



# THE better medicine™

## BULLETIN

Medical Advances and Perspectives  
in Companion Animal Care

September 2007

### 3-year rabies and DAP combination vaccine offers convenience in canine protocols

#### In This Issue...

Continuum® DAP-R vaccine challenge study results **2**

Field safety trial results **2**

Using the Continuum® vaccine line in your practice **3**

*This bulletin features:*

- a 3-year labeled canine DAP-Rabies combination approved by USDA
- 3-year challenge study data
- sample canine vaccination protocols

The American Animal Hospital Association (AAHA) first recommended 3-year core revaccination intervals for dogs in its 2003 Canine Vaccine Guidelines and Recommendations.<sup>1</sup> AAHA's 2006 Canine Vaccination Guidelines offered updated scientific information and continued to encourage 3-year core revaccination protocols. In fact, AAHA also notes that since 2003 veterinarians have increasingly implemented extended protocols.<sup>2</sup>



AAHA does not recommend particular vaccine brands and specifically indicates that vaccine selection is best left to clinicians.<sup>2</sup> This selection process leaves a challenge for practitioners who would like to implement 3-year protocols.

In 2005, Continuum® DAP (Intervet Inc.) alleviated the gap between the new 3-year guidelines and manufacturers' traditional annual vaccine label claims. This modified-live vaccine is label-approved by the USDA to protect dogs for 3 years following second vaccination against canine distemper virus (CDV), canine adenovirus type-1 (CAV-1), and canine parvovirus (CPV).<sup>3,4</sup>

#### A convenient new 3-year option

Intervet now offers another groundbreaking vaccine, Continuum DAP-R, which conveniently provides 3-year Continuum DAP with a 3-year rabies vaccine. Continuum DAP-R is the first rabies combination vaccine to receive a USDA label to protect against all four core canine antigens for 3 years.

#### Continuum DAP-R challenge data support 3-year label

Continuum DAP-R provides veterinarians with supporting real-time challenge data, which is considered the gold standard when evaluating vaccine duration of immunity (DOI).<sup>5</sup> Alternatives, such as serologic data alone, are generally not acceptable for establishing vaccine efficacy.<sup>5</sup> Laboratory tests have improved in



*Continuum DAP-R is the first rabies combination vaccine to receive a USDA label to protect against all four core canine antigens for 3 years.*

the last several years and serologic titers can indicate whether an animal has responded to vaccination.<sup>1</sup> However, for rabies vaccines, antibody titers alone provide less useful data regarding the level of disease protection provided.<sup>6</sup>

This is the first time that the DOI of a multivalent vaccine including all four core canine antigens has been critically evaluated via 3-year challenge-of-immunity studies and subsequently approved by the USDA for use at 3-year intervals. Previously published were challenge-of-immunity study results indicating prevention of clinical signs and symptoms provided by the CDV, CAV-2, and CPV components of Continuum DAP-R in 100% of vaccinated dogs.<sup>3</sup>

### **Rabies virus challenge study design**

To evaluate the efficacy of the rabies virus component of Continuum DAP-R and to demonstrate 3-year DOI, 63 seronegative pups were randomly assigned to either the vaccinate or age-matched control group. The 32 pups in the vaccinate group received Continuum DAP at 8 weeks of age and Continuum DAP-R at 12 weeks of age. There was no further rabies vaccination provided during the course of the trial. The vaccinates, as well as the 31 nonvaccinated controls, were strictly isolated for 3 years following vaccination and then challenged with virulent rabies virus.

### **Challenge study protocol**

Thirty-six months following vaccination, all vaccinated and nonvaccinated test dogs were challenged with virulent rabies virus (New York City Street Virus) obtained from the Center for Veterinary Biologicals-Laboratory (CVB-L).

### **Continuum DAP-R challenge study results**

The killed rabies vaccine component in Continuum DAP-R provides protection against virulent rabies virus challenge in dogs 12 weeks of age or older for a minimum of 3 years following vaccination.<sup>4</sup> Dogs vaccinated against rabies met the recognized protection standards as defined by the USDA.<sup>4,7</sup> Rabies infection was confirmed using fluorescent antibody (FA) testing of brain tissue. Study results also indicated that no immunologic interference occurred between the modified live vaccine components and the killed rabies virus vaccine component.<sup>4</sup>

### **Continuum DAP-R field safety trial results**

Field safety trials conducted on 333 dogs ranging in age from 8 weeks to 13.5 years demonstrated low reaction rates and confirmed the safety of the rabies component of this vaccine.<sup>4</sup> Three hundred twelve of the 333 trial dogs (94%) exhibited no reaction to vaccination. The reported reactions included non-painful lumps unnoticed by dog owners and crying before, at, or after injection.



## Incorporating the Continuum line into practice

The 3-year USDA labels provided by Continuum vaccines allow you to implement extended core vaccine protocols without the uncomfortable situation and potential liability of using vaccines on an off-label basis with no specific supporting challenge data. The addition of Continuum DAP-R to the Continuum line provides you with several new ways to administer core vaccines based on your patients' needs. Additional noncore vaccine antigens that require annual administration, including *Leptospira* spp., *Bordetella bronchiseptica*, and *Borrelia burgdorferi*, can be easily incorporated if needed.

Each of these three core options uses an initial vaccination series of Continuum DAP administered at 8 weeks of age, followed by Continuum DAP-R given at 12 weeks of age. Option 1 adds Continuum Rabies to the proven protocol established by Continuum DAP, with Continuum Rabies administered at Revaccination Year One, no core vaccine at Year Two, and Continuum DAP at Year Three (Table 1).

Option 2 offers maximum convenience to protect against the four core canine diseases specified by AAHA. Simply revaccinate with Continuum DAP-R every 3 years (Table 2).

If you determine that administering one core vaccine every year is best for a patient, consider Option 3. For this option, give Continuum Rabies at Revaccination Year One, Continuum DA (canine distemper, canine adenovirus type-2) at Year Two, and Continuum P (canine parvovirus) at Year Three (Table 3).

*The addition of Continuum DAP-R to the Continuum line provides you with several new ways to administer core vaccines based on your patients' needs.*

O P T I O N 1								
8 weeks old	12 weeks old	1 year old	2 years old	3 years old	4 years old	5 years old	6 years old	7 years old
DAP	DAP-R	Rabies		DAP	Rabies		DAP	Rabies

*Table 1. Vaccinating dogs with Continuum Rabies at Revaccination Year One, followed by Continuum DAP at Year Three, provides full core coverage at optimal intervals.*

O P T I O N 2								
8 weeks old	12 weeks old	1 year old	2 years old	3 years old	4 years old	5 years old	6 years old	7 years old
DAP	DAP-R	DAP-R			DAP-R			DAP-R

*Table 2. Option 2 provides core protection with maximum convenience. Simply revaccinate with Continuum DAP-R every 3 years.*

O P T I O N 3								
8 weeks old	12 weeks old	1 year old	2 years old	3 years old	4 years old	5 years old	6 years old	7 years old
DAP	DAP-R	Rabies	DA	P	Rabies	DA	P	Rabies

*Table 3. Option 3 offers the option of administering at least one 3-year core antigen every year. Administer Continuum Rabies at Revaccination Year One, Continuum DA at Year Two, and Continuum P at Year 3 to provide core protection.*

## KEY

**DAP**  
Continuum DAP (CDV, CAV-2, CPV)

**DAP-R**  
Continuum DAP-R  
(CDV, CAV-2, CPV, rabies virus)

**DA**  
Continuum DA (CDV, CAV-2)

**P**  
Continuum P (CPV)



## Emphasize individual risk assessment and annual exams

AAHA recommends that practitioners use the new guidelines as a foundation to tailor vaccination protocols to patient needs based on individual history, lifestyle, general health status, age, and disease exposure risks.<sup>1,2,5,6</sup> This individual risk assessment can be accomplished during semiannual or annual exams.

Furthermore, wellness-focused annual exams allow you to perform needed diagnostics, parasite and health screenings, and dental care, as well as nutrition, lifestage medicine, and behavior counseling.

## Conclusion

Three-year protocols now have the backing of the major veterinary associations. However, associations have called for more supporting challenge data and specific vaccine DOI information to help veterinarians implement extended protocols with the confidence of scientific support.<sup>1,4,5</sup> The Continuum line answers these needs with 3-year USDA-labeled vaccines, specific corresponding challenge data, and convenient combinations. In addition, Intervet offers support and tools to help you convert to 3-year protocols. Simply contact your Intervet supplier or visit our website at [www.continuum3.com](http://www.continuum3.com).

## References

1. Paul MA, Appel M, Barrett R, et al. Report of the American Animal Hospital Association (AAHA) Canine Vaccine Task Force: executive summary and 2003 canine vaccine guidelines and recommendations. *J Am Anim Hosp Assoc.* 2003;39:119-131.
2. Paul MA, Carmichael LE, Childers H, et al. 2006 AAHA Canine Vaccine Guidelines. Available at [www.aahanet.org/About\\_aaha/vaccine\\_guidelines06.pdf](http://www.aahanet.org/About_aaha/vaccine_guidelines06.pdf). Accessed March 2, 2006.
3. Gore TC, Lakshmanan N, Duncan KL, Coyne MJ, Lum MA, Sterner FJ. Three-year duration of immunity in dogs following vaccination against canine adenovirus type-1, canine parvovirus, and canine distemper virus. *Vet Ther.* Spring 2005;6:5-14.
4. Data on file, Intervet Inc.
5. Coyne MJ, Burr JHH, Yule TD, Harding MJ, Tresnan DB, McGavin D. Duration of immunity in dogs after vaccination or naturally acquired infection. *Vet Rec.* 2001; 149:509-515.
6. Tizard I, Ni Y. Use of serologic testing to assess immune status of companion animals. *J Am Vet Med Assoc.* 1998; 213:54-60.
7. Animals and Animal Products. 9: Code of Federal Regulations. Section 113.209 (rabies vaccine, killed virus). 2005.

[www.continuum3.com](http://www.continuum3.com)

Continuum is a registered trademark, Better Medicine is a trademark, and The 3-Year Vaccine Experts is a service mark of Intervet Inc. or an affiliate.

© 2007 Intervet Inc. All rights reserved. CA-CD-17076CH9/07  
Intervet Inc. • PO Box 318 • 29160 Intervet Lane • Millsboro, Delaware 19966-0318 • USA  
Phone: 800 441 8272 • [www.intervetusa.com](http://www.intervetusa.com)



RESEARCH • PERFORMANCE • INTEGRITY