



Early Cancer Diagnosis: Don't Miss the Warning Signs

Presenter:

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Agenda

Learning Objectives

1. Utilize specific history-taking questions
2. Recognize importance of the full physical examination
3. Adopt strategies for reviewing routine blood work
4. Review currently offered cancer diagnostics and IDEXX's Cancer Dx
5. Apply to Case Examples



All components of a visit can be used to gather information which may point you toward an early diagnosis of cancer



History



Physical examination



Minimum Database



Additional Diagnostics



Follow Up

A history is the first opportunity to become the detective for early signs of cancer

Bowser is here for his annual examination. Do you have any questions?



Bowser is here for his annual examination. What concerns do you have today?

I don't think so.



He has really slowed down this last year.



All visits start with understanding the goal of the visit

Why is your patient in the clinic?

**Sick visit?
Well visit?
Has the reason for visit changed?**

What are the owner's goals for the visit?

Does your owner want a diagnostic workup or comfort care?

What are the owner's concerns?

Ultimately this is what needs to be addressed.

Pet specific questions

Create a checklist

Areas with specific focus in history taking

Category of Information	Focus Areas
1. Presenting Complaint	Problem Duration Changes
2. Basics, Nutrition and Elimination	V/D/C/S Behavior changes Appetite changes and current diet Elimination habits
3. Lifestyle and home health	Travel Interaction with other animals Vaccine status Retroviral status (cats)
4. Medications	Current / Previous Response Duration

The way questions are asked can augment amount of information obtained

Open-ended questions

Leave time to answer

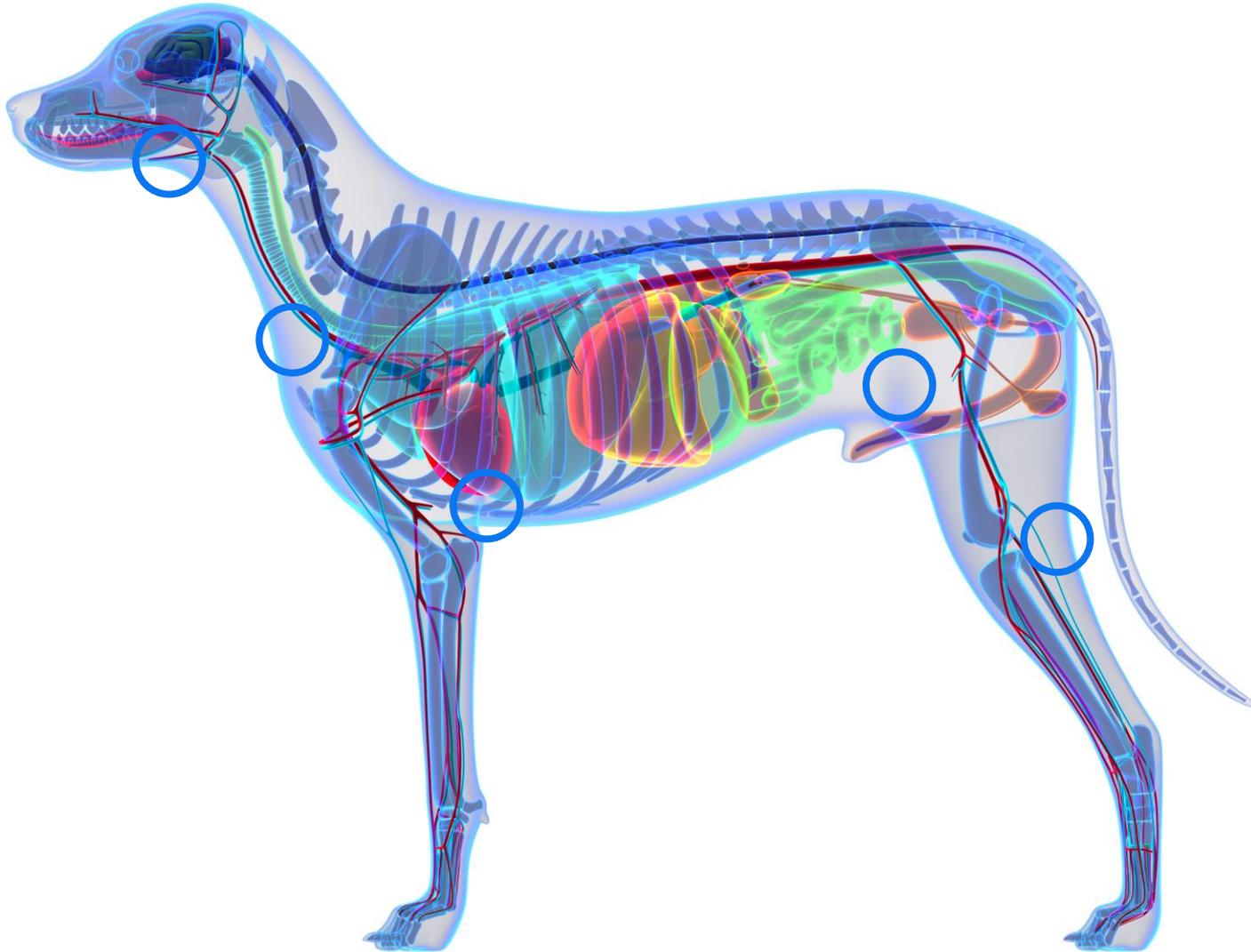
“Tell me about a day in the life of...”

Reflective statements

Active listening

Intake Forms

Consistency in a physical examination is key



External palpation

Skin masses, ulcers, asymmetry
(don't forget paw pads)

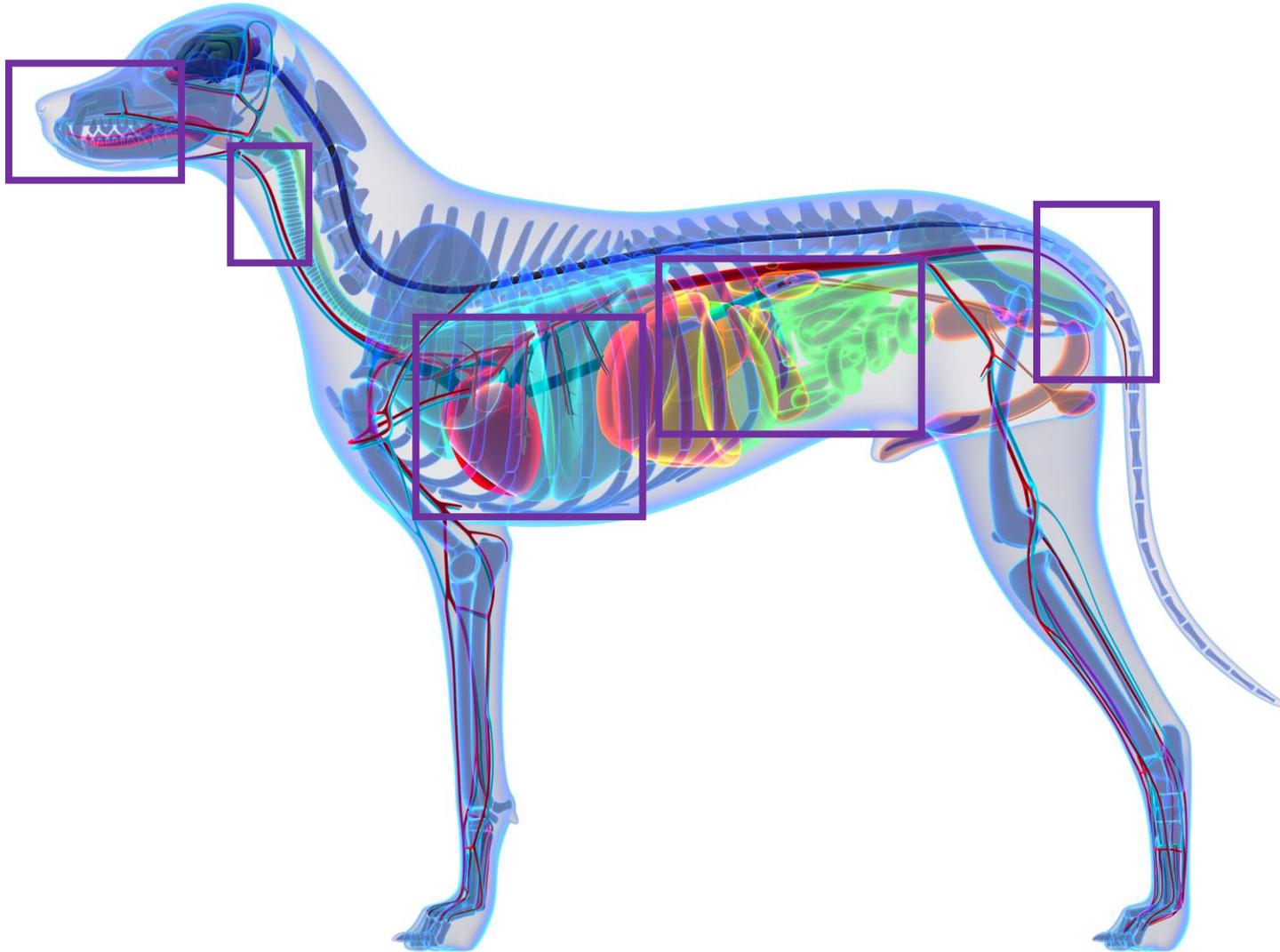
Lymph node palpation

Primary, reactive, metastatic
(don't forget facial LN)

Bone palpation

Irregularity, pain, limping

After external palpation, the focus shifts to deeper structures



Head and Neck

Airflow, oral cavity, ears, eyes, throat palpation

Auscultation

Heart, lungs, trachea

Abdomen and Rectal

Organomegaly, asymmetry (don't forget rectal exam in dogs)

Each piece of blood work offers clues to your patient's internal health

Hematology – CBC

Chemistry

Urinalysis

Endocrinology - Thyroid

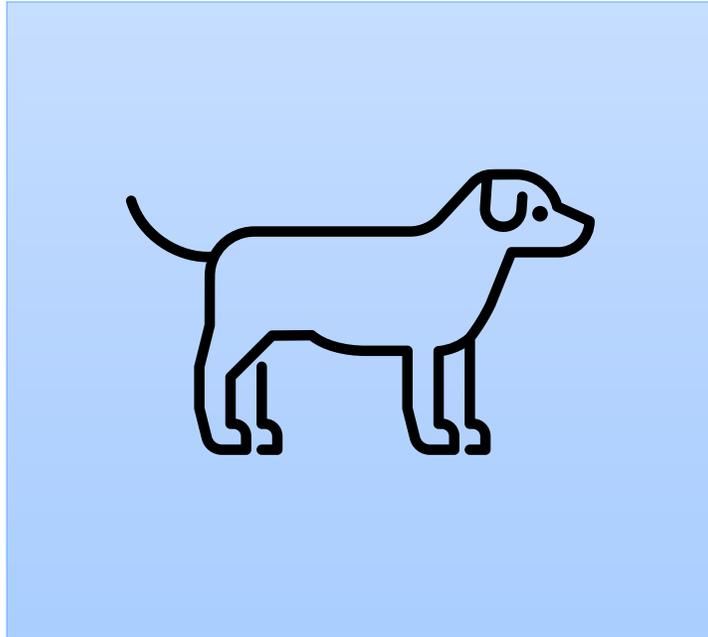
Serology – SNAP/Lab 4Dx

Parasitology – Fecal Antigen

Hematology – CBC

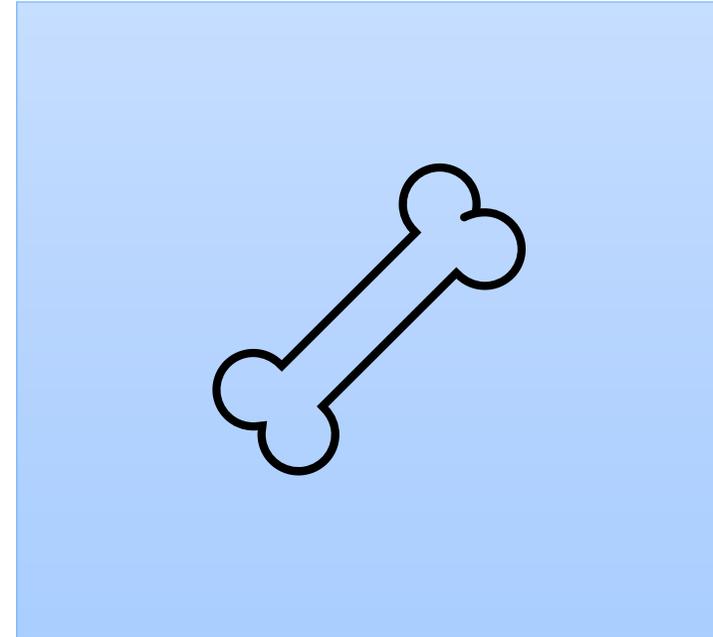
Erythrogram

Anemia



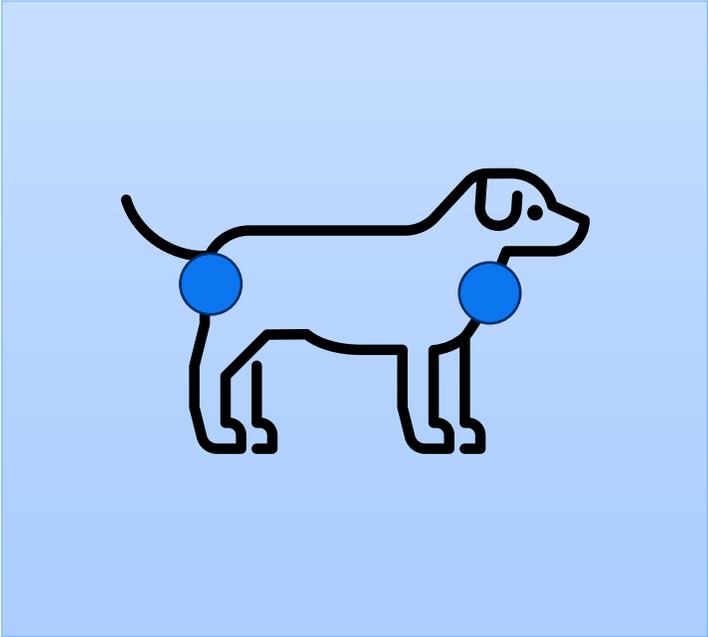
Leukogram

Lymphocytosis, Neutropenia,
Thrombocytopenia

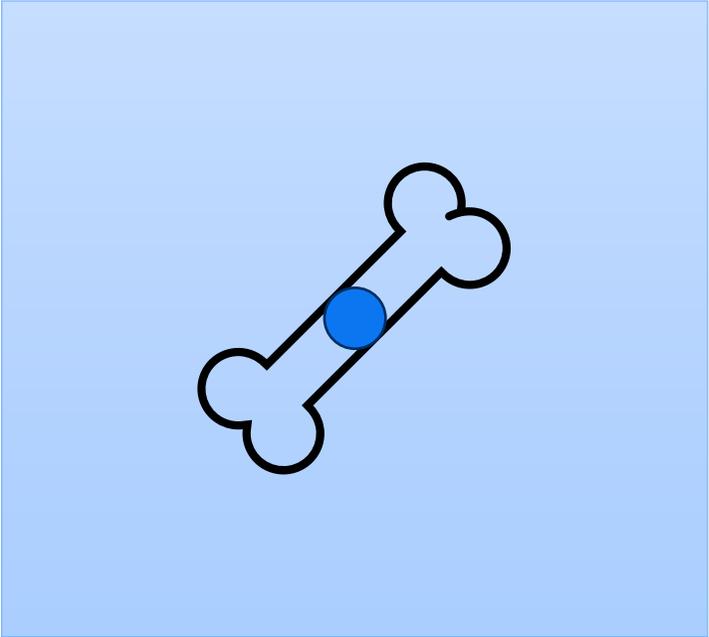


Chemistry panel

Hypercalcemia



Hyperglobulinemia



Each piece of blood work offers clues to your patient's internal health

Hematology – CBC

Chemistry

Urinalysis

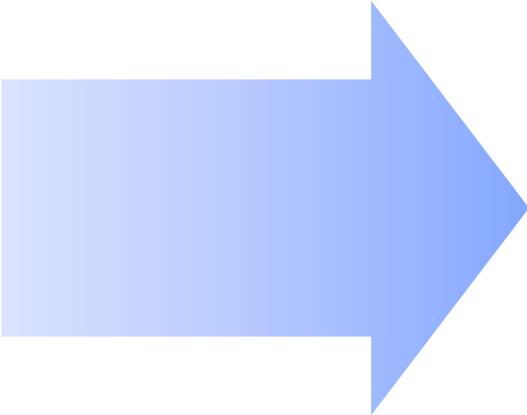
Endocrinology - Thyroid

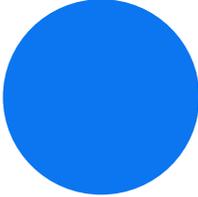
Serology – SNAP/Lab 4Dx

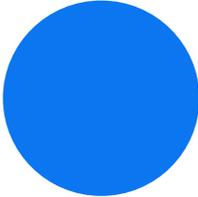
Parasitology – Fecal Antigen

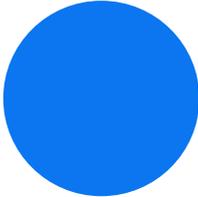
Additional diagnostics may be recommended based upon information obtained during the visit

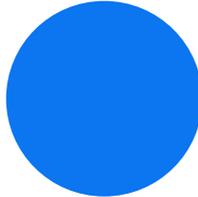
History	Physical examination	Minimum Database
Abnormalities?		



-  Cytology

-  Histopathology

-  Panels

-  Imaging

IDEXX Cancer Dx™ testing is a new diagnostic that can improve care of your patients



What is IDEXX Cancer Dx testing?

Proprietary biomarkers specific for lymphoma performed at IDEXX Reference Laboratories



Who is it for?

- + Suspected lymphoma
- + Well patients with increased risk of lymphoma
 - + At risk breeds > 4 years of age
 - + Senior dogs > 7 years of age



Who is at risk?

Dogs suspected of having lymphoma

All dogs ≥ 7 years old

High-risk breeds ≥ 4 years old

IDEXX Cancer Dx™ is built from a panel of transformational biomarkers measured through multimodal techniques to support earlier diagnoses

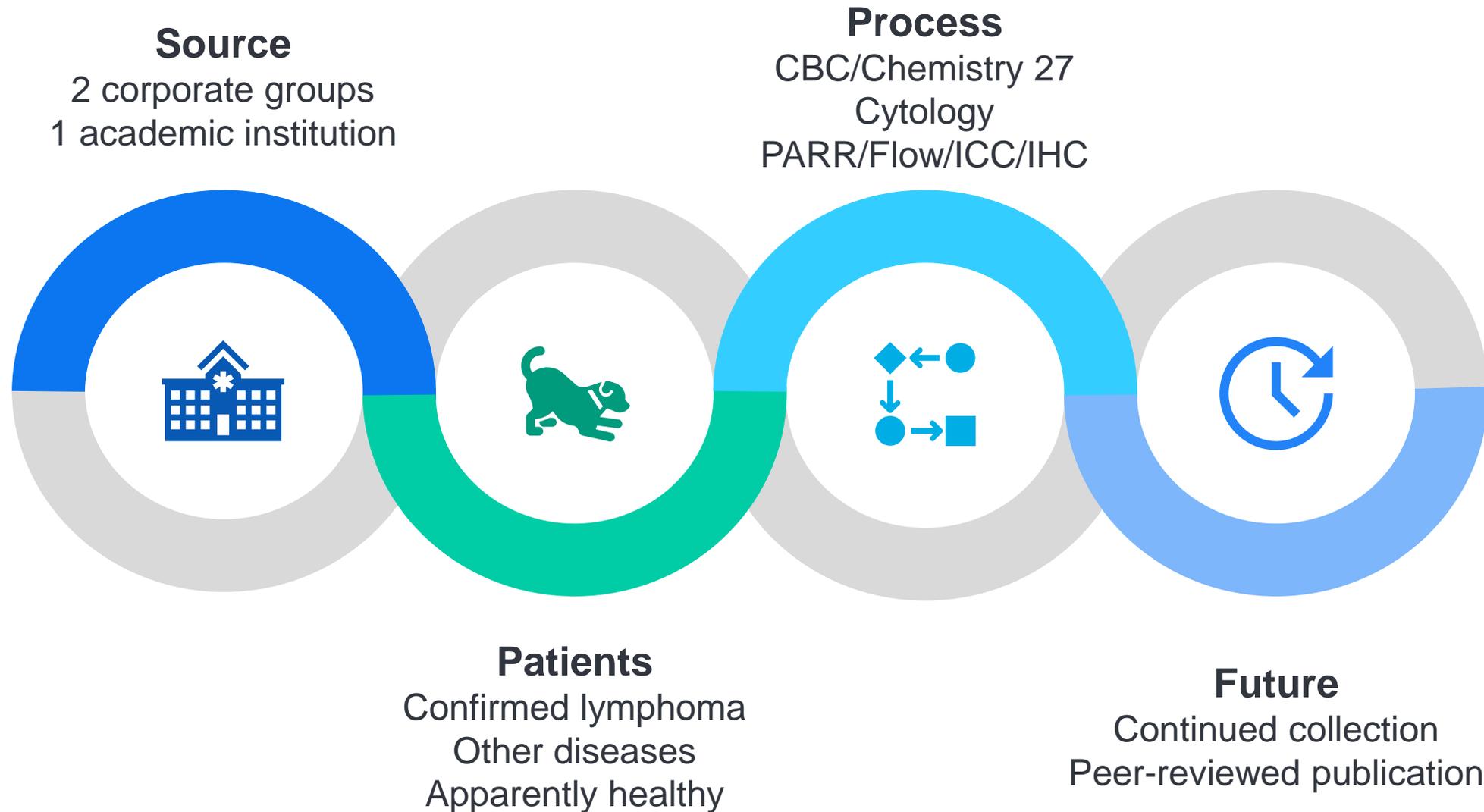


What does this mean for the patient? An **accurate, affordable, and efficient** way to support a clinical diagnosis of lymphoma in the clinic earlier.

Sensitivity / Specificity **79% / 99%** ● **2–3 day*** Turnaround time

*Turnaround time in Canada 2–4 days

Validation and Verification of IDEXX Cancer Dx™



Population for lymphoma detection performance

105

Confirmed Lymphoma

- + Cytologic diagnosis + PARR
- + Cytologic diagnosis + Flow cytometry
- + Cytologic diagnosis + ICC
- + Histopathologic diagnosis + IHC
- + Naïve to treatment, off steroids and immunosuppressive > 1 month

73

Other Diseases

- + Inflammatory diseases
- + Other non-lymphoma cancers
- + Naïve to treatment with gross disease present

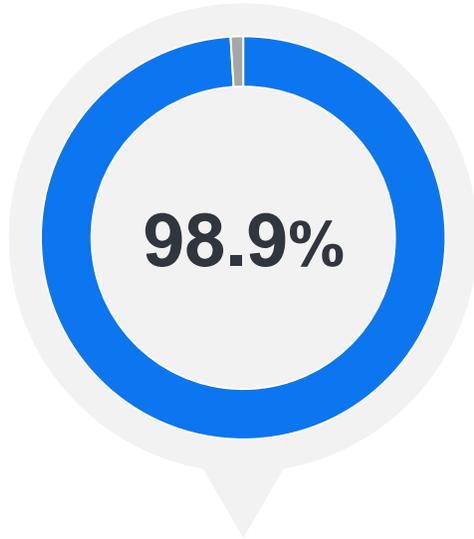
156

Apparently Healthy

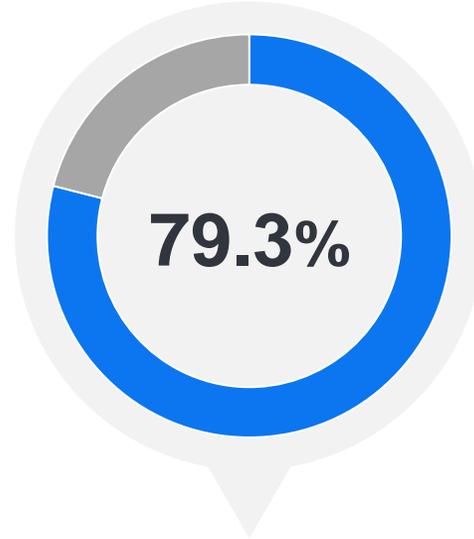
- + Normal physical examination
- + Normal CBC and full serum chemistry
- + Range of ages and breeds to reflect population seen in clinic

Additional dogs undergoing treatment for lymphoma were included in phenotype detection performance

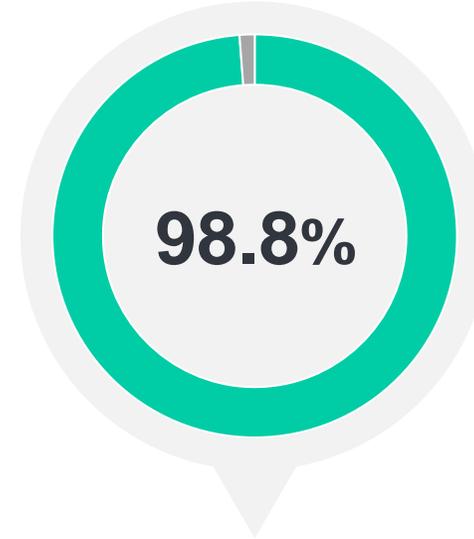
Verification and validation data



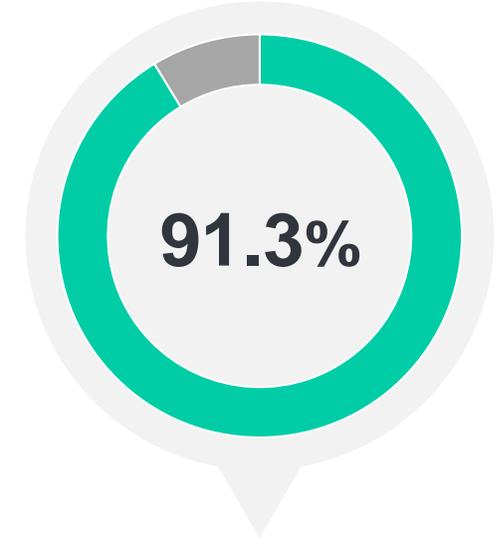
**LSA
Specificity**



**LSA
Sensitivity**



**T-cell
Specificity**



**B-cell
Specificity**

FP #1: Metastatic mast cell disease, PARR clonal for B-cell

FP #2: Splenic round cell tumor, suspected to be plasma cell in origin, MUM1 positive

56% IDEXX Cancer Dx™ results include a phenotype which is highly accurate at no additional cost to customer

IDEXX Cancer Dx™ can be used on both well and sick patients



Screened based on population risk factors (no clinical signs)

- + Part of routine preventive care screening
- + Early studies show potential to detect signal weeks to months in advance of clinical manifestation of disease
- + At-risk dogs*

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

Reference

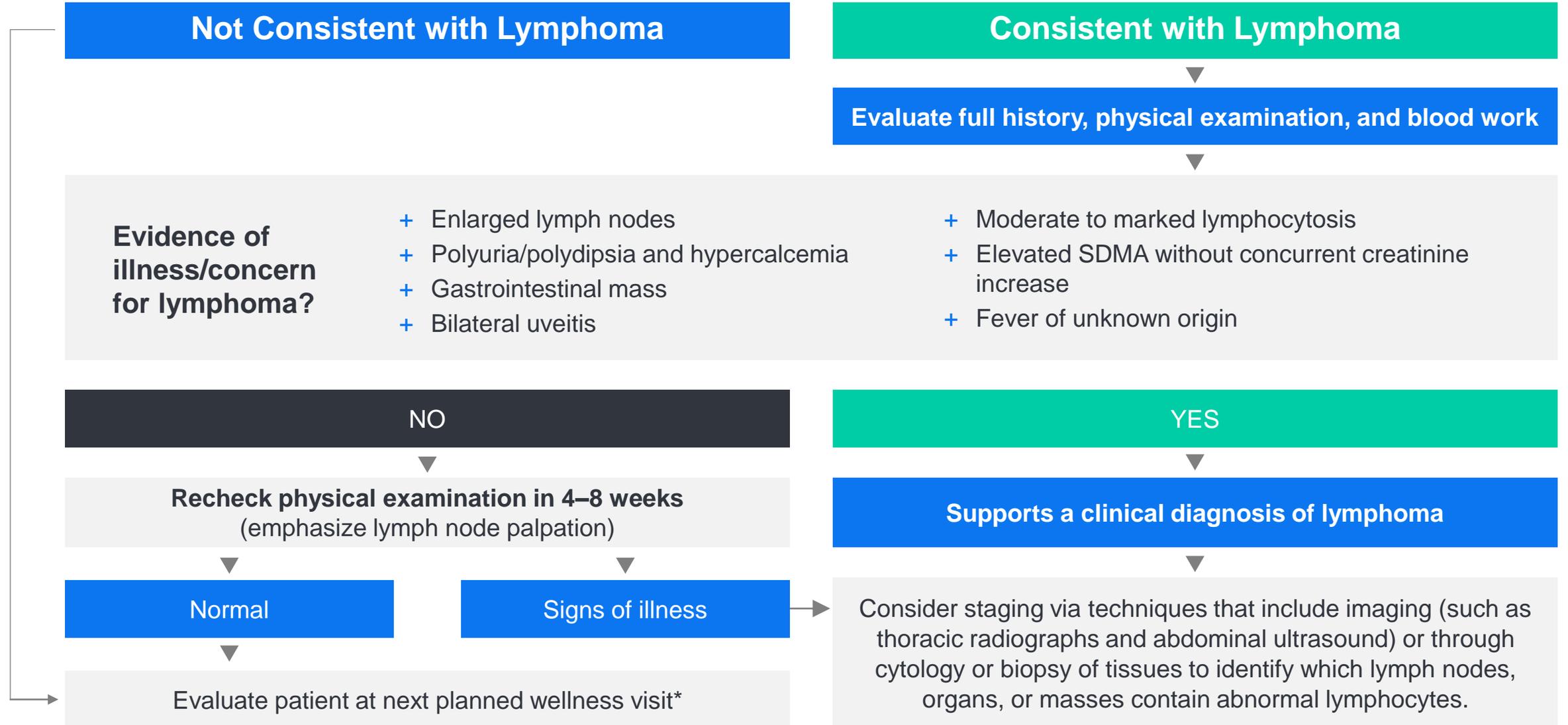
1. Data on file at IDEXX Laboratories, Inc. Westbrook, Maine USA: Data based on testing performed at IDEXX Reference Laboratories in North America between November 1, 2024, and December 6, 2024. *Analysis Report: IDEXX Cancer Dx Validation, 100282* [008_CancerDx-Validation-Report-2.Rmd].



Clinical signs suggestive of lymphoma

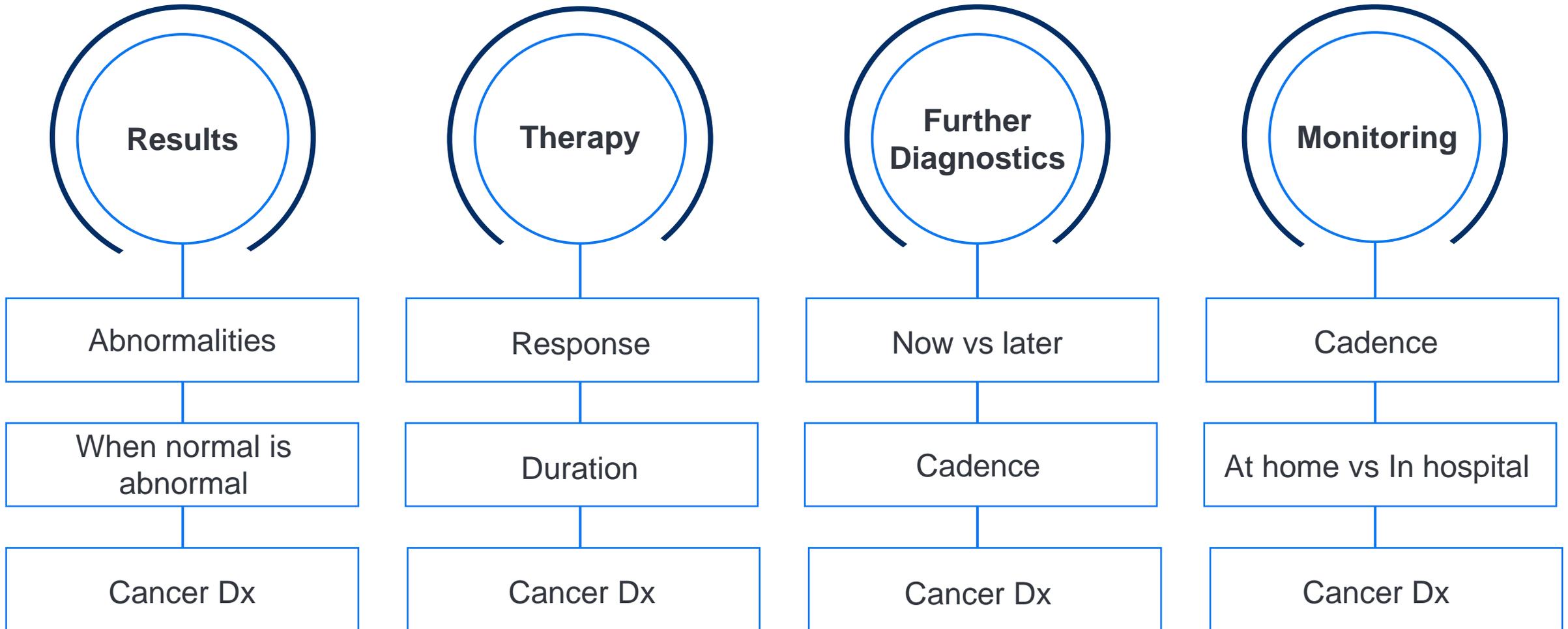
- + Part of diagnostic work-up
- + Accurate, efficient, affordable
- + Earlier detection¹
- + Increases access to cancer testing and care

Translating results into clinical decisions



*American Animal Hospital Association (AAHA) recommends wellness examinations every 6 months in senior dogs and yearly in all other dogs.¹
Reference 1. Creevy KE, Grady J, Little SE, et al. 2019 AAHA Canine Life Stage Guidelines. J Am Anim Hosp Assoc. 2019;55(6):267-290. doi:10.5326/JAAHA-MS-6999

The care doesn't end when the patient leaves the clinic



Clear communication strengthens relationship and fosters care

At the end of the visit

Sign-posting- when will you be calling and with what components

Reflective statements about visit

Open-ended questions

After the visit

Team approach to care

Options for further diagnostics and therapy

Specificity of monitoring

Meet Gage
12 yo MN Border Collie



Gage



Presenting Complaint and History

- Gage is a 12-year-old male neutered Border collie that was presented for 4 days of anorexia
- Changes noted at home
 - Increased drinking and urination
 - Severe lethargy



Gage



Physical Examination

- Enlarged lymph nodes (mandibular, prescapular and popliteal)
- Proliferative tissue at mucocutaneous junction of rectum
- Cranial organomegaly
- Lip-licking when abdomen is palpated

A comprehensive panel including CBC-select, Chemistry, UA, T4 and Cancer Dx was submitted along with cytology of multiple lymph nodes

Gage



Diagnostics

- CBC:
 - Mild non-regenerative anemia and thrombocytopenia
- Chemistry panel:
 - Hypercalcemia
 - Increased SDMA, creatinine and BUN
- Hyposthenuria
- Cancer Dx consistent with T-cell lymphoma

Cytology of lymph nodes consistent with lymphoma

Gage's owner is concerned about his profound lethargy and anorexia



Hasn't eaten at all in 4 days; 2 weeks since normal appetite

Increased drinking and urination (pu/pd)

No longer greets owner at the door



Body condition score 2/5

Enlarged lymph nodes

Proliferative tissue around rectum

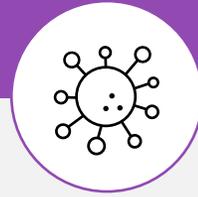
Organomegaly



CBC- Mild non-regenerative anemia; thrombocytopenia

Chemistry- Hypercalcemia, increased SDMA, creatinine, BUN

Urinalysis- Hyposthenuria



Cytology of lymph nodes: Consistent with lymphoma

Chest radiographs: Mediastinal mass

Abdominal ultrasound: Splenomegaly with mottled texture



Clinical diagnosis: Lymphoma (suspect T-cell)

Options for client: Referral to oncologist or palliative care

Prognosis

Gage: 1 month prior



Presenting Complaint and History

- Gage is a 12-year-old male neutered Border collie that was presented for a suspected UTI
- Changes noted at home
 - Vocalizing when defecating
 - Will still eat entire meal but slowing down



Gage: 1 month prior



Physical Examination

- Reddened tissue at mucocutaneous junction of rectum
- Prominent mandibular lymph nodes

A comprehensive panel including CBC-select, Chemistry, UA, T4 and Cancer Dx was submitted

Gage: 1 month prior



Diagnostics

- Hypercalcemia
- Increased SDMA
- Hyposthenuria
- Cancer Dx
 - Consistent with lymphoma
 - Phenotype: T-cell

Clinical diagnosis of T-cell lymphoma

A new diagnostic meant an earlier diagnosis for Gage



Asking to go outside more often

Vocalizing when defecating

Taking longer to finish kibble



Body condition score 4/5

Reddened and ulcerated tissue around rectum

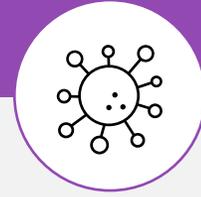


CBC- No significant abnormalities

Chemistry-
Hypercalcemia

Urinalysis-
Hyposthenuria

Cancer Dx-
Consistent with T-
cell lymphoma



Chest radiographs-
Mediastinal mass



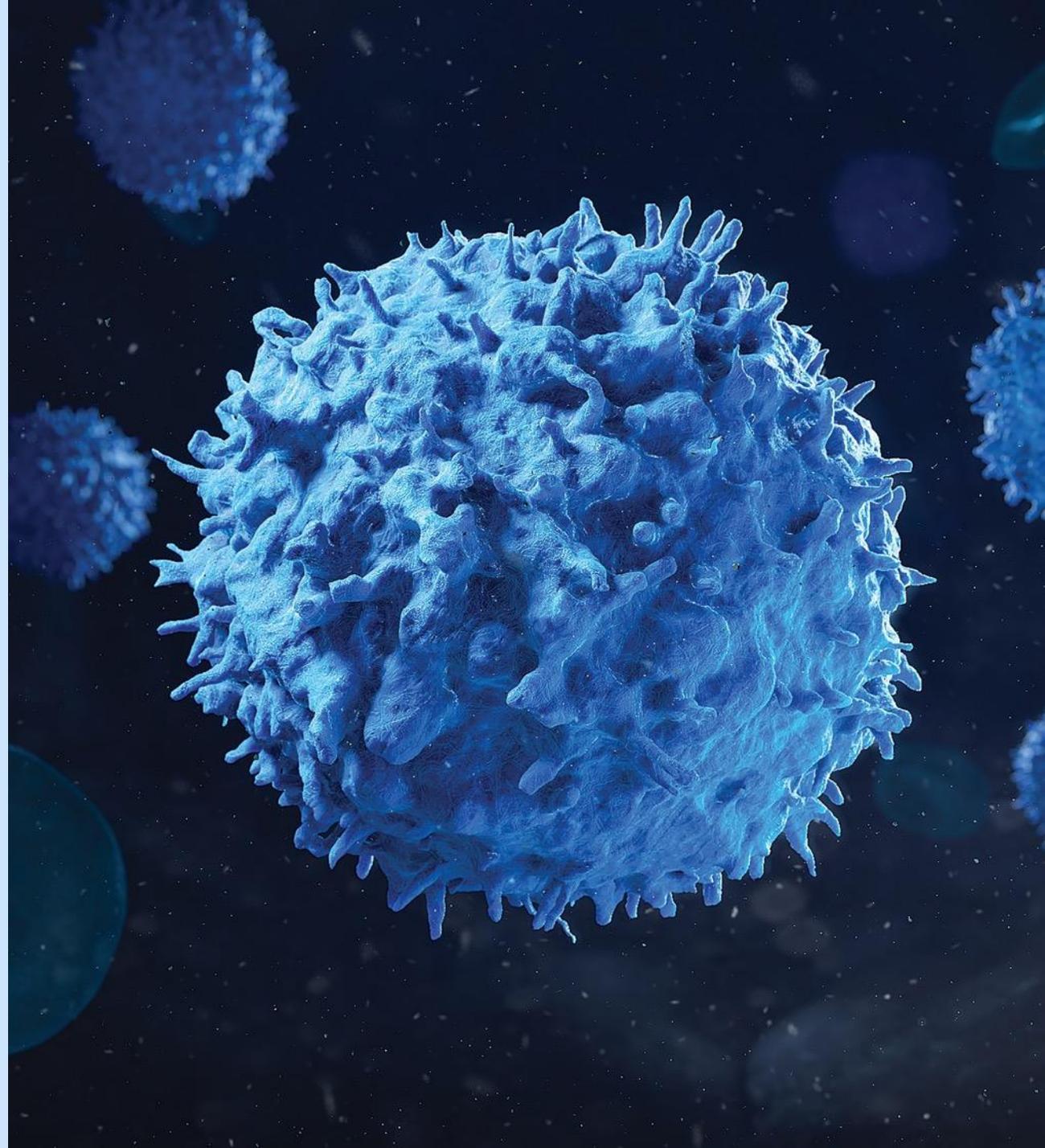
Clinical diagnosis:
T-cell lymphoma

Options for client:
Referral to
oncologist or
palliative care

Prognosis

IDEXX Cancer Dx™ testing

Lymphoma.
Find it early.
Fight it early.



IDEXX