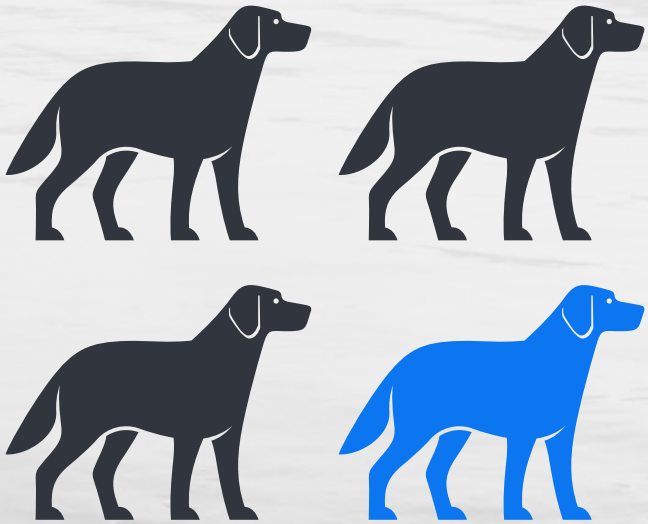
Detect lymphoma earlier than ever before.

IDEXX Cancer Dx™ testing clinical reference guide.

IDEXX

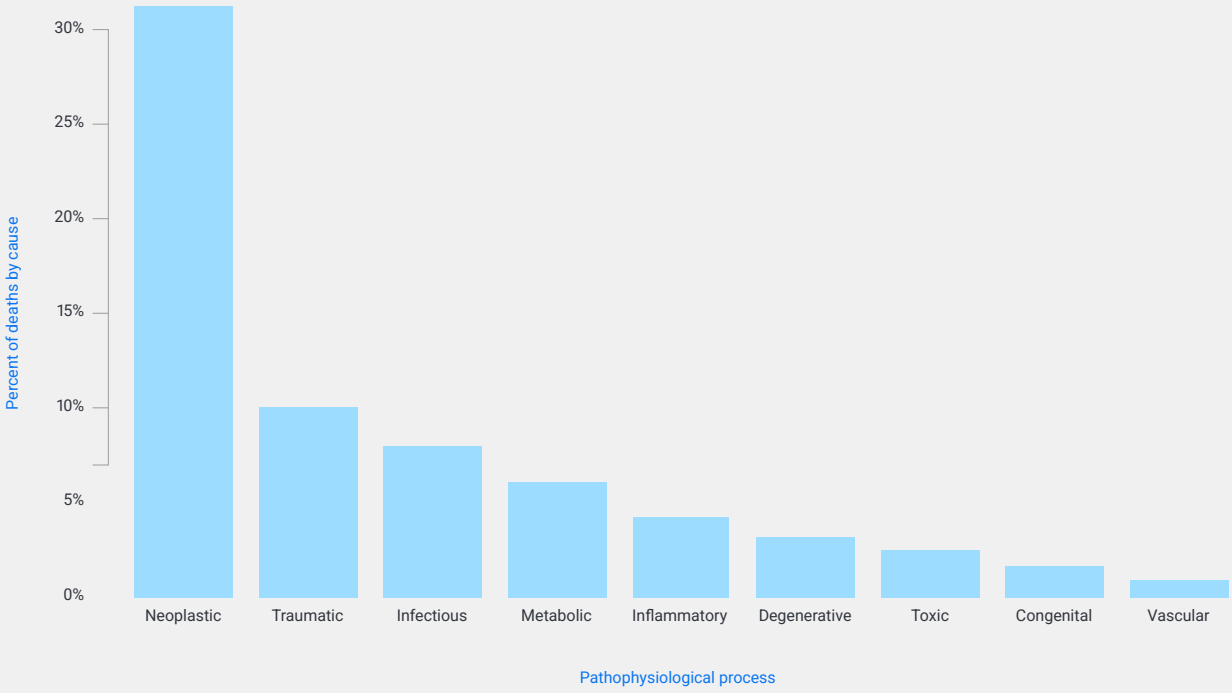
Canine cancer is incredibly common.



Approximately 1 in 4 dogs in the U.S. will be diagnosed with cancer in their lifetime.[1]

Cancer is the leading cause of death in adult dogs.[2]

For many cancers, patients aren't diagnosed until the later stages and clinical signs are present. These types of situations often lead to poorer outcomes and lower survival rates.



Lymphoma is one of the most common cancers encountered in dogs, comprising up to 24% of new diagnoses.[3]

Clinical signs associated with canine lymphoma:[3]

+ Local or generalized lymphadenopathy
+ Skin masses/ulcers
+ Gastrointestinal mass
+ Increased thirst/urination with high calcium
+ Moderate to marked lymphocytosis
+ Bilateral uveitis
+ Fever of unknown origin
+ Cytopenias

Cancer risk in dogs is greatly shaped by two factors: age and breed.

Studies show that the risk of cancer increases with age.[4]

The average age of dogs diagnosed with cancer.[4]

Cancer screenings are recommended for all dogs age 7 or older as well as dogs age 4 and older from these breeds:

+ Beagle
+ Bernese mountain dog
+ Boston terrier
+ Boxer
+ Bullmastiff
+ Chinese pug
+ Doberman pinscher
+ English bulldog
+ Flat-coated retriever
+ French bulldog
+ German shepherd
+ Golden retriever
+ Irish wolfhound
+ Labrador retriever
+ Miniature schnauzer
+ Pembroke Welsh corgi
+ Rhodesian ridgeback
+ Rottweiler
+ Scottish deerhound
+ Scottish terrier
+ Shar-pei
+ Siberian husky
+ Weimaraner

Decrease the possibility of illness going undetected by expanding your preventive care offering.

Preventive care allows veterinarians to catch health issues earlier and help pets live healthy lives. With comprehensive diagnostics from IDEXX, you can get deeper medical insight into your patients' health. But even with comprehensive diagnostics, such as a CBC, chemistry profile, and urinalysis, cancer can still go undetected.

When it comes to cancer detection, the diagnosis often comes too late in the game. Until now, there has been no easy, affordable screening test that could be integrated into a wellness offering.

IDEXX Cancer Dx testing.

Accurate, affordable, early detection of lymphoma.

Help detect cancer as an additional component of your IDEXX Preventive Care diagnostics for at-risk dogs.*

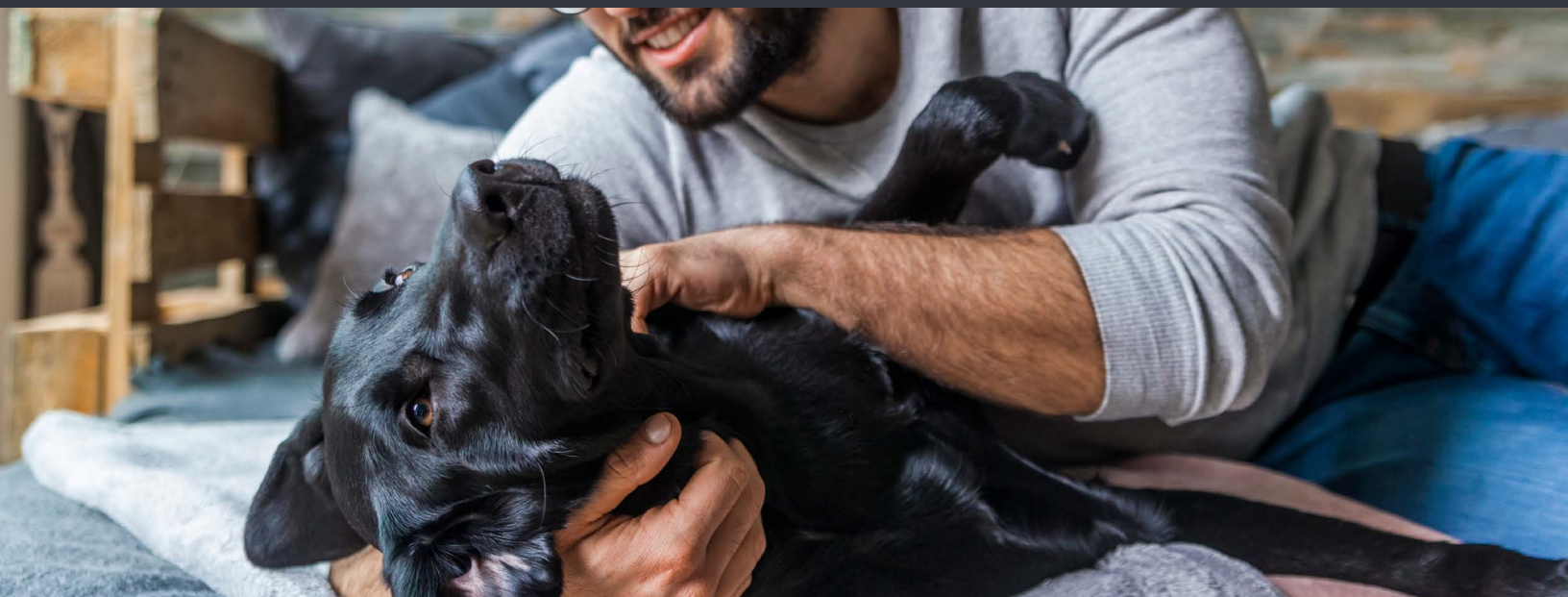
What is IDEXX Cancer Dx testing?

IDEXX Cancer Dx™ testing is a groundbreaking diagnostic using multiple innovative, proprietary technologies to accurately detect circulating biomarkers specific for canine lymphoma. In many cases, a lymphoma phenotype is provided with high confidence, guiding prognosis and treatment plans.

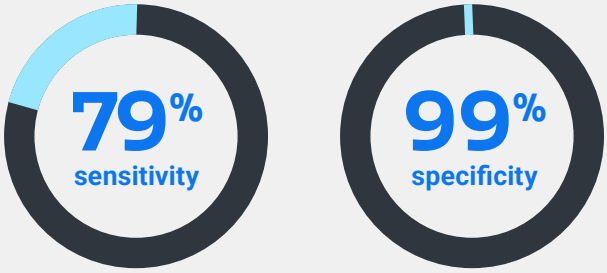
Specimen requirements.

2 mL of serum and 1 mL of EDTA whole blood (LTT) when run as a standalone, add-on, or in a profile. When run in a profile with chemistry and CBC, IDEXX Cancer Dx testing is run using a portion of the 1 mL whole blood/2 mL serum specimen required for standard biochemistry and hematology testing, not a separate pair of tubes.

*At-risk dogs include all dogs ≥ 7 years old and high-risk breeds ≥ 4 years old.



In an internal validation study, IDEXX Cancer Dx testing identified 79% of dogs with lymphoma with 99% specificity against healthy controls and dogs with inflammatory diseases/other cancers.[5]



Why is cancer screening important?

There is a shifting focus in oncology to early detection of cancers to provide more time for planning and a larger scope of opportunities to treat the disease. Diagnosing lymphoma before it can cause illness in a dog has a great potential to improve outcomes.

Using IDEXX Cancer Dx in healthy dogs.

How does IDEXX Cancer Dx testing compare to other cancer screening strategies?

IDEXX Cancer Dx™ testing demonstrates performance that is comparable to, if not superior to, the current standards widely and consistently used in human cancer screening diagnostics today.[6–7] IDEXX Cancer Dx testing also provides a lymphoma-specific result with additional characterization in many cases.

Metric	IDEXX Cancer Dx testing	Mammography[6]	Colonoscopy[7]
Sensitivity	**79%***	65%–94%	75%–95%
Specificity	**99%***	50%–98%	89%–94%

IDEXX Cancer Dx testing in clinically well dog

Not consistent with lymphoma

Consistent with lymphoma

Evaluate full history, physical examination, and blood work

Evidence of illness/concern for lymphoma?

+ Enlarged lymph nodes
+ Polyuria/polydipsia and hypercalcemia
+ Gastrointestinal mass
+ Bilateral uveitis
+ Moderate to marked lymphocytosis‡
+ Elevated SDMA without concurrent creatinine increase
+ Fever of unknown origin

No

Yes

Recheck physical examination in 4–8 weeks (emphasize lymph node palpation)

Normal

Signs of illness

Supports a clinical diagnosis of lymphoma

Consider staging via techniques that include imaging (such as thoracic radiographs and abdominal ultrasound) or through cytology or biopsy of tissues to identify which lymph nodes, organs, or masses contain abnormal lymphocytes

Evaluate patient at next planned wellness†

*Performance data is derived from validation and verification data.

†AAHA recommends wellness examinations every 6 months in senior dogs and yearly in all others.[14]

‡In the absence of other clinical signs of lymphoma, consider further diagnostics (e.g., flow cytometry) and monitoring mild to moderate lymphocytosis for other lymphoproliferative disease (e.g., chronic lymphocytic leukemia).

Using IDEXX Cancer Dx in sick dogs.

Where does IDEXX Cancer Dx testing fit into the diagnostic workup of a patient suspected to have lymphoma?

Metric	IDEXX Cancer Dx testing	Cytology[8]	Lymphoma PCR (PARR)[9–11]
Sensitivity	**79%**	92.6%	75%–92%
Specificity	**99%**	89.4%	94%–98.7%
Turnaround time[§]	**2–4 days**	1–2 days	10–14 days
Specimen	**Serum/blood**	Cells from lesion	Cells from lesion
Cost	**$**	$$	$$$

Where does IDEXX Cancer Dx testing fit into the available options for phenotyping of lymphoma?

Metric	IDEXX Cancer Dx testing	Lymphoma PCR (PARR)[12–13]	Flow cytometry[13]
B-cell specificity	**91.3%**	67%–89%	100%
T-cell specificity	**98.8%**	64%–100%	98%
Specimen	**Serum/blood**	Cells from lesion	Cells from lesion
Special handling?	**No**	No	Yes
Cost	**$**	$$$	$$$

IDEXX Cancer Dx testing in clinically sick dog

Not consistent with lymphoma

High concern for lymphoma?

No

Continue diagnostic workup for other causes of clinical signs

Yes

Continue diagnostic workup for lymphoma: consider cytology or biopsy of identified lesions and additional imaging (such as thoracic radiographs and abdominal ultrasound)

Consistent with lymphoma

Supports a clinical diagnosis of lymphoma

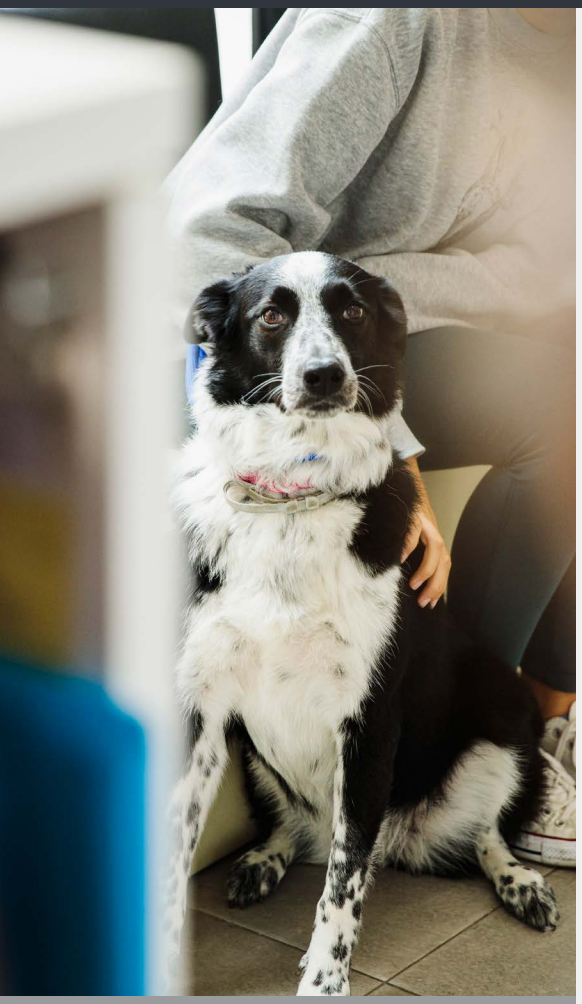
Consider staging via techniques that include imaging (such as thoracic radiographs and abdominal ultrasound) or through cytology or biopsy of tissues to identify which lymph nodes, organs, or masses contain abnormal lymphocytes

[§]Turnaround times provided are for testing services performed at IDEXX Reference Laboratories.

Get the support you need when there's no time to waste.

Diagnosing cancer can be difficult, but the expanded cancer offerings at IDEXX Reference Laboratories can help.

The cancer diagnostics test and service menu at IDEXX Reference Laboratories can help identify cancer, understand personalized genetic markers, and determine diagnostics for therapy management and monitoring.



Personalized guidance from diagnosis to treatment.

Get the support that you need from the largest global network of veterinary pathologists and medical consultants at IDEXX Reference Laboratories:

+ Clinical support for routine and complex pathology cases
+ Easy access to your case's pathologist by phone and email, and consistency with a dedicated pathologist from start to finish
+ Education on when and which diagnostics are best for personalized medicine
+ Evaluation of surgical margins
+ Internal case review and collaboration
+ Comments about biological behaviour and etiology
+ Cytology interpretation from a board-certified clinical pathologist in 2 hours or less, 24/7/365, with IDEXX Digital Cytology™*

*Requires the in-house IDEXX Digital Cytology™ instrument.

Expand your pathology insights with VetConnect PLUS.

Everything you need for faster, effective clinical decisions all in one place:

+ High-resolution digital images of your cytology and biopsy cases included at no charge, exclusively with VetConnect® PLUS
+ Access to each patient's comprehensive diagnostic information (CBC, chemistry profile, urinalysis, digital radiography) in one place for a holistic view in VetConnect PLUS

Our comprehensive diagnostic portfolio gives you clarity.

The cancer diagnostics test and service menu gives you the answers you need, when you need them:

Cancer identification

+ IDEXX Cancer Dx™ testing
+ Cytology
+ Biopsy
+ Bone Marrow Cytology

Cancer characterization

+ Mast Cell Tumour Prognostic Panel
+ Immunocytochemical Staining, as recommended by pathology
+ Immunohistochemistry, as recommended by pathology
+ Lymphoma PCR, includes the PARR assay for clonality

Chemotherapy patient monitoring

+ Cancer Baseline Profile with Urinalysis
+ Cancer Baseline Profile and SediVue Dx® Urinalysis†
+ Chemotherapy Recheck Profile
+ Chemotherapy Recheck Profile with Urinalysis

†Urinalysis is performed on the SediVue Dx® Urine Sediment Analyzer.

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