

## Common Misconceptions About Diagnosing Heart Failure

Misconceptions about the diagnosis of congestive heart failure in dogs are common. Veterinarians may believe that diagnosis of congestive heart failure is more complicated than it actually is. This misconception may be based on the veterinarian underestimating his or her own abilities to recognize this disease syndrome.

If you are familiar with a patient's history and presenting complaints, you can combine that information with the patient's physical exam findings, then look for radiographic signs that are associated with heart failure to confirm your suspected diagnosis. Echocardiographic findings are important to identify the type and severity of cardiac anatomic changes and assess cardiac function, but in most cases, an echocardiogram is not required to diagnose congestive heart failure. Rapid point-of-care lung ultrasound imaging may help identify pulmonary fluid during the physical examination; this is particularly helpful when obtaining radiographs is not possible or dangerous to an unstable patient.

After a patient's history and physical examination findings have been evaluated, thoracic radiographs are important tools in the diagnosis of congestive heart failure. It's crucial to be able to obtain good radiographs and interpret them correctly. Many veterinarians who are fairly comfortable diagnosing pneumonia based on the infiltrate pattern seen on radiographs are less comfortable recognizing radiographic findings that are supportive of heart failure.

### Assessing thoracic radiographs to diagnose CHF

In any dog, we rely on use of the vertebral heart size (VHS) and vertebral left atrial size (VLAS) methods to objectively assess heart size. When the heart is enlarged, heart disease may be present. We can then revisit the animal's history and physical examination findings to concentrate on the cardiovascular system. An isolated finding of an enlarged heart on a radiograph might be hard to interpret, but if the animal has historical complaints and physical exam findings that are consistent with congestive heart failure, abnormal heart size is likely to indicate heart disease.



If pulmonary infiltrates are present, we look for evidence that the infiltrates are due to heart failure rather than respiratory disease. Radiographic findings that are consistent with heart failure as a cause of pulmonary infiltrates include interstitial or alveolar infiltrates in the presence of left atrial enlargement and enlarged pulmonary veins. Pulmonary infiltrates due to heart failure usually have a bilateral distribution in dogs and affect the caudal dorsal lung fields first.

***“Radiographic findings consistent with congestive heart failure include interstitial or alveolar infiltrates in the presence of left atrial enlargement and enlarged pulmonary veins.”***

When considering a diagnosis of congestive heart failure, we look at all the information that we have and ask several questions:

- **Does the animal have clinical signs that are consistent with congestive heart failure?**
- **Is the heart enlarged?**
- **Are there infiltrates in the lungs?**
- **Are the left atrium and pulmonary veins enlarged?**

Answering “yes” to these questions allows a diagnosis of “likely congestive heart failure” without an echocardiogram.

# Nine Common Misperceptions About Congestive Heart Failure:

## **Myth 1** You need an echocardiogram to diagnose congestive heart failure.

Many people think that you need an echocardiogram to diagnose CHF. This is not the case. The tools you need to diagnose CHF in a dog are available in just about every veterinarian's office: a thorough history, a complete physical examination and at least two clear radiographic views (lateral and ventrodorsal or dorsoventral) of the thorax, including the entire thorax and the caudal portion of the lung fields. Echocardiographic imaging of the heart is used to diagnose the exact anatomic or functional cardiac abnormality, but is not normally needed to diagnose CHF. A rapid point-of-care ultrasound of the lung fields, however, may be used as part of the physical examination to identify likely pulmonary infiltrates ([insert link to DeFrancesco POCUS video](#)).

## **Myth 2** You need special expertise to diagnose CHF.

Some veterinarians are uncomfortable diagnosing CHF because they don't have special equipment or feel that they lack the expertise. With judicious history taking, good physical examination methods and confident radiographic skills, CHF can be diagnosed in the vast majority of cases in which it is present.

## **Myth 3** Any coughing dog with a heart murmur likely has CHF.

Although cough is often the clinical sign that induces the owner to bring the dog into the office, it is not always a sign of heart failure. Not all dogs with heart failure cough and not all dogs that cough have heart failure. When adult dogs have diseases that are associated with left heart failure (mitral valve regurgitation or dilated cardiomyopathy), they will typically develop a heart murmur first. As the disease worsens, cardiac enlargement may lead to cough. In some patients, eventually, congestive heart failure may occur. Conversely, airway or pulmonary diseases may cause cough, including bacterial infection, pulmonary parasites or inflammatory diseases.

If you think the animal is coughing because it has infectious lung disease (for example, *Bordetella bronchiseptica* infection) and presumptive therapy with

a good broad-spectrum antibiotic does not improve or eliminate the cough, more diagnostic testing is indicated rather than just a change of antibiotics. This is a common problem -- trying different antibiotics instead of considering a different diagnosis. If a good broad-spectrum antibiotic doesn't relieve cough in a patient thought to have a bacterial respiratory infection, the dog may have heart disease or some other lung disease that does not respond to antibiotics as a cause of the cough. See [Coughing in Dogs: Is it Heart Failure?](#)

## **Myth 4** If a small dog has an enlarged heart and a murmur, it is in CHF.

The presence of heart disease can be confirmed if auscultatory abnormalities are present (e.g. a heart murmur), but CHF is not present until clinical signs of exercise intolerance/fatigue or fluid retention (e.g. difficulty breathing or ascites) are present. Cardiac enlargement is USUALLY present by the time heart disease has progressed to heart failure, but in early stages, cardiomegaly can be tricky to diagnose. Heart size can be subjective: hearts that look large for their chest cavities are common among small dogs. Vertebral heart scale measurements can help here – these measurements “normalize” the heart size for the size of the dog. Even if the heart looks large, you need other clinical signs suggestive of CHF before you can diagnose CHF – a dog with a heart murmur and a large heart on radiographs, but NO clinical signs and no pulmonary infiltrates likely has heart disease but not heart failure.

## **Myth 5** Dogs with congestive heart failure always have a heart murmur.

Almost all small dogs with mitral valve disease will be diagnosed with a heart murmur long before they are in CHF, but a larger dog with dilated cardiomyopathy (DCM) may not have a detectable heart murmur, or if a murmur is present, it is likely to be lower in intensity (softer) than a mitral insufficiency murmur. DCM is characterized by cardiac dilatation and reduced myocardial contractility. In these cases, CHF can be diagnosed based on history and radiographs, but an echocardiogram is required to confirm the dilatation and reduced myocardial systolic function.

Myth  
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## It's risky to give heart medications to a dog with kidney dysfunction.

Renal disease is fairly common in older animals, but changes in renal biochemical values are often not evident until a significant portion of the kidneys is compromised. You may get a false sense of security when a cardiac patient's kidney values (e.g., creatinine or BUN) are normal, but even with normal values, the patient may have a subclinical but significant amount of kidney function loss already. Cardiologists evaluate blood pressure and kidney function when they evaluate cardiac function; the renal assessment involves assessment of serum biochemistries and urinalysis. It's common for geriatric cardiac patients to have co-morbidities, but having renal abnormalities does not preclude these patients from receiving heart medications. In these patients, we monitor the kidney function closely and make medication adjustments as needed.

Myth  
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## It's best to wait to discuss heart disease and heart failure until clinical signs of heart failure are present.

Cardiologists consider heart disease and heart failure to be chronic health issues and early recognition is key. When a murmur is first noticed, it's the right time to discuss what that means with the animal's caregiver. This is a good time to explain the difference between heart disease (an abnormality in cardiac structure or function) and heart failure (heart disease causing outward clinical signs) and the value of various diagnostic tests. This difference between heart disease and heart failure is important, since many medications will not be recommended UNTIL heart failure is present. Explaining to the owner that heart disease will usually progress to heart failure but on a variable and unpredictable time scale in a given patient helps them to understand that our job – the veterinarian's and the caregiver's – is to detect any changes as they happen and intervene in a stepwise manner if necessary to maintain the patient's quality of life.

We counsel the caregivers of cardiac patients to pay attention to their pet's respiratory rate and effort. If they notice that the dog is having trouble breathing or begins coughing, they should contact their veterinarian for advice. One of the most useful measurements that owners can use is resting respiration rate. We teach owners how to count their dog's resting respiration rate, and if they notice the dog's respirations at rest are increasing, they should contact the patient's veterinarian

to have the dog assessed. A rise in resting respiration rate may be a clue that the patient is developing congestive heart failure.

Information that most owners find helpful includes coaching on the management of diet and exercise in their pet with heart disease or heart failure, and clear explanations of clinical signs that indicate problems are occurring.

- **Exercise:** We make a distinction between animals with heart disease or controlled heart failure and animals in acute heart failure when it comes to exercise. When a patient is in overt heart failure and having trouble breathing, exercise should be very limited; cage rest is ideal until pulmonary edema resolves. Later, when the patients are stable and breathing easily, mild exercise, stopping BEFORE evidence of fatigue sets in, is likely beneficial. Patients with heart disease that have never had overt heart failure can exercise as much as they like, as long as the caregiver is sure not to ask their pet to do more if the dog seems fatigued.
- **Diet:** Diets that have high-quality protein but moderate sodium content are ideal, and it's important to let owners know that most commercial dog treats are high in sodium, so they should look for low-salt treats.

Myth  
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## If the veterinarian suspects heart failure, a confirmation from a cardiologist is needed before beginning therapy.

If you think the dog has left-sided heart failure, but are not completely confident in the diagnosis and the patient is clinically stable, administering furosemide and an angiotensin-converting enzyme inhibitor is a reasonable approach to control clinical signs until the diagnosis can be confirmed. This provides initial stabilization and may be lifesaving even if you are referring the patient to a cardiologist for confirmation. If you are confident in your diagnosis of left-sided congestive heart failure, therapy with furosemide, an angiotensin-converting enzyme inhibitor and pimobendan is indicated for therapy of congestive heart failure due to valvular disease or dilated cardiomyopathy.

Myth

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## **A diagnosis of heart failure is a death sentence.**

One of the major differences between a cardiologist and a generalist may be how they view heart failure prognosis. Primary care veterinarians may be less optimistic about the dog's chances of survival than cardiologists, who tend to view CHF as a chronic condition requiring long-term management strategies. Of course, the prognosis depends on the severity of disease at diagnosis, but many cardiologists have CHF patients that they have been managing for years. Viewing CHF as a chronic health problem that requires occasional adjustments in medications when the condition worsens or when complications occur allows us to be realistic with owners about the goals of therapy. Although we are attempting to prolong the patient's survival, the most important goal that we discuss with the owner is maintaining a good quality of life for their dog with CHF. Working with the owners, we can manage the disease to allow the dog to maintain its appetite and energy level and to continue to function and interact with the family. Improvements in our abilities to treat heart failure have allowed many patients to continue their happy home life for months to years after a diagnosis of heart failure.

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