

## Vaccinations - Is annual booster necessary?

Recently, there has been a debate over the frequency of revaccination in both the veterinary and public community. Annual revaccination has been practiced for the past few decades. In recent years, veterinary academics have conducted some studies on the duration of immunity. Their goal is to establish a vaccine guideline which can provide enough immunity but minimize the associated risks. Based on the study results, many veterinary schools have changed the vaccine guidelines by reducing the frequency of revaccination.

### Groups of vaccines



The American Animal Hospital Association (AAHA) Canine Task Force has divided canine vaccines into 3 categories: core (recommended) vaccines, noncore (optional) vaccines, and not generally recommended vaccines. Core vaccines are those against diseases with high morbidity and mortality, and are widely distributed. They are recommended to all puppies and dogs with an unknown vaccination history. Core vaccines include canine distemper virus, canine parvovirus, canine adenovirus-2 (hepatitis) and rabies virus. Noncore vaccines are used against diseases that are generally self-limiting, less fatal and are limited to specific geographic locations. These vaccines can be given depending on the exposure risk of the individual animal. This group of vaccines comprises distemper-measles virus, canine parainfluenza virus, *Leptospira spp.*, *Bordetella bronchiseptica*, and *Borrelia burgdorferi*. Vaccines identified as “not generally recommended” are indicated for diseases of little clinical significance and the efficacy of these vaccines is not proven. These vaccines are *Giardia spp.*, canine coronavirus, and canine adenovirus-1.

### Frequency of revaccination

Duration of immunity is the critical determining factor in revaccination protocol. Current studies show that the duration of immunity varies among vaccines and vaccine types (modified live, killed or recombinant). For all core vaccines (canine distemper\*, canine parvovirus\*, and hepatitis), duration of immunity exceeds 7 years (DOI for rabies exceeds 3 years) and may possibly be life-long. Based on these findings, the Task Force recommends a triennial revaccination of all core vaccines for dogs which are > 1 year old, received puppy shots and an initial booster (one year after last puppy shot). There is no evidence that revaccination more frequently

would provide more effective protection from these diseases. For the noncore vaccines, revaccination is either not recommended, recommended annually or triennially.

[\* modified live vaccines]

### **Adverse effects of vaccination**

There are few scientific studies on the adverse effects of vaccination. Many cases of adverse reactions are not reported or documented. Most common reactions are pain, soreness, stiffness, lethargy, swelling, a persistent lump, irritation, hair loss at site of injection, vomiting, and diarrhea. Some reported a change of behaviour (nervousness, fear) after vaccination. Most of these reactions occur hours or days after vaccinations. It has been alleged that repeated vaccination can have severe long term effects (causing autoimmune diseases, cancer and degenerative diseases) even though it is difficult to establish a direct link between vaccination and illnesses that happen months or years after. Until more studies of the long term effects of vaccination become available, it is prudent to avoid vaccines that are not necessary (e.g. noncore vaccines against diseases of less clinical significance and/or of low incidence), and not to vaccinate more often than needed. For the core vaccines with DOI > 7 years, annual revaccination does not provide more immunity but increases the risk of adverse reactions.



### **Conclusion**

It is clear that vaccination remains a complicated issue and the debate of optimal vaccination protocol will go on. Some may argue that even the new vaccine protocol is too conservative as it calls for triennial revaccination which seems excessive based on our current knowledge. Studies of adverse effects of vaccination are scarce. Many veterinarians and pet owners still believe that annual revaccination is safe and are reluctant to adopt the new protocol. Some veterinarians fear that triennial vaccination does not provide enough protection. Others worry about loss of revenue if annual vaccination is no longer followed. As pet guardians, we have the responsibility to educate ourselves and think critically of the current practice. On the other hand, veterinarians can be more proactive in reducing unnecessary vaccinations. They should also follow the current research closely, be more vigilant in vaccine reactions, and observe the contra-indications strictly (according to vaccine labels, vaccines should only be given to healthy animals, yet many veterinarians give



vaccines to sick animals and those under surgeries). Pet owners and veterinarians should discuss the issue openly and put our pet's well being on top of other concerns.

**Suggested reading:**

R.D. Schultz (2000). Considerations in designing effective and safe vaccination programs for dogs. In: Recent Advances in Canine Infectious Diseases, Carmichael L.E. (Ed.). Publisher: International Veterinary Information Service ([www.ivis.org](http://www.ivis.org)).

Report of the American Animal Hospital Association (AAHA) Canine Vaccine Task Force: Executive Summary and 2003 Canine Vaccine Guidelines and Recommendations.