



## Analytes

T<sub>4</sub> and CHOL

## Ideal For

Routine screening of hypothyroidism in dogs and diagnostic for hyperthyroidism in cats, titrating and monitoring patients on thyroid hormone replacement therapy or patients being treated for hyperthyroid disease

## Used For

- Screening for hypothyroidism in dogs
- Titration and monitoring of thyroid hormone replacement therapy
- Diagnosis of hyperthyroidism in cats
- Monitoring drug, I<sup>131</sup> or thyroidectomy therapy

## Rotor Utilization

Thyroid disease in dogs and cats is one of the most common endocrine disorders seen in the veterinary practice. Therefore, utilization of the T<sub>4</sub>/Cholesterol Profile at the point of care will enhance patient care, improve veterinary diagnostics and provide additional practice revenue.

## Canine Hypothyroidism

Canine hypothyroidism disease results from an inadequate level of thyroid hormones. Although there are other less common causes, the majority of hypothyroid disease is caused by idiopathic thyroid atrophy or autoimmune thyroiditis. The diagnostic challenge for the clinician is to determine:

- The need for thyroid testing
- The proper tests to run and how to interpret the results
- Determination as to whether a diagnosis of thyroid disease or euthyroid sick syndrome is appropriate

## Need for Testing—Screening Hypothyroid Disease

The low cost of the T<sub>4</sub>/Cholesterol Profile combined with its ease of use, precision and accuracy makes it an outstanding tool to screen patients for the presence of thyroid disease. Some examples of appropriate times to screen patients for hypothyroid disease using the T<sub>4</sub>/Cholesterol Profile are:

- A patient exhibiting clinical signs consistent with hypothyroidism. Some of the more common clinical signs (which can be seen with any endocrine disorder) are:
  - Weight gain
  - Dry coat, alopecia or other skin and hair coat abnormalities (often appear as allergy/atopy) or hyperpigmentation
  - Lethargy, mental dullness or bradycardia
  - Anestrus (intact females)
- Any patient with laboratory abnormalities potentially caused by hypothyroidism:
  - Hypercholesterolemia
  - Anemia (mild, nonregenerative)
  - Indicators of hepatic changes due to endocrine disorders such as elevations of alkaline phosphatase
- An apparently healthy, middle-age or older patient (especially breeds with predisposition to thyroid disease as part of a wellness testing program)

Since the results of a T<sub>4</sub> level are available in minutes, whether additional thyroid testing is required can be immediately determined and discussed with the pet owner. If T<sub>4</sub> falls below the reference interval, further evaluation of health status (euthyroid sick syndrome) or send-out testing including fT<sub>4</sub>, TSH and TgAA is recommended. Since the patient is still in the examination room, collecting another blood sample is simple and additional testing can be discussed with the client.

## Medication Titration and Monitoring

Once a diagnosis of hypothyroid disease has been made, titration of therapeutic medications must be accomplished to the proper level. The goal is to determine:

- Proper dose
- Proper frequency

After an initial dose is calculated and administered for several weeks, a T<sub>4</sub> level should be determined 4–6 hours after the morning medication dosing to determine the peak blood level. If desired or if once-daily dosing is initiated, a 12-hour trough level can be determined the same day.

- If T<sub>4</sub> values are within the middle to upper end of the normal range, no adjustment is necessary and the patient should be monitored 1–2 times yearly
- If T<sub>4</sub> values are either more than 1.5 times the upper limit of normal or below normal at 4–6 hours, a dosing adjustment should be made and a retest performed in 2–4 weeks
- If T<sub>4</sub> values are normal at 4–6 hours and still normal at 10–12 hours, the clinician may determine that once-daily dosing is appropriate
- If values are normal at 4–6 hours, but low at 10–12 hours, the clinician may consider twice-daily dosing

Requirements for hormone replacement therapy can change because of the multiple changes a patient can undergo when medicated for thyroid disease including changes in weight, body condition and basal metabolism. Therefore, monitoring of the hypothyroid patient with a T<sub>4</sub> level should be performed at least every 6 months for best control. The ability to perform medication monitoring in the practice provides the flexibility to change medication dosing with the client still present. This reduces unnecessary return visits to the practice and improves compliance by allowing a point-of-care discussion with the pet owner regarding the medication change.