

## Vaccinating against Rabies: Answers to Some Difficult Questions

*Veterinarians at the 2011 N.C. Veterinary Conference were quizzed about their knowledge of North Carolina rabies laws and rabies vaccination protocol. Test yourself and see how you would answer the questions below! The correct answer follows each question.*

### 1. Q. Which North Carolina agency/department/organization “owns” rabies law?

- A. The North Carolina Department of Health and Human Services is the state agency that has regulatory authority over the N.C. Rabies Laws (<http://epi.publichealth.nc.gov/rabies/pdf/NCRabiesLaws.pdf>), located in Chapter 130A (<http://www.ncga.state.nc.us/gascripts/statutes/statutestoc.pl?Chapter=0130A>), the public health chapter of the N.C. General Statutes. Public Health Veterinarians in the Veterinary Public Health Program provide 24/7 consultations for human and animal rabies risk assessments to healthcare providers, local health departments, animal control, other state agencies, veterinarians and North Carolinians.

### 2. Q. What’s the minimum legal age for a dog/cat/ferret residing in North Carolina to be vaccinated against rabies?

- A. According to N.C. G.S. 130A-185 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-185.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-185.pdf)), the owner of any dog, cat or ferret over four months of age shall keep their animal “currently” vaccinated against rabies. However, many rabies vaccines are licensed and approved for primary vaccination as early as 3 months (12 weeks) of age. The owner would still be compliant with N.C. General Statutes if the animal were vaccinated between 3 and 4 months of age as indicated in the manufacturer’s package insert. See the 2011 Rabies Compendium (<http://www.nasphv.org/Documents/RabiesCompendium.pdf>) for a list of USDA-licensed vaccines by manufacturer, species, duration of immunity, and age of primary vaccination. This information is also available in the vaccine manufacturers’ package inserts.

### 3. Q. How soon after the *initial* rabies vaccination is a dog/cat considered immunized?

- A. According to N.C. G.S. 130A-197 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-197.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-197.pdf)), when a dog, cat or ferret that has not been previously vaccinated against rabies receives a primary rabies vaccination, the animal is considered “currently vaccinated” against rabies 28 days after the date of that initial, or primary, rabies vaccination. It is important to emphasize to owners that they should particularly carefully supervise their animals during those 28 days, because the animal will not be considered immunized and “current” in the eyes of the law, if exposed to rabies during that time. In the unfortunate event that the “not currently vaccinated” animal is exposed to or potentially exposed to rabies, the animal would be subject to euthanasia or up to a 6-month quarantine at the owner’s expense. This statute is usually enforced by animal control under the direction of the local health director.

### 4. Q. Under what circumstances can a rabies titer (Kansas State University, Rabies Laboratory) be substituted for rabies vaccination in a dog? ...in a cat?

- A. North Carolina General Statutes and regulations do not allow substitution of rabies titers (which indicate the presence of circulating rabies antibodies in the animal) for rabies vaccination. All

owners of dogs, cats and ferrets shall have their animals currently vaccinated against rabies by 4 months of age, according to N.C. G.S. 130A-185 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-185.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-185.pdf)). When North Carolina law and regulations are silent on a particular public health issue, then guidance and recommendations published in the applicable CDC Morbidity and Mortality Weekly Report (MMWR) (<http://www.cdc.gov/mmwr>) are used.

According to the Compendium of Animal Rabies Prevention and Control 2011 (<http://www.nasphv.org/Documents/RabiesCompendium.pdf>), rabies serological titers do not directly correlate with protection and only indicate a response to vaccine or infection. Other immunologic factors play an important role in the animal's immunity including the animal's health, immune status, presence of chronic and/or immune-compromising diseases or conditions, age, and genetics. Therefore, "...evidence of circulating rabies virus antibodies should not be used as a substitute for current vaccination in managing rabies exposures or determining the need for a booster vaccination."

Some rabies-free jurisdictions (Hawaii, Guam, Japan, St. Kitts and Nevis, Australia, New Zealand, France, and the United Kingdom) require the Fluorescent Antibody Virus Neutralization (FAVN) test for dogs and cats to qualify for a reduced quarantine period prior to entry into those jurisdictions. When importing or traveling with pets, always check with the destination authority to verify pet importation requirements. FAVN test results are provided in the United States by Kansas State University and the Department of Defense (DoD) [military members only]. You may direct questions about the FAVN to:

The Rabies Laboratory  
 Kansas State University  
 2005 Research Park Circle  
 Manhattan, KS 66502  
*Phone:* 785-532-4483  
*Forms:* [www.vet.ksu.edu/rabies](http://www.vet.ksu.edu/rabies) (review website for shipping instructions)

5. **Q. What are the legal implications for a 5-year old pet dog that is provoked by and bites a neighbor's child,**
  - (a) **if the dog's rabies vaccination status is current?**
  - (b) **if the dog is overdue for a 3-year rabies booster by only 5 days?**
  - A. The response is the same for both (a) and (b). Any domestic dog, cat or ferret, regardless of vaccination status, that bites a person shall be immediately confined for 10 days in a place designated by the local health director (N.C. G.S. 130A-196) ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-196.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-196.pdf)). After reviewing the circumstances of the particular case, the local health director may allow the owner to confine the animal on the owner's property.
  
6. **Q. TRUE or FALSE? In North Carolina, a dog that is imported by its owner from Japan must be quarantined at home for 1 month, must be examined by a licensed veterinarian at the beginning and the end of the quarantine period, and, if deemed healthy, must receive a single dose of rabies vaccine at the completion of the quarantine period.**
  - A. False.  
 According to the Centers for Disease Control and Prevention (CDC) animal importation regulations (<http://www.cdc.gov/animalimportation/BringingAnimalToUs.html>), dogs must have a certificate showing they have been vaccinated against rabies at least 30 days prior to entry into

the United States. These requirements apply equally to service animals, such as Seeing Eye dogs. However, dogs not accompanied by proof of rabies vaccination, including those that are too young to be vaccinated (*i.e.*, less than 3 months of age), may be admitted if the importer completes a confinement agreement and confines the animal until it is considered adequately vaccinated against rabies (the vaccine is not considered effective until 30 days after the date of vaccination).

North Carolina General Statute 130A-193

([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-193.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-193.pdf)) requires that all domestic dogs, cats, and ferrets entering North Carolina must have a health certificate issued by a licensed veterinarian within 30 days of the date of entry into the state, and animals four months of age and older must also have a current rabies vaccination and rabies certificate.

Rabies vaccines used in countries outside of the United States typically are specific to the regulatory requirements of that country and are not licensed by the United States Department of Agriculture Center for Veterinary Biologics (CVB). North Carolina G.S. 130A-185 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-185.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-185.pdf)) requires that only animal rabies vaccine licensed by the United States Department of Agriculture and approved by the Commission shall be used on animals in this state. G.S. 130A-190

([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-190.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-190.pdf)) further states that dogs shall wear rabies vaccination tags at all times. Cats and ferrets must wear rabies vaccination tags unless they are exempt from wearing the tags by local ordinance. To maintain compliance with N.C. law, the N.C. Veterinary Public Health Program recommends that owners of dogs and cats being imported into North Carolina from outside of the United States establish a relationship with a veterinarian with one week of entry into the state, have their animal vaccinated if it is 3 months of age or older with a USDA-licensed rabies vaccine, and be issued a rabies tag.

- 7. Q. Regarding rabies vaccination, what are the implications for the owner of a 1-year old healthy dog, with no prior history of rabies vaccination, who has recently moved to North Carolina from Virginia?**
- A.** Pursuant to N.C. G.S. 130A-193 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-193.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-193.pdf)) dogs, cats and ferrets ( $\geq 4$  months of age) imported into North Carolina from another state shall be currently vaccinated against rabies. All animals vaccinated with USDA-licensed rabies vaccines administered by a licensed veterinarian, and accompanied by a current rabies certificate verifying the vaccination, are recognized. If an animal that is not currently vaccinated enters North Carolina, the owner has a one-week grace period by law to visit a veterinarian and have the pet vaccinated; the statute then requires that the animal be confined at the owner's home for an additional 2 weeks. If the imported animal is less than 3 months of age, it shall be confined at the owner's home, vaccinated between 3 and 4 months of age, and then confined for an additional 2 weeks by the owner. The animal is not considered "currently vaccinated" until 28 days after its primary rabies vaccination.

8. **Q. In North Carolina, what procedure exists for a licensed veterinarian to “exempt” a dog/cat from the rabies vaccination requirement if, on examination, the patient is deemed too ill/sick to vaccinate?**
- A. There is no legally accepted exemption or waiver of rabies vaccination for dogs, cats, or ferrets in North Carolina. N.C. G.S. 130A-185 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-185.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-185.pdf)) requires that owners of all dogs, cats, and ferrets 4 months of age and older keep their animals’ rabies vaccinations current. The intent of the rabies laws is to protect both domestic animals and the public against rabies. It is important to emphasize to owners, that if they elect, against the advice of a veterinarian, not to vaccinate their animals, they will not be in compliance with state law and if an exposure or a potential exposure to rabies occurs to their “not currently vaccinated” pet, the pet shall be subject to euthanasia or up to 6 months of quarantine at the discretion of the local health director, according to N.C. G.S. 130A-197 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-197.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-197.pdf)).
9. **Q. In North Carolina, can a 3-year rabies vaccine be substituted for a 1-year rabies vaccine? ...can a 1-year rabies vaccine be substituted for a 3-year rabies vaccine?**
- A. The specifics regarding administration of rabies vaccines are not addressed in North Carolina General Statutes. Rabies vaccines are recommended to be administered per vaccine label and manufacturer’s package insert. The booster interval and duration of immunity are found in the manufacturers’ package insert and should be adhered to. A 3-year rabies vaccine can be used as the primary vaccine in an animal (not previously vaccinated); however, the duration of immunity for any primary vaccine is one year and a booster will still be required within one year to complete the initial series. If a 1-year vaccine is used to booster an animal that should or could have received a 3-year booster vaccine, then the animal will have to receive another booster within one (1) year, ideally with a 3-year vaccine to ensure the longest potential duration of immunity, if applicable to the species. The rabies vaccination certificate should always reflect appropriately the duration of immunity of the vaccine administered as indicated by the expiration date.
10. **Q. A 2-year-old cat, currently vaccinated for rabies, catches and kills a bat (determined to be rabies POSITIVE). Which of the following must happen? Check all that apply:**
- cat must be quarantined in a designated holding facility for 6 months.**
  - cat must be home-quarantined for 10 days.**
  - cat must receive a single post-exposure rabies vaccine.**
  - cat must be euthanized and the brain submitted for rabies testing.**
- A. The correct answer is the third one: cat must receive a single post-exposure rabies vaccine; the vaccination must occur within 5 days of the exposure. This is mandated in NC G.S. 130A-197 ([http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter\\_130A/GS\\_130A-197.pdf](http://www.ncga.state.nc.us/EnactedLegislation/Statutes/PDF/BySection/Chapter_130A/GS_130A-197.pdf)).

In addition, N.C. Veterinary Public Health recommends the following confinement guidance provided in the 2011 Rabies Compendium (<http://www.nasphv.org/Documents/RabiesCompendium.pdf>):

(3) Dogs, cats, and ferrets that are currently vaccinated should be revaccinated immediately, kept under the owner’s control, and observed for 45 days. The rationale for an observation period is

based in part on the potential for: overwhelming viral challenge, incomplete vaccine efficacy, improper vaccine administration, variable host immunocompetence, and immune-mediated fatality (*i.e.*, early death phenomenon).

**11. Q. If a dog is six months overdue for a “booster” dose of rabies vaccine, can a 3-year rabies vaccine be administered and the dog considered immunized for the next three years?**

- A. N.C. General Statutes do not address lapses in rabies vaccinations. N.C. Veterinary Public Health follows the guidance provided by the Compendium of Animal Rabies Prevention and Control, 2011 (<http://www.nasphv.org/Documents/RabiesCompendium.pdf>): “Because a rapid anamnestic response is expected, an animal is considered currently vaccinated immediately after a booster vaccination.”

*and*

The Centers for Disease Control and Prevention makes the following recommendations: “All dogs, cats, and ferrets should be vaccinated and revaccinated against rabies according to product label directions. If a previously vaccinated animal is overdue for a booster, it should be revaccinated. Immediately following the booster, the animal is considered currently vaccinated and should be placed on a vaccination schedule according to the labeled duration of the vaccine used.”

**12. Q. What if the dog above is two years overdue for a “booster” dose of rabies vaccine? ...five years overdue?**

- A. Veterinary professional discretion is recommended when treating patients. When you are in doubt about the legal implications of veterinary practice actions, N.C. Veterinary Public Health recommends that you contact your AVMA PLIT and N.C. Veterinary Medical Board. Many factors should be considered when evaluating an animal’s immune status and whether or not to restart a rabies vaccine series. Rabies vaccines are highly immunogenic, but there may be confounding circumstances and health conditions that in the veterinarian’s professional medical assessment and judgment compromise the animal’s immune system. Long lapses after a primary vaccine (greater than 3 years), geriatric animals, acute and chronic illnesses/diseases of animals, and whether an animal is immune-compromised or on immune-suppressive therapy are among the factors to be considered when deciding if a booster vaccination is appropriate.

**Questions pertaining to the interpretation and application of rabies vaccination law for domestic pets in North Carolina should be directed to:**

Veterinary Public Health  
 Division of Public Health - Epidemiology Section  
 N.C. Department of Health and Human Services  
 1902 Mail Service Center  
 Raleigh NC 27699-1902  
 Phone: (919) 733-3410  
 After-hours emergency phone: (919) 733-3419  
 Fax: (919) 733-9555