Annual Screening for Vector-borne Disease

The SNAP® 4Dx® Plus Test Clinical Reference Guide
For healthier pets and so much more. The benefits of vector-borne disease screening go far beyond the well-being of an individual pet. Adopting regular screening protocols at your practice can lead to a greater awareness and understanding of vector-borne disease in your community, while building the value of your practice with pet owners.

Every dog, every year

Educating pet owners about the risk of vector-borne disease is an opportunity to stress the importance of screening and prevention.

Comprehensive annual screenings give you a current snapshot of how widespread certain diseases and tick species are in the area.

Vector-borne disease screenings are the foundation of your practice’s preventive medicine programs and let you know what your patients are being exposed to over time, which leads to healthier patients and a stronger practice.

With the SNAP® 4Dx® Plus Test, a positive result can also be an indication of ticks and other pathogens in your area.

When you use the SNAP® 4Dx® Plus Test as a screening tool, you may detect antibodies to these pathogens carried by these ticks that may also transmit other infections to dogs and people Geographic tick distribution as of 2011

- *Ehrlichia ewingii*
- *Anaplasma phagocytophilum*
- *Borrelia burgdorferi* (Lyme disease)
- *Anaplasma platys*
- *Babesia* spp.
- *Ehrlichia canis*
- *Aeplasma platys*
- *Brown dog tick* (Rhipicephalus sanguineus)
- *Deer tick or black-legged tick* (Ixodes scapularis, Ixodes pacificus)
- *Lone star tick* (Amblyomma americanum)
- *Ehrlichia chaffeensis*
- *Tularemia*
- *Rocky Mountain spotted fever*
- *STARI*
Lyme disease

Anaplasma platys

Infects platelets

North America with cases ranging... until several months after... disease is caused by the bacterium...

I. scapularis

Primary vectors

B. burgdorferi

Pathology

Ixodes pacificus

Ixodes scapularis

B. burgdorferi.

Antibody level ≥ 30 U/mL

Dogs with seroreactivity to both... plus and... results do not cross-react with the antibody response to...

Positive result ≥ 30 U/mL

Retest in 1 year

Negative result

Infection is unlikely

Clinical signs

Fever, anorexia, lethargy

Neurologic signs

Lyme disease is a chronic infection...

Persistent infection.

While not known to be chronic, experimental studies have shown...

Persistent infection.

Clinical presentation

Fever, anorexia, lethargy

Lymphopenia

Thrombocytopenia

Can present acutely:

Note

Heartworm disease

Dirofilaria immitis

Pathology

Primary vector

I. scapularis

Clinical presentation

Polyarthropathy, lameness

Fever, anorexia, lethargy

Mild, persistent cough

Weight loss

Reduced appetite

Diagnosis

Laboratory Abnormalities

Heartworm infection may result in death.

Infection may result in death.

Important—especially as advanced...

Larvae are transferred to a healthy...

D. immitis

Primary vector

I. scapularis

Clinical presentation

Polyarthropathy, lameness

Fever, anorexia, lethargy

Mild, persistent cough

Weight loss

Reduced appetite

Diagnoses

Recheck CBC at wellness exams

Follow AHS/CAPC guidelines on heartworm prevention

Did you know?

Note

Anaplasma phagocytophilum

Infects monocytes

Pathology

Rhipicephalus sanguineus

Primary vector

E. canis

Pathology

Amblyomma americanum

Pathology

Additional diagnoses

Intestinal signs

Pyrexia

Respiratory signs

Signs of neuropathy

Diagnosis

Laboratory Abnormalities

Note

Did you know?

Note

Canine anaplasmosis

Canine granuloctytic anaplasmosis is caused by Anaplasma phagocytophilum.

Clinical presentation

Fever, anorexia, lethargy

Anaplasma phagocytophilum

Pathology

Ixodes scapularis

Primary vector

Canine ehrlichiosis

Ehrlichia ewingii

Clinical presentation

Polyarthropathy, lameness

Fever, anorexia, lethargy

Mild, persistent cough

Weight loss

Reduced appetite

What to do with your SNAP result

Infection unlikely

No clinical signs

What to do with your SNAP result

No infection likely

Microfilariae likely

Note

Recheck routine tests in 3 months. If no improvement, pursue other...

Recheck routine tests in 3 months. If no improvement, pursue other...

Follow AHS/CAPC guidelines on heartworm prevention

Follow AHS/CAPC guidelines on heartworm prevention

What to do with your SNAP result

Positive result

Negative result

Positive result

Negative result

Note

Follow AHS/CAPC guidelines on heartworm prevention

Follow AHS/CAPC guidelines on heartworm prevention

What to do with your SNAP result

DIAGNOSE

CONFIRM

MONITOR

PREVENT

NEXT?

WHAT

TO DO

NEXT?

WHAT

TO DO

NEXT?

WHAT

TO DO

NEXT?

What to do with your SNAP result

Positive result

Negative result

Positive result

Negative result

Note

Follow AHS/CAPC guidelines on heartworm prevention

Follow AHS/CAPC guidelines on heartworm prevention

Follow AHS/CAPC guidelines on heartworm prevention

Follow AHS/CAPC guidelines on heartworm prevention
When to use the IDEXX RealPCR™ vector-borne disease panels:

- Sick patients with clinical signs and/or laboratory abnormalities consistent with a vector-borne illness
- Patients with subclinical infections based on history, physical exam, serology and clinical laboratory findings
- Monitoring response to therapy— the Lyme Quant C6® Test can indicate waning antibody levels, and for other pathogens, a negative PCR result indicates a reduction in pathogen load.

Diagnostics for sick patients

Serology and PCR testing options—For a sick dog presenting with clinical signs consistent with a vector-borne disease, it’s important to consider both serology and PCR testing because they are complementary.

<table>
<thead>
<tr>
<th>Serology</th>
<th>Polymerase chain reaction (PCR)</th>
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<tr>
<td>Measures</td>
<td>Antibody response of host</td>
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<td></td>
<td>Nucleic acid (DNA) from pathogen</td>
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<tr>
<td>Benefits</td>
<td>Useful for screening as well as diagnosis of infection</td>
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<td>Specifically identifies pathogens indicating active infection</td>
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<td>Limitations</td>
<td>Clinical signs may precede a measurable antibody response</td>
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<td>A negative PCR result does not necessarily rule out infection</td>
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Dogs with ehrlichiosis and anaplasmosis may present with clinical signs at different times after infection. Which sick dog are you dealing with?

- Positive result: Infection or recrudescence
  - Dog A presents
  - Dog B presents
  - Dog C presents

- Negative result: Exposure unlikely
  - Review benefits of prevention – preventive – vaccination
  - Retest in 1 year

Quick tips to share with pet owners

- Check your dog for ticks daily. If you find a tick, remove it right away (ticks will gravitate to the head, ears and neck).
- Use a tick preventive on your dog.
- Watch your dog closely for changes in behavior or appetite and call your veterinarian with any concerns.
- Talk with your veterinarian about ticks and vector-borne disease in your area.
- If your pet’s test results are negative, congratulations! Keep up the good work with regular preventive screenings and daily tick checks.

Go to dogsandticks.com for more information.

When to use the IDEXX RealPCR™ vector-borne disease panels:

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Infection or Recrudescence

- Dog A presents
- Dog B presents
- Dog C presents

A pet’s screening result and what it means

Positive result: The dog has been exposed and may be infected
- Perform additional tests to confirm infection

Negative result: Exposure unlikely
- Review benefits of prevention – preventive – vaccination
- Retest in 1 year

Clinical signs and/or laboratory findings indicate either:

- Self-limiting infection: No clinical signs or laboratory abnormalities
- Subclinical infection: Apparently healthy dogs with laboratory abnormalities
- Clinical disease: Infected dogs with clinical signs with or without laboratory abnormalities

Depending on the results of a pet’s screening, additional testing or therapies may be required.

Go to dogsandticks.com for more information.

Annual screening with the SNAP® 4Dx® Plus Test

Screen your canine patients every year with the SNAP® 4Dx® Plus Test to detect exposure to pathogens that cause heartworm disease, ehrlichiosis, Lyme disease and anaplasmosis.

- No single test is sufficient for diagnosing an infectious disease in a sick patient.


