

- Welcome
- In the Trenches: *Canine Hypothyroidism*
- Coming Conferences
- Events of Note
- VetScan News & Special Offers
- In Your Opinion

Volume 2,  
April 2002

a bi-monthly electronic newsletter for the veterinary community

## WELCOME!

Welcome to the April 2002 edition of VetCom. Our clinical, *In the Trenches*, discussion this month focuses on the diagnosis and therapeutic monitoring of canine hypothyroidism. As this is a common canine endocrine disorder, I hope you will find some useful tidbits for application in your own practice. The *In the Trenches* topic for the next issue of VetCom, June 2002, will be "Rimadyl and Liver Enzyme Monitoring".

Because many veterinarians are also small-business owners, I have begun including an excerpt from "Guerilla Marketing Excellence. The Fifty Golden Rules for Small-Business Success" by Jay Conrad Levinson, in each issue's Welcome section. Levinson has authored a number of books, available in paperback, geared toward small business success.

I want to thank all of you who have

expressed an interest in participating in our upcoming new product survey. Although I had originally planned to get the survey in your hands by mid-March, the response has been so continuously positive, I have delayed sending it out until the first week of April. We are requesting that the completed survey be returned by April 15, 2002. You can expect shipment of your 10-rotor Thank You toward the end of April.

### Guerilla Marketing's Golden Rule #7:

*Design your business to operate for the convenience of your customers, and make it very easy to do business with you.*



Because of the growing reality in America of the elusive nature of time...for many people, instant gratification is not fast enough. Bend over backwards offering convenience:

- Enable your prospects & clients to utilize your service 7 days a week, 24 hours a day (e.g. extended office hours, on-call emergency care, web site purchase and appointment capability, telephone advise line, etc)
- Accept as many credit cards as you can & create payment plans for clients
- Offer a toll-free number
- Publish a catalogue, brochure, newsletter (the FREE Abaxis APB CD kit can help!)
- Make your communications (forms, invoices, pamphlets, instructions) clear and easy to understand
- If clients must be put on hold, let them listen to special offers and programs
- Be sure to orient all aspects of your business to quality, profitability and speed

Guerilla Marketing Excellence, Levine,  
Houghton Mifflin Co

## In the Trenches *Canine Hypothyroidism* Review

Hypothyroidism is purportedly the most common endocrine disease in dogs although the actual incidence is unknown. It is believed that a fair percentage of the thousands of dogs identified as hypothyroid each year are misdiagnosed.

A condition thought to play a significant role in misdiagnosis is compensatory hypothyroidism. Compensatory hypothyroidism, or sick euthyroid syndrome (SES) is a transient condition resulting from any number of causes such as trauma, stress, illness, medication, diet, etc. This temporary depression in thyroid activity is a protective mechanism that all too frequently results in a dog being treated for a condition it does not have, with the underlying condition left undiagnosed.

When clinical signs indicate (e.g.

lethargy, weight gain without accompanying increased food intake, skin disease, reproductive disorders, etc.) a battery of diagnostic tests should be accomplished in effort to rule-out or confirm diagnosis.

### INITIAL TEST BATTERY

*primarily performed to rule-out other diagnoses*

#### 1. COMPLETE BLOOD COUNT

#### 2. ROUTINE CHEMISTRY

*NOTE:* mild to moderate elevation of the following are consistent with, but by no means diagnostic for hypothyroidism: AST, ALT, ALP, CK, LDH and Ca+

#### 3. URINALYSIS

*NOTE:* abnormalities in the urinalysis are suggestive of a non-hypothyroid disease process

**IMPORTANT**

### DIAGNOSTIC CLUES

- $\leq 40\%$  of hypothyroid dogs are anemic
- 75% of hypothyroid dogs have high cholesterol levels (post-12 hour fast)

### ADDITIONAL DIAGNOSTIC TESTING

*Is performed if clinical signs and initial testing indicate possible hypothyroidism*

cont'd on pg 2

#### In this Issue

Welcome	1
In the Trenches	
Canine Hypothyroidism	2
Coming Conferences	2
Events of Note	2
VetScan News & Offers	3
In Your Opinion	3
Abaxis Contact Info	3
VetScan Authorized Distributors	4

**T4**  
Great for dx rule-out and therapy titration

**TOTAL THYROXINE (T4):**

**Normal Levels:**  
hypothyroidism very unlikely

**Low Normal-Slightly Abnormal:** supports hypothyroid diagnosis in dogs with clinical signs and other supportive diagnostic testing

**Abnormal Low to Zero:** suggestive of hypothyroidism

*NOTE:* It is important that the laboratory use a test that has been validated for use in dogs AND has established its own normal canine ranges. Low T4 levels may also be seen with SES and is found concomitantly in up to 40% of dogs diagnosed with Cushing's Disease.

**DEFINITIVE TESTING:**

The most definitive diagnostic tests for hypothyroidism are complex and rather expensive but essentially eliminate the possibility of misdiagnosis.

**1. Thyroid Stimulating Hormone (TSH)**

**2. Thyroid Stimulating Hormone (TSH) Stimulation Test**

**3. Free Thyroxine (T4) measured by direct or equilibrium dialysis**

**4. anti-Tg, T3, T4 antibody**

**MONITORING HYPOTHYROIDISM**

Response to therapy should be critically evaluated 6-8 weeks after initiating treatment. Both clinical assessment of response to therapy and thyroid hormone testing, such as total T4, should be accomplished. Thyroid testing should subsequently be accomplished annually or as needed.

**FOR FURTHER INFORMATION**

1. Wolfsheimer, KJ and Brady, C, Thyroid Testing in Dogs: A Reference for Dog Breeders and Owners, [www.beaconforhealth.org](http://www.beaconforhealth.org).
2. Christopher, M et al International Symposium on Canine Hypothyroid, August 1996, University of California at Davis and the Canine Health Foundation.
3. Willard, MD et al. Small Animal Clinical Diagnosis by Laboratory Methods, 3<sup>rd</sup> Ed, WB Saunders Co, Philadelphia, 1999.

**Clinical Indications**

- Bilateral Alopecia
- Seborrhea
- Lethergy
- Exercise Intolerance
- Mental Dullness
- Cold Intolerance
- Bradycardia
- Unexplained Weight Gain

**Consistent Laboratory Findings**

- Hypercholemia (66-75%)
- Mild, normochromic, normocytic non-regenerative anemia
- Elevated ALP
- Elevated CPK
- Decreased total T-4

**Confirmatory Laboratory Findings**

- Elevated TSH
- Pos Anti-Tg, T3, T4 antibody
- Decreased Free T3/T4 levels

**Disease Monitoring**

- Initial Medication Titration ~4 weeks post therapy initiation (peak and trough) to determine proper dosing and frequency
- Annual Re-Check or as needed to retain optimum dosing

*cont'd on page 4*

**Coming Conferences**

*We'll See You There!*

**Delaware VMA**

Dover, DE  
April 17, 2002

**Massachusetts VMA**

Marlborough, MA  
May 19, 200

**Pennsylvania VMA**

State College, PA  
May 22, 2002

**ACVIM (American College of Veterinary Internal Medicine)**

Dallas, TX  
May 29-June 1, 2002

**ICE (International Conference on Exotics)**

Key West, FL  
June 19-21, 2002

**North Carolina VMA**

Charlotte, NC  
June 20-23, 2002

**AVMA**

Nashville, TN  
July 13-17, 2002

**CVC**

Kansas City, MO  
August 16-20, 2002

**Events of Note**

**A Practitioner's Approach to a Successful In-Clinic Wellness Program & The Benefits of In-Clinic Testing**

*Craig Tockman, DVM*

A 2 hour RACE accredited presentations scheduled for

**April 23, 2002  
Toledo, Ohio**

*contact Vince Westmiller, ext. 1506 for more information*

**stayed-tuned for future dates**

Local Abaxis Representatives are available to present a one-hour presentation on the topic of the benefits of in-clinic wellness testing for local veterinary meetings.

The program offers a review of veterinarian approaches to wellness and senior testing, published relevant literature and 1 hour of RACE continuing education credit

## **VetScan News & Special Offers**

Abaxis is pleased to announce the upcoming availability of our new

### **T-4/Cholesterol Rotor**

- Broad T-4 dynamic range (0.5 – 8.0 µg/dl) provides an excellent screening tool for canine hypothyroidism as well as feline hyperthyroid disease.

- Inclusion of cholesterol improves screening utility for canine hypothyroid disease.

- Superior assay precision

- Exceptional Value  
*(same price as T-4 only rotor)*

Initial Release  
Shelf Life: 6 months

Part  
Number: 500-1025  
10 rotors

Availability: late-April

### **In Your Opinion**

Each month we will ask a clinical, or practice management related question of our subscribers.

Please email or fax in your replies, a selection of responses will be provided in the next issue.

Abaxis introduced the new VetScan Canine Antigen Heartworm test early this year and we have been pleased with customer response! As a late entrant into the heartworm market, we knew that we needed not only to offer a test with excellent sensitivity and specificity, but it had to be very easy to use and very attractively priced! We believe we came up with the

### **Best Value Choice**

- Simple 2-Step Procedure  
*(1 drop blood, 2 drops buffer)*
- Room Temperature Storage  
12 Month Shelf-Life
- Clear, Concise Result Lines
- 95% sensitivity  
*(1 female worm, McCall et al, UGA)*
- 100% specificity
- List Price: \$4.50 per test

We also offer:

### **VetScan Customer Rebates & High Volume Purchase Discounts**

---

#### **April's Question:**

#### ***In Your Opinion,***

If a (*generic, alternative*) brand of levothyroxine demonstrated equivalent or superior bio-availability and efficacy compared to your current brand, and was offered at a much more attractive price, would you switch?  
*Why or Why Not?*

---

For more information, or a free tester pack, please contact me at: [pamconboy@abaxis.com](mailto:pamconboy@abaxis.com), or fax: 510-441-6150

### **Survey**

As many of you know, we are in the process of performing an in-depth evaluation of your new analyte and rotor profile needs by means of a survey. Although we undoubtedly will not be able to fulfill all of your wishes in this coming year, it is our goal to provide you with as many new diagnostic tools as possible to enhance the way you practice medicine. Those who have expressed interest in participating will receive the survey in early April.

### **Abaxis Practice Builder CD Package**

Provides templates to create your own personalized educational pamphlets, appointment reminders, authorization forms and more! A \$199.00 value, **FREE** to VetScan customers!

Is there concern of a "placebo effect" with clients when switching a medication brand?

email [pamconboy@abaxis.com](mailto:pamconboy@abaxis.com)  
or  
fax 510-441-6150 (attn: pc)

## **Abaxis Contact Information**

**1-800-822-2947**

### **VetCom Issues**

*subscribe, unsubscribe questions, comments*  
**Pam Conboy**, ext. 6604  
[pamconboy@abaxis.com](mailto:pamconboy@abaxis.com)

**Technical Service** EXT 2  
*technical issues, training rotor credits, software queries*  
**Linda Lang**, Manager

**Customer Service** EXT 3  
*direct orders, local representative and VetScan distributor information*  
**Shawlar Wise**, Interim Manager

### **SALES**

**Eastern Area Sales Director**  
**Marty Mulroy**, ext. 1500

**Western Area Sales Director**  
**Randy Knick**, ext. 1509

**Introducing the New VetScan  
T-4/Cholesterol Rotor**



## Authorized VetScan Distributors

<u>Distributor</u>	<u>Telephone</u>
AVSC-American Veterinary Supply Barber	800-869-2510 800-552-5698
DVM Resources	877-828-1026
IVESCO-Iowa Veterinary Supply Merritt	800 831-4828 800-845-0411
Miller Veterinary Supply	800-880-1920
Nelson	800-843-3322
Penn Vet	800 233-0210
TW Medical	888 787-4483
VMS-Veterinary Medical Supply	800-533-8674
Vetpo	800-253-7280
Western Medical Supply	800-242-4415



### In-Clinic Utilization of T-4 Testing

*Craig Tockman, DVM*

As with other in-office blood testing, T4 levels are an important diagnostic and monitoring tool for the practicing veterinarian. We have incorporated T4 levels in many aspects of our practice. One of the most beneficial aspects of the T4 level is with wellness blood testing. Yearly blood screening in older dogs (usually older than seven years) will often lead to an early diagnosis of hypothyroidism prior to the onset of clinical signs.

In addition, a wellness blood testing program that includes regular serum chemistries should lead to a higher usage of T4 testing. Many older patients have elevated (greater than 3 times normal) alkaline phosphatase levels. Most of us first consider hyperadrenalcorticism as the primary rule-out for this finding. However, any endocrine disease can cause an elevation in this enzyme in the form of an "endocrine liver", as our local radiologist likes to call them. In these cases, a T4 level performed in-house is an excellent screening tool to rule-out hypothyroidism as the cause of this elevation. This test can be performed while the client waits for results. If the level is low, additional sample can be immediately obtained for further testing. If the T4 level is normal, other tests such as ACTH stimulation, urine

creatinine/cortisol ratio or ultrasound can be offered to the client at that time.

If in-office T4 levels are below normal, I feel a complete thyroid panel is always indicated. Many cases of apparent hypothyroid disease are actually due to non-thyroidal illness

(hyperadrenalcorticism for example). For accurate diagnosis of this condition, I evaluate TSH, antithyroid ab, anti T3/T4 autoantibody, as well as T3, free T3 and free T4. Far too many pets are placed on life-long thyroid supplement based solely on T4 levels. However, the T4 level is an excellent screening and therapy monitoring tool.

Once a diagnosis of hypothyroidism has been made, the patients' medication must be properly titrated. After 30 days of initial therapy, T4 levels are taken at 4-6 hours post morning pill AND 10 hours post morning pill to determine peak and valley levels of the hormone in the body. This allows determination as to whether once or twice a day dosing will be required, and whether medication dosing is correct.

These levels are repeated monthly until the proper T4 levels are found.

In-office T4 levels are also an excellent tool for monitoring long-term therapy.

With T4 levels performed in-house, immediate changes in dosing can be discussed with the client. Since thyroid supplement requirements can change throughout the dogs' life (due to changes in weight, living conditions, etc.) regular T4 levels should be required of any patient on chronic therapy. We require a yearly T4

level for all of our patients taking thyroid supplement (although we recommend twice yearly levels) in order to refill the prescription.

### Understanding the Nature of the Disease

**Primary Hypothyroidism:** caused by the destruction of the thyroid gland. Approx 95% of all cases.

1. Lymphocytic Thyroiditis – probably immune mediated disease
2. Idiopathic gland atrophy – probably degenerative disorder
3. Uncommon causes: congenital, thyroid carcinoma, iatrogenic

**Secondary Hypothyroidism:** caused by impaired secretion of TSH and is extremely rare

1. Pituitary Tumors
2. Cystic Rathke's Pouch (German Shepard Dwarfs)

**Tertiary Hypothyroidism:** deficient production or release of thyrotropin releasing hormone

**Poor Converters:** Defects in conversion of T4 to T3