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Highlights of the 2006 AAHA Canine Vaccination Guidelines



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Highlights:

2006 AAHA CANINE VACCINATION GUIDELINES



Richard B. Ford, DVM, MS, DACVIM, ACVPM (Hon)

Professor of Medicine
College of Veterinary Medicine
North Carolina State University
Raleigh, NC



Ronald Schultz, BS, MS, PhD, DACVM (Hon)

Professor & Chair
Department of Pathobiological
Sciences
School of Veterinary Medicine
University of Wisconsin
Madison, WI



Terry Clekis, DVM, DACVM

Braden River Animal Hospital
Bradenton, FL

Vaccines have so successfully decreased the rate of infection that some practitioners today have never seen the devastating impact of diseases that can now be prevented. Immunization has definite risks and benefits that should be evaluated in each patient, however, and guidelines have been created to assist the practitioner in decision-making.

In 2003, the first *American Animal Hospital Association Canine Vaccine Guidelines* was published.¹ Since that time new vaccines, new technologies, and new information on existing vaccines prompted the need to publish a more comprehensive version. During 2005 and 2006, the American Animal Hospital Association's (AAHA) Canine Vaccine Task Force* met to reexamine and revise the guidelines to address ongoing concerns in the veterinary community.

In addition to updated sections from the 2003 version, the 2006 Guidelines include discussion of vaccination effectiveness, duration of immunity (DOI) and the new 3-year protocol; new sections on vaccine technologies and serologic testing; an updated section on medicolegal concerns; and a completely new and in-depth section on vaccination in shelter or similar environments such as commercial kennels, pet shops, or rescue programs. Specific and complete vaccination information and recommendations for selecting appropriate vaccines for individual patients including type, optimal time of administration for puppies and adult dogs, core and noncore (or optional) designations, and general comments can be found in the easy-to-use tables (not included in this summary).[†] The complete text of the 2006 update is available free through the American Animal Hospital Association Web site, aahanet.org (AAHA membership not required). All veterinarians should review it—what follows are highlights.

RS: No dog should be left unvaccinated. Every dog should receive at least one dose of the core vaccines at or over the age of 12 weeks. "Every" means your practice, your community, your county, your state—the entire country.

CORE AND NONCORE VACCINATION RECOMMENDATIONS

2006 AAHA Guidelines pp 3 to 8

In the 2006 update, the Task Force recognized that there are some vaccines that every puppy/adult dog should receive, which are designated "core" in Table 1, column 5 of the 2006 Guidelines (see also **Core Vaccines** sidebar on page 3 of this summary). Vaccines designated "noncore" in Table 1 of the Guidelines should be administered based on

* The AAHA Canine Vaccine Task Force is an 11-member body composed of practitioners, immunologists, and internists who have volunteered their time to review the current literature and share their years of research with the objective of making recommendations on indications for selecting and administering vaccines to dogs. Members do not receive compensation, honoraria, or reimbursement for direct costs or expenses incurred from any vaccine manufacturer.

† The tables and recommendations are provided to assist veterinarians in developing a vaccination protocol for use in clinical practice and are not intended to represent vaccination standards for all dogs.

lifestyle and exposure/risk for each individual. Vaccines not recommended by the Task Force (even though licensed in the U.S.) are so designated. (Additional vaccinations appropriate for the shelter environment are listed in Tables 3, 4, and 5 of the 2006 AAHA Guidelines.)

TABLE 1 – 2006 AAHA Canine Vaccination Recommendations for the General Veterinary Practice

is the latest summary of vaccination recommendations for 3 patient categories: puppies (initial vaccination series); adult dogs (initial series for dogs older than 6 months of age); and booster recommendations. Every vaccine type licensed in North America has been included in this table and is prioritized as core or noncore and recommended or not recommended (pp 4 to 9 of 2006 AAHA Guidelines).



NEW VACCINE TECHNOLOGIES

2006 AAHA Guidelines pp 3, 10, & 11

Although the majority of vaccines currently in use for dogs are modified-live (attenuated) or inactivated (killed) bacteria or virus vaccines, advances in immunology have led to innovative approaches to development. Recombinant vaccines, including virus-vectored vaccines and subunit vaccines, are currently on the market and research is continuing to develop new types of vaccines as knowledge of pathogens and the immune responses required for infection and disease control expands. This new section in the 2006 Guidelines is an important reminder that not all vaccines are the same. What's the difference in these new vaccines compared to conventional killed and modified-live products? Why would you select one over the other for the same antigen? These questions are addressed in the new update discussion and table entries (see **New Vaccine Technologies** sidebar on page 4 of this summary).

SEROLOGIC TESTING & DOI

2006 AAHA Guidelines pp 13 & 14

This new section addresses critical questions concerning indications and interpretations of antibody titer tests for immunity to specific antigens. Surveys of veterinarians suggest that serologic testing is now relatively prevalent in the U.S., largely as a result of the new 3-year vaccination protocol recommendation. However, considerable confusion exists regarding the interpretation of titer results because of lack of standardization.

That said, antibody titers are useful for monitoring immunity to CDV, CPV-2, CAV-1,* and rabies viruses but there can be considerable variation among tests used and between laboratories. The gold standard of serologic testing for CDV and CAV-1 is virus neutralization (VN) and for CPV-2, the virus neutralization and hemagglutination inhibition (HI) test. Although many laboratories use

* Dogs are vaccinated against CAV-1 using a modified-live CAV-2 virus; laboratories reporting adenovirus titers typically report titers to CAV-1 as well.

RF: Every vaccine type licensed in North America is included in Table 1 and has been prioritized as core or noncore—including vaccines that, although licensed in the United States, are not generally recommended for routine use.

Core Vaccines

- Canine adenovirus (CAV-1)
- Canine distemper virus (CDV)
- Canine parvovirus (CPV-2)
- Rabies

RS: The core vaccines from the 5 major manufacturers provide similar immunity (minimum DOI of 3 years). All noncore (optional) vaccines require annual or more frequent revaccination.

RS: My goal would be to have rapid, cost effective, simple, standardized CDV and CPV-2 tests available so every dog could be tested 2 or more weeks after the primary vaccination series. If the tests were negative, you would revaccinate and test again.

New Vaccine Technologies		
Vaccine	Content	Advantages/Comments
Virus-vectored (recombinant) EXAMPLE: Canarypox-vectored canine distemper vaccine	Genes associated with protective antigens inserted into another organism for antigenic protein expression upon infection	Humoral and T-cell immune responses No opportunity for virus to revert to virulence Better able to overcome inactivation by maternal antibodies when compared to MLV or killed
Subunit (recombinant) EXAMPLE: Subunit Lyme borreliosis vaccine	Only the portion of the protective organism needed to induce protective immune response is used	Reduced level of antigen required for immune stimulation and elimination of extraneous antigens that may cause hypersensitivities
Gene-deleted	Produced from organisms that have been altered to either delete or inactivate a gene to make it safer	Currently no gene-deleted vaccines are available for use in dogs
DNA	Strands of DNA coding for genes of protective antigens enter host cells, are transcribed into messenger RNA, then transcribed into antigenic proteins for presentation to the immune system	Experimental DNA vaccines for companion animals are being studied at this time, but none is available commercially



other methods such as immunofluorescence or enzyme immunoassays, these have qualified and been standardized with samples tested using gold standard methods. Veterinarians submitting serum to laboratories must appreciate that results and reporting methods will vary between laboratories.

Anyone submitting samples for serology—for assessment of immune response in puppies following the initial vaccine series to the evaluation of duration of immunity (DOI) in an individual patient—should review the key points in this section. In addition, the DOIs of all core vaccines (CDV, CPV-2, and CAV-2) have been proven to be at least 3 years, and up to 7 to 9 years in some cases.

VACCINATION FROM A MEDICOLEGAL PERSPECTIVE

2006 AAHA Guidelines pp 16 to 18

This section has been updated, prompted by concerns over legal implications for implementation of the Guidelines and the new

3-year protocol. This section addresses issues of liability associated with vaccination, triennial vaccination, and informed consent. While the veterinarian is allowed considerable discretion in the selection and use of vaccines, practice standards still apply. It's a "need-to-know" section, so be sure to read it.

BEYOND VACCINATION – COMPREHENSIVE INDIVIDUALIZED CARE

2006 AAHA Guidelines pp 18 & 19

Concern that a reduction in vaccination frequency could cause clients to forego routine annual visits to the veterinarian has spurred renewed interest in providing an individualized health

care plan featuring annual visits for every dog in the practice. Vaccination needs should be assessed at least yearly, but are only one component of a comprehensive preventive health care and wellness plan. Dental care, proper nutrition, regular diagnostic testing, parasite control, and aging issues should be addressed annually, especially as dogs age more rapidly than people and often don't appear ill until very late in the disease process. Risks and benefits of vaccination and other aspects of total health care should be communicated to clients along with the need for regular

RF: There is no legal mandate, no 'standard of care' requirement, and no ethical responsibility for veterinarians to administer only a licensed 3-year vaccine in order to comply with the AAHA Canine Vaccine Guidelines.

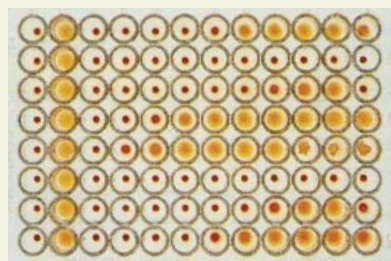
checkups and monitoring. All staff should be on the same page in providing complete coverage for every animal seen for vaccination and beyond. Vaccination and all other health record documentation should be scrupulously maintained.

VACCINATION IN THE SHELTER ENVIRONMENT

2006 AAHA Guidelines pp 19 to 26

The 2006 Guidelines is the first such publication to provide specific, in-depth information on the use and administration of additional vaccines for dogs (and also cats) housed in animal shelters or similar environments.^{2,3} Many of the fundamental principles of vaccination that apply to companion animal practice do not apply—all animals must be vaccinated regardless of health status to protect the entire population. Immediate vaccination upon acquisition should be made a priority as delaying—even by a few hours—may increase the risk of infection subsequent to exposure.

TC: Biological agents are regulated by the USDA, not the FDA. We can feel comfortable using nonrabies vaccines in a discretionary manner in a 3-year protocol even if they do not have a 3-year label claim.



Dr. R.D. Schultz

Canine parvovirus hemagglutination inhibition (HI) test detects antibodies to CPV-2. All 8 serum samples have CPV-2 antibodies. Sample 4 has the lowest titer (1:40), whereas samples 3 & 7 have the highest titers ($\geq 1:10,240$).

Reporting Adverse Events

2006 AAHA Guidelines pp 14 to 16

Reporting adverse events in the field is the most important way to alert manufacturers and government regulatory agencies about potential safety and efficacy issues of vaccines. A report of a known or suspected adverse event should be forwarded to the manufacturer* by phone or to the USDA. The report should include the following:

- Manufacturer's name
- Product brand name, product code, product lot/serial number, and expiration date
- Reporting practitioner's U.S. veterinary license number
- Signalment (age, species, gender) of the affected patient
- Description of clinical signs or diagnosis associated with the administration of the vaccine
- Route of administration, injection-site reactions at or near site of inoculation, time frame and duration
- Systemic reactions involving the entire body or a defined location/region other than injection site
- Vaccine-associated death (rare)

* See Table 2 – Contact Information for Biologics Manufacturers, 2006 AAHA Guidelines p 16



Vaccines considered the most important for all dogs housed in a shelter environment are categorized as “recommended.” Of particular importance, these guidelines provide important recommendations pertaining to unique exposure/risks faced by shelter animals, such as vaccination of pregnant and/or sick dogs. Individuals who adopt from a shelter environment are encouraged to discuss an individually tailored vaccination program with their own veterinarian immediately. Veterinarians working in the field of shelter medicine, as well as

TC: We tailor our vaccine protocol to every patient that comes to our practice. We have always emphasized the importance of the physical examination, with vaccines only one of our tools to keep animals healthy.

Vaccination Medical Record Documentation

At time of vaccination, information should be captured in the permanent patient record (peel-off labels and/or rubber stamps facilitate easy recordkeeping).

- Date of vaccination
- Name of person administering vaccine
- Vaccine name, lot/serial number, expiration date, manufacturer
- Site and route of administration

RF: The new serology section should be reviewed by anyone submitting samples for serology—from assessment of immune response in puppies following the initial vaccine series to the evaluation of DOI in an individual patient.

Recommendations for Comprehensive Individualized Care

Issue	Program
Age	<p>Puppy programs should include vaccinations, parasite control, sterilization, behavior counseling, and zoonotic disease management</p> <p>Nutritional, dental disease, and parasite control assessment and counseling throughout the life of the pet</p> <p>Senior evaluations for aging pets</p>
Breed	Certain breeds are predisposed to various diseases—early detection and management can improve quality of life
Health status	<p>Wellness programs prevent disease and increase longevity and quality of life</p> <p>Dogs with chronic medical conditions need periodic medical progress assessment</p>
Environment	Risk factors should be assessed based on potential exposure to harmful agents
Lifestyle	Evaluate need for core and noncore vaccines and other medical care based on contact with other animals
Travel Habits	Potential for exposure to infectious agents, parasites, and environmental hazards increases with travel

those who may be advising animal shelters, should review this section in detail (the relevant tables, 3, 4, and 5, appear on pp 21 to 24 of the 2006 AAHA Guidelines).

TABLE 3 – Schedule of Recommended Canine Vaccination for the Shelter Environment summarizes the additional noncore vaccination recommendations appropriate for use in dogs housed in animal shelters (pp 21 & 22 of the 2006 AAHA Guidelines).

TABLE 4 – Optional Vaccines for Use in the Shelter Environment provides another selection of vaccines, depending upon age and length of stay (p 23 of the 2006 AAHA Guidelines).

TABLE 5 – Vaccines NOT RECOMMENDED for Use in the Shelter Environment for various reasons are listed (p 24 of the 2006 AAHA Guidelines).

THE VACCINE “MENU”

Veterinarians are reminded that there are approximately 26 different vaccine types licensed for use in dogs in the U.S. These are currently represented by almost 100 commercial products. The vaccine menu is large and diverse—and more vaccines are coming. The AAHA Canine Vaccine Task Force has endeavored to review the most current literature to establish practical vaccination guidelines—*not vaccination standards*—that can be used by practicing veterinarians in developing rational vaccination protocols. ■

RF: The new vaccine technologies section is an important reminder that not all vaccines are the same. Recombinant vaccines are available today for use in dogs, cats, and horses and DNA vaccines are on the horizon.

Shelter Environment Vaccine Recommendations

- Canine adenovirus (CAV-1)
- Canine distemper virus (CDV)*
- Canine parvovirus (CAV-2)[†]
- Bordetella bronchiseptica
- Parainfluenza virus
- 1-year rabies on discharge according to age and length of stay

* The rCDV has been shown to demonstrate immunogenicity that is the same as MLV (modified-live virus) vaccines and has been shown to immunize puppies with passively acquired maternal antibodies more effectively than MLV vaccines and is safer for pregnant animals.

[†] CAV-2 vaccines provide protection against both CAV-1 and CAV-2.

TC: I am always concerned about immunologically naïve patients, either entering a shelter or my own practice. I recommend vaccinating as soon as possible to decrease the risk of disease exposure.



Merial® Recommended Canine Lifestyle Vaccination Guidelines

Classification ^a	Lifestyle ^a	Vaccine schedule ^b
Outdoor Enthusiast	Most of the time outdoors unrestrained; unsupervised roaming; supervised or unsupervised running or fieldwork	Required – Distemper ^c , Adenovirus-2, ^c Parvovirus, ^c Parainfluenza, ^c Rabies, ^d Leptospirosis, Bordetellosis, Lyme
Outdoor Socialite	Some of the time outdoors; may contact unknown dogs on periodic basis	Required – Distemper, ^c Adenovirus-2, ^c Parvovirus, ^c Parainfluenza, ^c Rabies, ^d Leptospirosis, Bordetellosis Optional – Lyme
Indoor Socialite	Multidog household; mostly indoor or confined but frequent contact with other known dogs through feeding, elimination, boarding, showing	Required – Distemper ^c , Adenovirus-2, ^c Parvovirus, ^c Parainfluenza, ^c Rabies, ^d Bordetellosis Optional – Lyme
Indoor Elitist	One- or two-dog household; indoors mostly, but comes into contact with unknown dogs via occasional escape	Required – Distemper ^c , Adenovirus-2, ^c Parvovirus, ^c Parainfluenza, ^c Rabies, ^d Bordetellosis Optional – Lyme ^e
Indoor Pampered Pooch	Strictly indoor; never comes into contact with other dogs; sits in lap for hours at a time; rarely touches bare earth	Required – Distemper ^c , Adenovirus-2, ^c Parvovirus, ^c Parainfluenza, ^c Rabies, ^d Optional – Bordetellosis

a. **Infectious Diseases of the Dog and Cat**, 2nd ed. Greene C. Philadelphia, WB Saunders Company, 1998.

b. Vaccination schedule may vary depending on dog's geographic location.

c. Merial® vaccines may be given annually as per label, or every 3 years if following AAHA's suggested guidelines.

d. For rabies vaccination, local public health law must be followed.

e. Only if animal is in geographic areas where these diseases are endemic.

Merial® Product Highlights – New Vaccine Technologies

Recombitek® – vaccines containing canarypox-vectored distemper

- Use a novel recombinant canarypox delivery system
- Shown to be highly effective against severe challenge
- Recombinant technology eliminates risk of
 - Postvaccinal encephalitis
 - Viral shedding
 - Reversion to virulence

Recombitek® Lyme

- Proven protection against all isolates in North America known to cause Lyme disease
- Completely blocks transmission of the Lyme disease spirochete
- Contains only purified outer surface protein A (OspA)
- Nonadjuvanted

REFERENCES

1. **American Animal Hospital Association Canine Vaccine Guidelines.** *JAAHA* 39:119-131, 2003.
2. **2006 American Animal Hospital Association Canine Vaccine Guidelines** (executive summary only). Paul MA, et al. *JAAHA* 42:80-89, 2006. (See aaahanet.org for free download of complete document.)
3. **2006 AAHA Feline Vaccination Guidelines** is expected to be published in the fall of 2006 and will also include a section specific to the vaccination of kittens and cats housed in shelters.

RS: Vaccines have played and will continue to play a critical role in preventing, controlling, and eliminating diseases in dogs and cats. If we are to be successful in using vaccines to further reduce or eliminate diseases, the goal for the future should be to vaccinate more animals than are now vaccinated but to vaccinate them less often and only with the products that the animal needs.

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This summary of the 2006 AAHA Canine Vaccine Guidelines is sponsored by Merial, Duluth, GA.