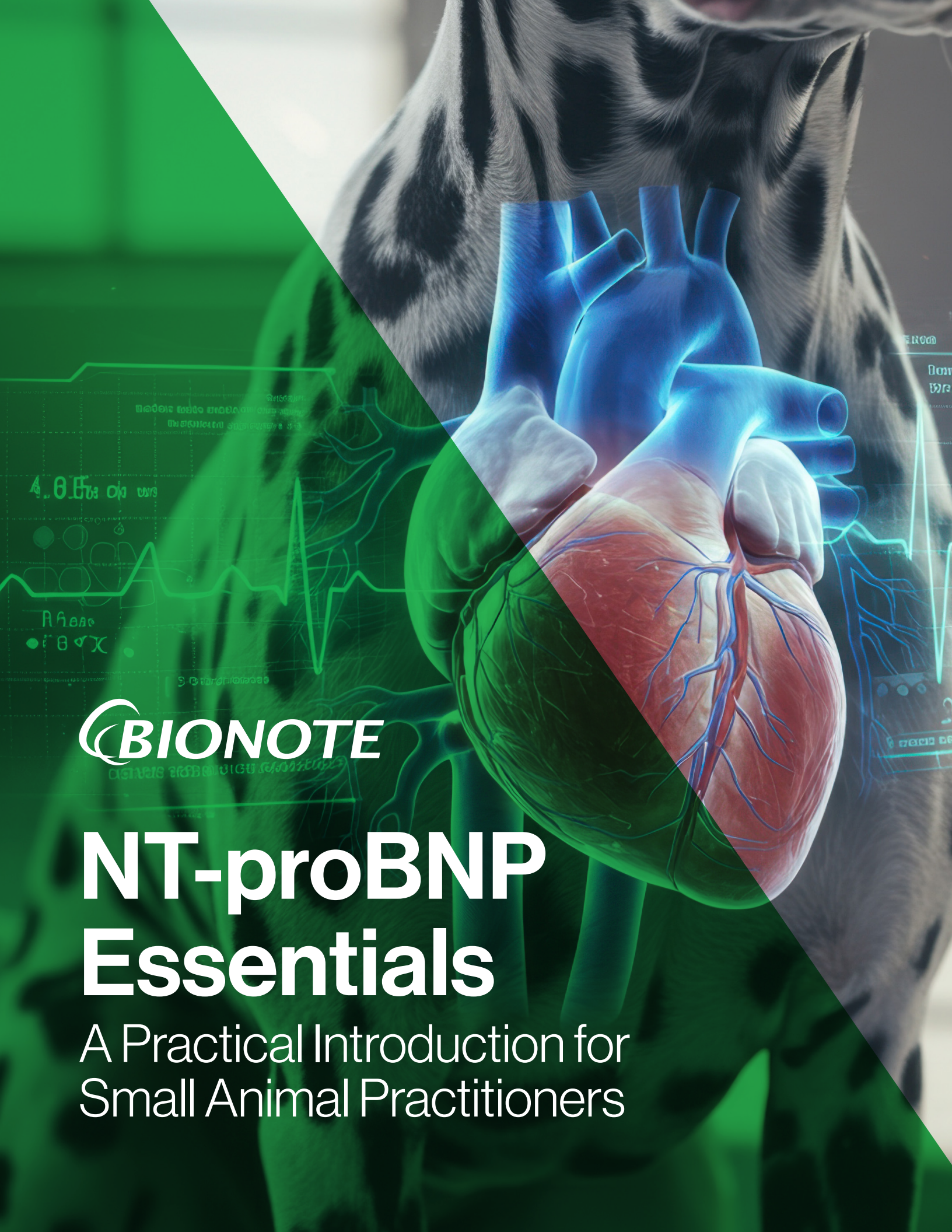




BIONOTE

NT-proBNP Essentials

A Practical Introduction for
Small Animal Practitioners

Inside the Guide

NT-proBNP tests can help answer common clinical questions:

NT-proBNP (N-terminal pro-B-type natriuretic peptide) is one of the most useful cardiac biomarkers available to veterinary teams.

NT-proBNP tests can help answer common clinical questions:



Does this pet with a breed risk need additional screening diagnostics?



Could this cough or dyspnea be cardiac in origin?



Is this murmur indicative of cardiac stress?



Should this senior pet have further cardiac evaluation?



Is this patient at a higher anesthetic risk?



Is known heart disease progressing or increasing the risk of congestive heart failure?



Should I monitor this patient more closely for congestive heart failure?



How is the patient responding to treatment?



This guide reviews the clinical utility of NT-proBNP testing, including when to test, which patients are most likely to benefit, and how to interpret results within the context of the complete clinical picture. You will learn how NT-proBNP can support diagnostic decision-making, guide recommendations for additional cardiac evaluation, aid in anesthetic risk assessment, and assist with monitoring patients with known or suspected heart disease. Whether you are new to NT-proBNP testing or already incorporate it into practice, this guide provides practical clinical pearls to help you use this important biomarker with greater confidence.

The Clinical Challenge

Heart disease often develops silently, with many patients remaining asymptomatic until advanced disease or cardiovascular decompensation occurs.

Some patients present with classic signs:



Coughing



Tachypnea



Dyspnea



Exercise intolerance



Weakness



Syncope/
collapse



Murmur
(diagnosed on
physical exam)



Arrhythmia (diagnosed
on physical exam)

Many patients - particularly cats - may appear completely asymptomatic despite clinically important structural heart disease. In these patients, the first indication of cardiac disease may occur during anesthesia, periods of stress, or after the onset of congestive heart failure or arterial thromboembolism.



Research suggests HCM may affect approximately **1 in 7** apparently healthy adult cats often before clinical signs are present.¹

Unfortunately, these clinical signs are often nonspecific and may overlap with respiratory, metabolic, or systemic disease, making the underlying cause difficult to determine based on physical exam alone.

For veterinary teams, the challenge is answering one crucial question:

Is the heart part of the problem?

NT-proBNP provides an objective measurement of myocardial wall stress, adding valuable cardiac information to the overall clinical assessment.

There are other clinical challenges faced when considering NT-proBNP:

Patient-related challenges:

- Stress
- Patient cooperability
- Stability

Client-related challenges:

- Financial constraints
- Declining referral or advanced imaging
- Limited access to a cardiologist

Practice-related challenges:

- Limited access to diagnostic tools
- Time constraints during busy appointments
- Variable clinician experience with cardiology

Clinical decision-making challenges:

- Is the heart truly contributing to the clinical signs?
- Determining anesthetic risk
- Deciding when additional diagnostics are warranted
- Support for when to refer to a cardiologist

What Is NT-proBNP?

N-terminal pro-B-type natriuretic peptide (NT-proBNP) is a cardiac biomarker that reflects myocardial wall stress. It provides objective evidence that the heart is experiencing increased mechanical stress, helping clinicians identify patients who may benefit from additional cardiac evaluation.

Increased myocardial wall stress may result from conditions that increase cardiac volume or pressure, including degenerative valve disease, cardiomyopathies, congenital heart disease, and pulmonary or systemic hypertension

Ventricular myocytes respond to increased wall stretch by synthesizing proBNP, which is cleaved into two fragments: the biologically active hormone BNP and the inactive fragment NT-proBNP. Because NT-proBNP is more stable in circulation, it serves as the preferred biomarker for assessing myocardial wall stress.

How NT-proBNP Works



Heart muscle stretch



proBNP is released



BNP + NT-proBNP are produced



NT-proBNP can be measured in blood



Result helps guide cardiac decision-making



What NT-proBNP Can Tell You

While NT-proBNP doesn't make a diagnosis of the condition, it is a signal that the heart is under increased stress, guiding the veterinarian to further cardiac diagnostics.

NT-proBNP can help clinicians:

- Help differentiate cardiac from noncardiac causes of cough, dyspnea, tachypnea, or exercise intolerance
- Identify patients who may have occult heart disease despite minimal or absent clinical signs
- Guide recommendations for additional cardiac diagnostics such as echocardiography, thoracic radiography, ECG, or blood pressure assessment.
- Support decisions regarding referral for advanced cardiac evaluation.
- Support anesthetic risk assessment in at-risk breeds, senior patients, or those with known or suspected cardiac disease.
- Monitor changes in myocardial stress in patients with established cardiac diseases when interpreted alongside clinical findings.
- Monitor response to therapy and support treatment adjustments.
- Support informed discussions with pet owners regarding diagnostic recommendations, prognosis, and monitoring.

NT-proBNP results are best interpreted as normal, gray zone, or abnormal—and a normal value can be especially useful because its negative predictive value helps make clinically significant cardiac disease less likely. A gray-zone result requires clinical context, while an abnormal result raises concern for increased myocardial wall stress and opens the door to further investigation.



An elevated NT-proBNP may indicate:



Increased myocardial wall stress



Higher likelihood of clinically relevant cardiac disease



Greater need for additional cardiac evaluation



A need for additional assessment before anesthesia or sedation



Possible progression in a patient with known heart disease

A normal or lower NT-proBNP may indicate:

- Clinically significant cardiac stress is less likely at that moment
- Non-cardiac causes may deserve closer attention
- The patient may not need urgent cardiac referral based on biomarker results alone



Important

Normal does not mean “no heart disease forever.” It means the test did not detect concerning cardiac stress in the current clinical context.

NT-proBNP results should be interpreted alongside the patient's clinical presentation, physical exam, and other diagnostic findings. Reference ranges, interpretation, and follow-up recommendations may vary by species and patient context.

Charting NT-proBNP trends can create a story of how the disease is progressing or responding to medical management.

What NT-proBNP Does Not Tell You



NT-PROBNP IS USEFUL, BUT IT HAS LIMITS. IT DOES NOT:

- ☒ Diagnose a specific cardiac disease by itself
- ☒ Replace echocardiography
- ☒ Replace thoracic radiographs
- ☒ Replace ECG
- ☒ Replace clinical judgment
- ☒ Determine treatment by itself
- ☒ Rule out all forms of heart disease
- ☒ Eliminate the need to assess respiratory, renal, endocrine, or systemic disease

Use the Result in Context

Interpret NT-proBNP alongside:



Signalment



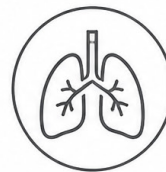
Breed



History



Physical exam



Respiratory signs



Murmur grade



Heart rhythm



Blood pressure



Renal values



Thyroid status
in cats



Imaging findings



Current medications



Overall clinical
stability



Heartworm disease

Which Dogs Are Appropriate for NT-proBNP Testing?

NT-proBNP can be useful in several canine clinical scenarios.

Dogs with Coughing or Respiratory Signs

Consider testing dogs with:

- Cough
- Increased resting respiratory rate
- Tachypnea
- Dyspnea
- Exercise intolerance
- Suspected congestive heart failure
- Unclear cardiac vs respiratory signs
- Syncope and ascites

Dogs with Known Heart Disease

Consider testing dogs with:

- Myxomatous mitral valve disease
- Enlarged cardiac silhouette
- Prior congestive heart failure
- Patients being monitored over time
- Patients with changing clinical signs

Dogs with Murmurs

Consider testing dogs with:

- Newly detected murmurs
- Known murmurs that appear to be changing
- Suspected myxomatous mitral valve disease
- Murmur plus cough, tachypnea, or exercise intolerance

Senior Dogs

Consider testing as part of senior wellness, especially when the patient has:

- Breed risk
- Upcoming anesthesia or sedation
- Prior abnormal cardiac findings
- Murmur
- Exercise intolerance
- Cough

Pre-Anesthetic Dogs

Consider testing before procedures requiring anesthesia or sedation, especially in:

- Breed Risk
- Dogs with prior anesthetic concerns
- Dogs with known cardiac history
- Dogs with unclear exercise tolerance
- Dogs with respiratory signs
- Dogs with murmurs
- Senior dogs



Which Cats Are Appropriate for NT-proBNP Testing?

Cats can be difficult cardiac patients. Some cats with clinically important heart disease have subtle signs. Some have no obvious signs until the disease becomes advanced or stress unmasks the problem. NT-proBNP can help identify cats that may need additional cardiac evaluation.

Cats with Murmurs, Gallops, or Arrhythmias

Consider testing cats with:

- History of collapse or weakness
- Exercise intolerance
- Heart murmur
- Gallop rhythm
- Arrhythmia
- Weak pulses
- Lethargy
- Coughing
- Vomiting

Apparently Healthy Cats Before Anesthesia

Consider testing before anesthesia or sedation in:

- Cats with at-risk breed status
- Senior cats
- Cats with murmurs, gallop sounds, or arrhythmias

Cats with Respiratory Signs

Consider testing cats with:

- Dyspnea
- Tachypnea
- Open-mouth breathing
- Cough
- Consider testing cats with an unclear cardiac vs respiratory presentation

At-Risk Cat Breeds

Consider testing in breeds with increased concern for occult cardiac disease, including:²

- Maine Coon
- Ragdoll
- British Shorthair
- Persian
- Bengal
- Sphynx
- Norwegian Forest Cat
- Birman

Cats with Known or Suspected CHF

Consider testing as part of the broader monitoring picture in cats with:

- Suspected congestive heart failure
- Prior CHF diagnosis
- Clinical presentation for respiratory distress
- Treatment response monitoring



Practical NT-proBNP Workflows

Workflow 1: *Respiratory Signs*



Patient:

Dog or cat with cough, tachypnea, dyspnea, or respiratory effort.



Use NT-proBNP to ask:

Could this be cardiac?



If NT-proBNP is elevated:

Consider cardiac contribution. Prioritize additional cardiac evaluation.



If NT-proBNP is normal or lower:

Cardiac stress may be less likely. Continue evaluating respiratory and systemic causes.



Possible next steps for elevated NT-proBNP:

- Oxygen support if unstable
- Point-of-care ultrasound (T-FAST)
- Thoracic radiographs
- CBC, chemistry
- Heartworm test
- Blood gas



Workflow 2: ***Murmur Found on Exam***



Patient:

Dog or cat with a new or previously known murmur.



Use NT-proBNP to ask:

Is this murmur associated with cardiac stress?



If NT-proBNP is elevated:

Discuss further cardiac workup.



If NT-proBNP is normal or lower:

Continue monitoring based on exam, risk factors, and patient history.



Possible next steps for elevated NT-proBNP:

- Echocardiography
- Thoracic radiographs
- Recheck schedule
- Resting respiratory rate monitoring
- Client education



Workflow 3: **Senior Wellness**



Patient:
Senior dog or cat.



Use NT-proBNP to ask:
Is there evidence of occult cardiac stress?



If NT-proBNP is elevated:
Consider more complete cardiac assessment, especially before anesthesia.



If NT-proBNP is normal or lower:
Continue routine senior care and monitor for changes.

Possible next steps for elevated NT-proBNP:

- Lab work to evaluate heart or change to routine senior comprehensive lab work
- Annual heartworm test
- Blood pressure
- Imaging if indicated
- Monitoring NT-proBNP trends



Workflow 4:

Pre-Anesthetic Screening

**Patient:**

Dog or cat scheduled for dentistry, surgery, imaging, or another anesthetic procedure.

**Use NT-proBNP to ask:**

Is there cardiac risk that should be investigated before anesthesia?

**If NT-proBNP is elevated:**

Consider delaying elective procedures until additional cardiac evaluation is complete.

**If NT-proBNP is normal or lower:**

Proceed based on the full pre-anesthetic assessment.

**Possible next steps for elevated NT-proBNP:**

- Discuss risk with the owner
- Recommend echocardiography
- Adjust anesthetic plan
- Modify fluids or monitoring
- Consider referral



Workflow 5: ***Monitoring Known Heart Disease***



Patient:

Dog or cat with known cardiac disease.



Use NT-proBNP to ask:

Is cardiac stress changing over time?



If NT-proBNP is elevated:

Reassess disease status and clinical signs.



If NT-proBNP is normal or lower:

Continue monitoring with the broader clinical picture.



Possible next steps for elevated NT-proBNP:

- Compare with prior results
- Recheck imaging
- Review medications
- Assess respiratory rate trends
- Revisit follow-up interval



How to Explain NT-proBNP to Pet Owners

Pet owners do not need a complex biomarker explanation. They need to understand why the test matters. NT-proBNP testing is a cost-effective, easy-to-perform blood test that acts as a powerful screening tool for cardiac abnormalities.

“NT-proBNP is a blood test that helps us look for signs that your pet’s heart may be under stress. It does not diagnose one exact heart disease by itself, but it helps us decide whether more cardiac testing is needed.”

If the Result Is Elevated

“Your pet’s result suggests the heart may be under more stress than expected. The next step is to look more closely at the heart and lungs so we can understand what is causing that stress.”

Possible recommendations:



Chest X-rays



Echocardiogram



ECG



Blood pressure



Cardiology referral



Anesthesia plan
adjustment

If the Result Is Normal or Lower

"Your pet's result does not show strong evidence of cardiac stress right now. That is reassuring, but we still interpret it with the exam, history, and any clinical signs."

Possible recommendations:



Client education on monitoring resting respiratory rate at home. If above 30 breaths per minute, client is to notify the clinic for prompt follow up.



Prompt recheck if clinical signs change: coughing, labored breathing, exercise intolerance, passing out, or a distended abdomen.



Monitor future trends to evaluate progressive changes of the heart, assess risks of CHF, and determine any additional diagnostic or management changes.



Recheck if signs change



Evaluate other causes of symptoms



Repeat testing in the future if appropriate



In-Clinic Testing: Why Turnaround Time Matters

NT-proBNP results are most useful when they can inform the decision being made now.



That may include



Triage
decisions



Respiratory
case workups



Pre-anesthetic
planning



Same-day client
conversations



Referral
discussions



Monitoring known
cardiac patients

In-clinic quantitative testing can help teams move from suspicion to next steps during the same visit.

Bionote NT-proBNP Tests

Bionote's NT-proBNP tests are designed to support in-clinic cardiac biomarker testing for dogs and cats. Industry-leading test affordability makes it easy for pet owners to say yes to cardiac screening.

- Quantitative NT-proBNP measurement
- Canine and feline testing available
- Serum sample
- Affordable results during the same day visit
- Supports cardiac assessment, respiratory differentiation, pre-anesthetic screening, and monitoring workflows

Improve Cardiac Care

Cardiac disease is not always obvious. With NT-proBNP testing, veterinary teams can add objective cardiac biomarker data to everyday decisions, from respiratory workups to senior wellness, pre-anesthetic screening, and chronic monitoring.

Bionote's NT-proBNP test provides actionable answers at an affordable price for pet owners.



See why veterinarians prefer Bionote's NT-proBNP tests for cardiac screening at bionote.com

Additional Resources



Deep Dive Into a New Era: Clinical Utility of NT-proBNP & Other Cardiac Biomarkers

<https://event.on24.com/wcc/r/4997381/5B0D02D165EFAF1C825C675019956196?partnerref=Bionote>



Optimizing Outcomes: A Practitioner's Guide to Using NT-proBNP in MMVD Cases

<https://event.on24.com/wcc/r/5023684/961592F9FB50C905F1772A62A3287BFC?partnerref=Bionote>



The Clinical Application of Cardiac NT-proBNP

<https://event.on24.com/wcc/r/5296741/973C06F28B214DFA874A784663761C30?partnerref=CBsite>



Podcast: Use of NT-proBNP in Clinical Practice With Dr. Hendershott

<https://www.cliniciansbrief.com/article/podcast-use-nt-probnp-clinical-practice-dr-hendershott>



Clinical Utility of Point-of-Care NT-proBNP Cardiac Biomarker in the Diagnosis & Management of Cardiac Disease

<https://event.on24.com/wcc/r/4383169/EA20609326741801A67326A7DF852680>



Point-of-Care NT-proBNP in the Diagnosis & Management of Cardiac Disease: Part 2

<https://event.on24.com/wcc/r/4405665/4DDCB3DA04FFC892092196C90E37FDFF?partnerref=Bionote>

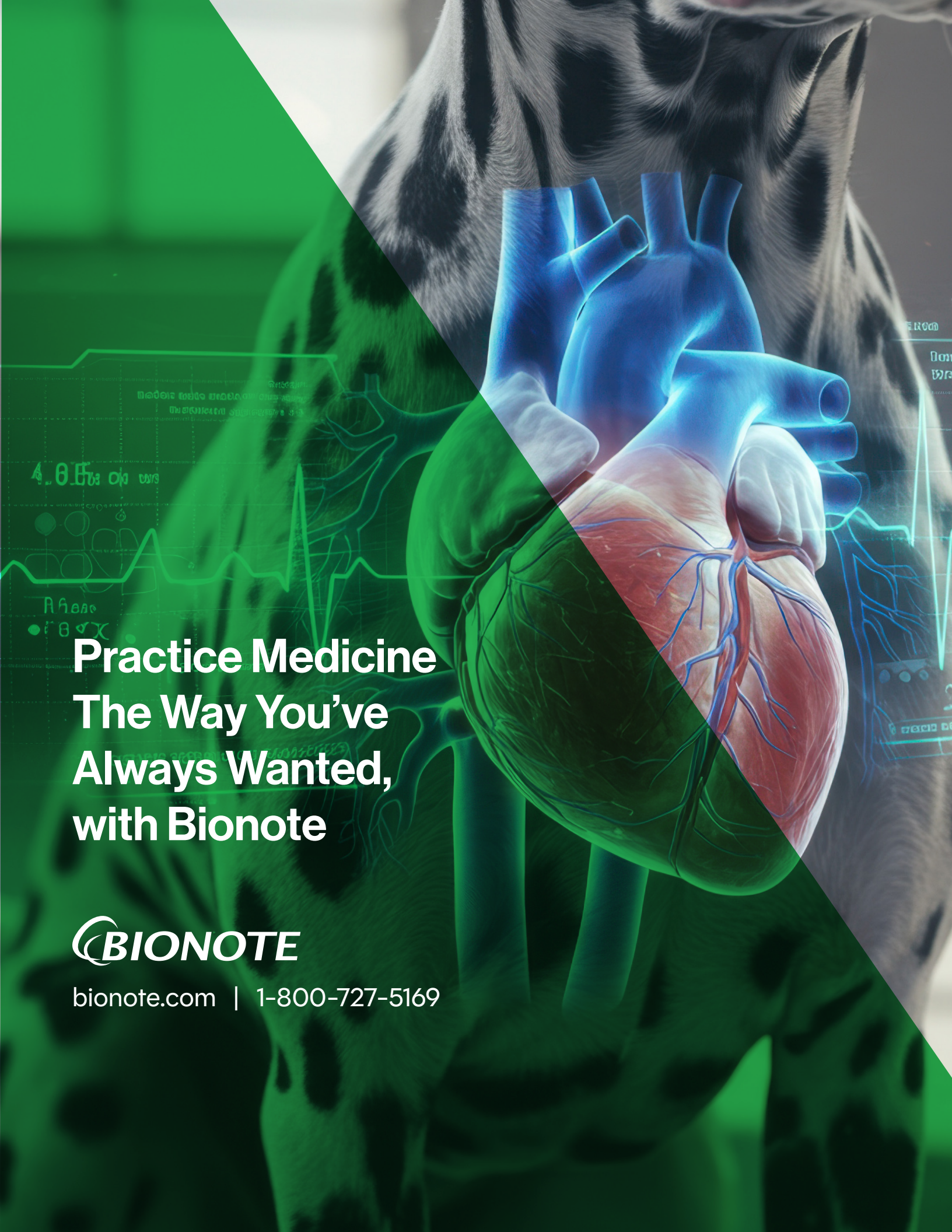
About Bionote

Bionote is an animal health diagnostics company focused on expanding access to high-quality point-of-care testing for veterinary practices. Its Vcheck F line of in-clinic analyzers delivers fast, quantitative results across a broad menu of biomarkers for canine, feline, and equine patients, helping veterinarians make confident clinical decisions without relying solely on reference labs.

Built on fluorescence immunoassay technology, Bionote diagnostics enable earlier intervention, streamline workflows, and improve patient outcomes. Bionote partners with practices through transparent pricing, no long-term contracts, and consistent test costs that do not fluctuate based on volume, giving clinics the flexibility to adopt diagnostics that align with their clinical and financial goals.



At Bionote USA, we empower veterinarians to practice medicine with confidence through advanced in-clinic diagnostics and ongoing clinical education. Our analyzers and quantitative biomarker testing enable faster decisions and better patient outcomes. From our industry-leading NT-proBNP to our expanding chemistry, hematology, and urinalysis platform, we deliver reference-lab-quality results directly to veterinary teams at the point of care.



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