns should receive preventive rabies vaccination.

See also section 5.5. Vaccination teams.

Q7. What is the withdrawal time of orally vaccinated dogs (in regard to consuming dog meat)?

- ❖ Currently available oral rabies vaccines do not affect consumption of dog meat at all.

Q8. How should vaccine baits be stored and transported?

- ❖ Proper storage and transport are crucial for maintaining the effectiveness of the oral rabies vaccine. Vaccine baits should be stored according to the manufacturer specifications.

See section 5.3. Cold chain.

Q9. Is the vaccine thermostable? How long does the vaccine stay viable in open air conditions if the sachet is 'open' (perforated)?

- ❖ No. Since oral rabies vaccines are based on replication-competent live viruses, the vaccine is not viable for long periods outdoors. High temperatures and ultraviolet light kill the vaccine in a short time.

See section 5.3. Cold chain.

Q10. What about cats and ruminants (goats, cows)? Can they be vaccinated with the bait?

- ❖ Oral rabies vaccines for dogs are unlikely to induce an immune response in cats and ruminants because the vaccines have not been optimised for these species.

Q11. Can dogs develop an appetite for animal species from which material has been incorporated in the baits?

- ❖ It is highly unlikely that the occasional consumption of egg bait (which, depending on the campaign, is one or two baits per year) will change a dog's food preferences. So far, there are no indications or reports that give cause for concern in this regard.

Q12. Can dogs that were orally vaccinated be marked?

- ❖ Orally-vaccinated dogs cannot be marked externally. To be marked, the dogs would have to be caught, in which case they could be vaccinated parenterally. Methods such as adding a tissue dye to the vaccine are not reliable and may change the vaccine's potency. Other tissue markers used for ORV are no alternative.

See section 2.2. Bait types

Q13. What happens when a dog eats multiple baits? How can this be prevented?

- ❖ Overdose studies (simulating a dog consuming multiple baits) are part of the safety assessment of the oral rabies vaccine and thus for approved vaccines overdose is not a concern. The right distribution method and the skills and experience of vaccinators can prevent consumption of multiple baits by the same dog in most cases.

See section 1.2. Safety.

Q14. What if my dog or cat eats an ORV bait?

- ❖ If your pet finds a bait, don't try to remove it from their mouth as you may get bitten. The vaccine cannot cause rabies and is safe if eaten by domestic dogs and cats. Eating a large number of baits may result in temporary gastrointestinal irritation to your pet, but there are no long-term health risks.

Q15. What is the difference between an oral and a parenteral vaccine?

- ❖ While a parenteral vaccine has to be injected into the muscle or under the skin using a syringe and needle, oral vaccines are easier to administer to certain dogs as they do not have to be restrained for vaccination.

Q16. What is the cost of an oral vaccine?

- ❖ Oral vaccines are generally more expensive than parenteral vaccines. However, there is no global fixed price both for oral or parenteral vaccines; price is determined by many factors, including country-specific costs.

Q17. Are the vaccine capsules (sachets) biodegradable or absorbable in the animals?

- ❖ No. Unfortunately, none of the currently available sachets are biodegradable or absorbable. The problem is not trivial, and manufacturers should work to find solutions.

Q18. What is the coverage period? How often would ORV need to be repeated in a given population?

- ❖ As with mass parenteral mass vaccination of dogs, ORV must be conducted recurrently in a given population until the rabies incidence is zero. Ideally, the population in an area should be vaccinated for at least two years after the last recorded case of rabies. For this reason, rabies surveillance and monitoring of ORV campaigns is crucial.

See sections 5.4. Selecting vaccination strategies, and 5.10. Monitoring and evaluation of oral rabies vaccination campaigns.

Q19. Is the oral vaccine accessible to anyone?

- ❖ No. The procurement and supply of vaccines is under the supervision and sole responsibility of the respective competent authority or its representative.

Q20. Can baits that were not accepted by a dog be used again?

- ❖ Yes, provided the bait has not been punctured, otherwise damaged or exposed to high temperatures or direct sunlight for too long. Vaccine baits can be washed carefully with water before being offered to another dog.

Q21. If not all baits have been used during the day, can they be used the next day? How should they be stored?

- ❖ Every vaccine bait is valuable. Unused baits should be preserved according to the specifications provided by the manufacturer.

See section 5.3. Cold chain.

Q22. How should vaccination teams dispose of discarded sachets at the end of a vaccination campaign?

- ❖ Discarded sachets should be retrieved, collected in trash bags and disposed of as infectious material at the end of each day, following prevailing regulations on hazardous waste.

See sections 4.1. Hand-out and retrieve model, and 5.11. Bait contact and adverse reaction reporting.

Q23. What is the youngest age at which a dog can be orally vaccinated?

- ❖ Although dogs below three months of age are considered not yet immunocompetent, during ORV campaigns, all dogs should be vaccinated, regardless of age, weight or state of health.

See section 5.4. Selecting vaccination strategies.

However, very young dogs cannot consume a bait if they are not yet eating solid food, and puppies can normally be parenterally vaccinated easily.

Q24. If a free-roaming dog has already received a parenteral vaccine, will there be any adverse effect after ORV?

- ❖ No, parenteral and oral vaccines do not negatively influence each other.

Q25. How should I care for my dog after vaccination?

- ❖ Because traces of the liquid vaccine will remain in the dog's mouth after consumption, you should avoid or minimise contact with your dog for at least four to six hours, until the vaccine virus is completely absorbed.

Q26. Should we do oral vaccination if the dog looks ill?

- ❖ Under normal circumstances, vaccination of dogs that seem ill would not be recommended. However, because each vaccinated dog increases the chance of breaking the infection cycle in the population, ORV campaigns should vaccinate all dogs, regardless of age, weight or health status. The next campaign may be several months away.

See section 5.4. Selecting vaccination strategies.

Q27. Does the dog need to finish the whole bait to get immunised?

- ❖ No, the dog does not need to fully consume the bait. It is sufficient if the bait is chewed properly, and the sachet is punctured so that the vaccine is released into the oral cavity. See figure 1 of 'Oral vaccination of dogs against rabies: Recommendations for field application and integration into dog rabies control programmes'.

Q28. Can the virus strain used in producing the vaccine give effective immunity to dogs in sub-saharan Africa?

- ❖ Yes, the products that have been used in the field work on any dog with an adequate immune system. There should be no regionally specific concerns about the effectiveness of the vaccine, as long as you're using it with the target species. A dog is a dog no matter where it lives.

Q29. Has a comparison been made between parenteral and ORV by way of cost, efficiency, efficacy and seroconversion?

- ❖ Yes, there are numerous laboratory and field publications on cost, efficiency, efficacy and seroconversion, and many can be found referenced in 'Oral vaccination of dogs against rabies: Recommendations for field application and integration into dog rabies control programmes'. ORV is non-inferior to parenteral vaccination but is more time-saving and (cost) efficient when dealing with free-roaming dogs. There are very few unanswered questions for ORV on dogs and stakeholders are encouraged to refer to existing literature and avoid duplicating research.

Q30. How many free roaming dogs can a vaccinator vaccinate in one day using ORV?

- ❖ This is dependent on many factors, but is reliant on organization and motivation and the spatial distribution of the local free-roaming dog population. Some studies have shown between 60-100 dogs can be vaccinated a day per vaccinator, and others have reached 200-250 dogs per vaccinator per day. ORV will likely double or even triple the efficiency of vaccinators, while targeting the actual target population – the free roaming dogs.

Q31. How do we ensure that all dogs in a group receive an oral vaccine?

- ❖ Vaccinators should first target the dominant animal in the group, then immediately offer the bait to the remaining dogs.

See section 5.5. Vaccination teams.

Q32. How can we monitor and evaluate oral rabies vaccination programmes/activities?

- ❖ This can be done in a way similar to mass dog vaccination campaigns using parenteral vaccine or ORV campaigns targeting specific wildlife species. In the latter, post-campaign monitoring includes bait uptake and vaccination coverage (serology). However, the most important metric is the rabies incidence. Hence, adequate rabies surveillance is essential for the evaluation of the vaccination campaigns. Analysing data as collected during the electronic recording offers additional opportunities to assess the campaign for example in terms of spatial coverage.

See section 5.10. Monitoring and evaluation of oral rabies vaccination campaigns.