

# Treatment considerations

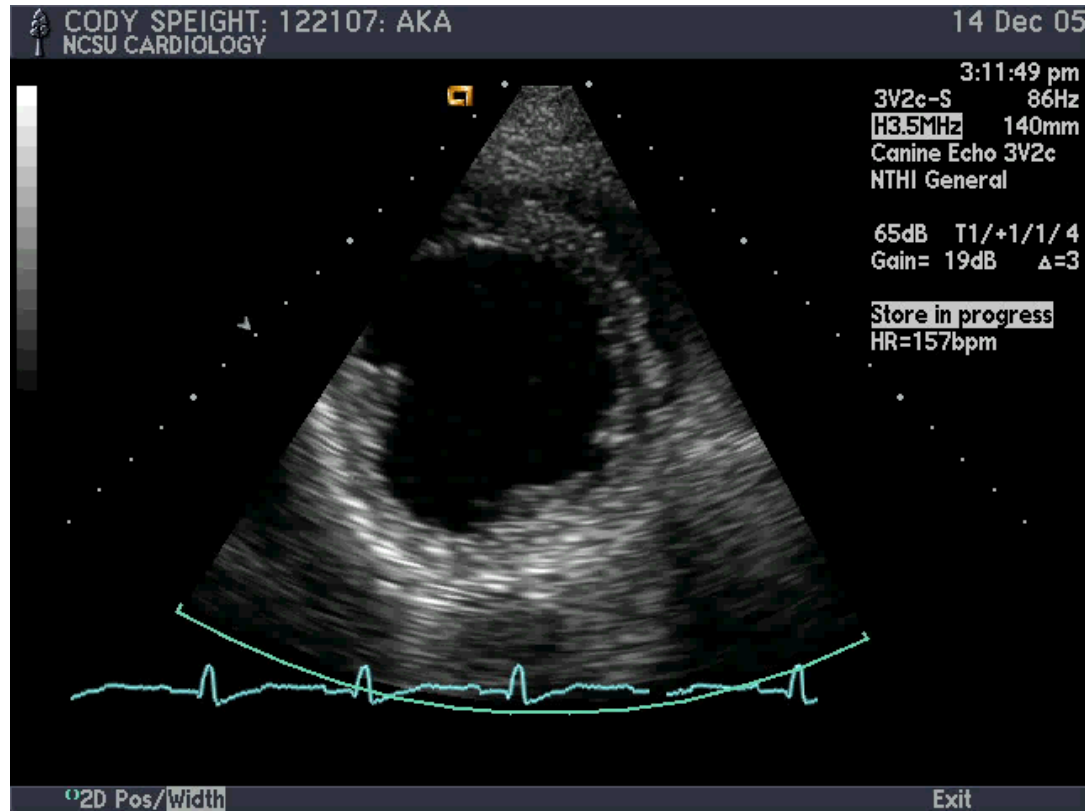
## Treatment of Dilated Cardiomyopathy

**NC STATE UNIVERSITY**

**COLLEGE OF VETERINARY MEDICINE**

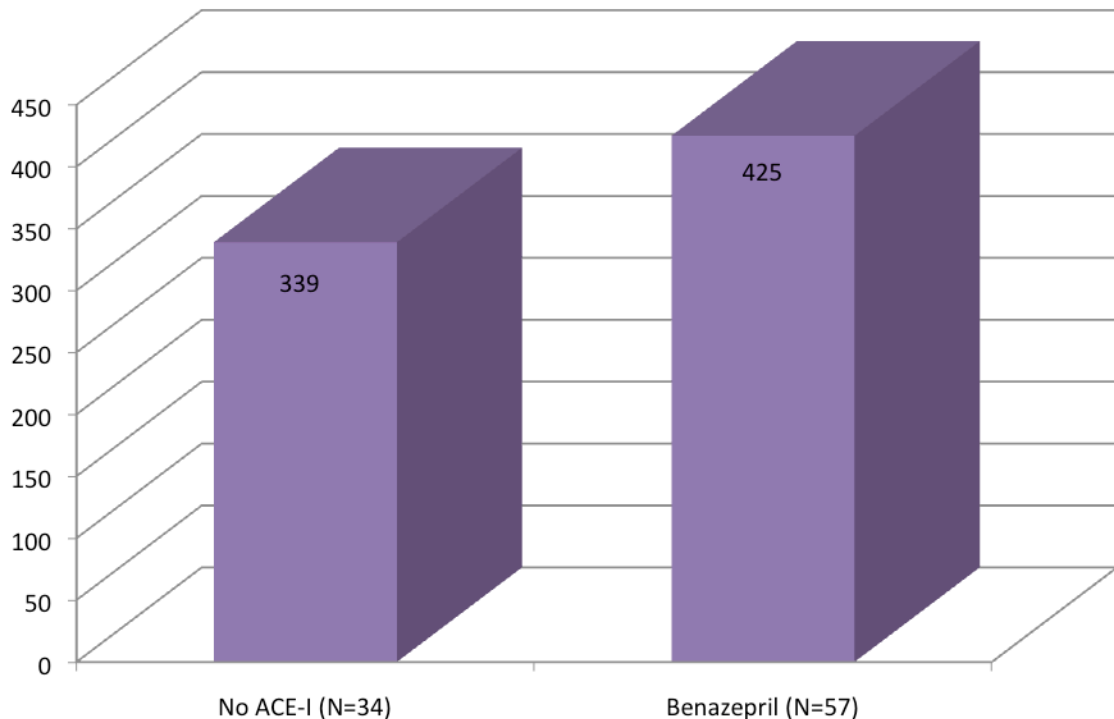
Dr Clarke Atkins

# Treatment DCM



# ACE-I in Occult DCM\*

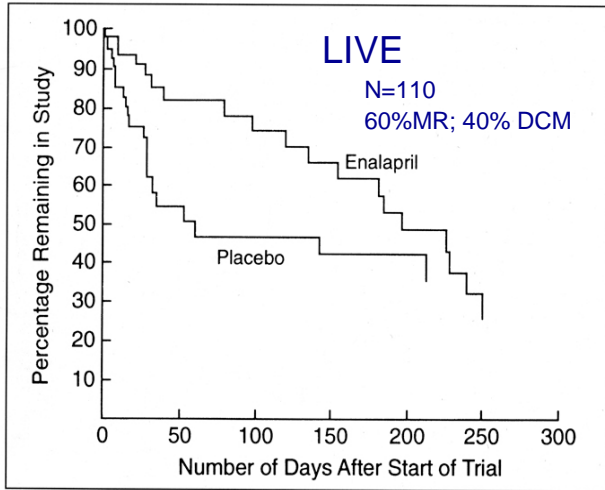
*Median days until signs*



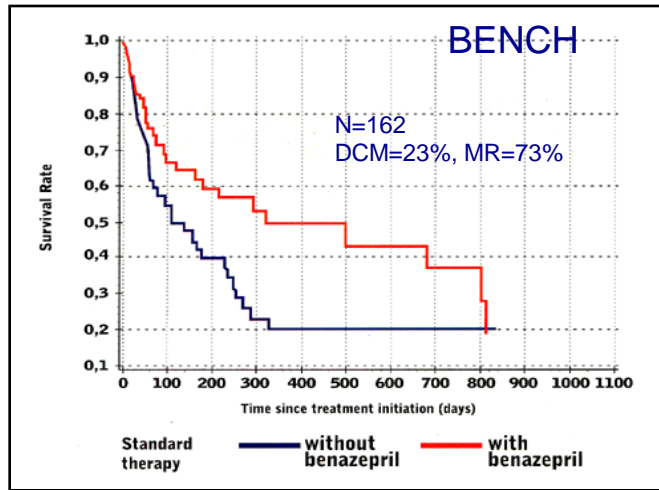
*Efficacy of Benazepril Hydrochloride to delay the progression of occult Dilated Cardiomyopathy in Doberman Pinschers. O'Grady M.R., O'Sullivan M.L. et al. J Vet Intern Med. 2009. 23:979. Fig.1.*

*\* Retrospective study*

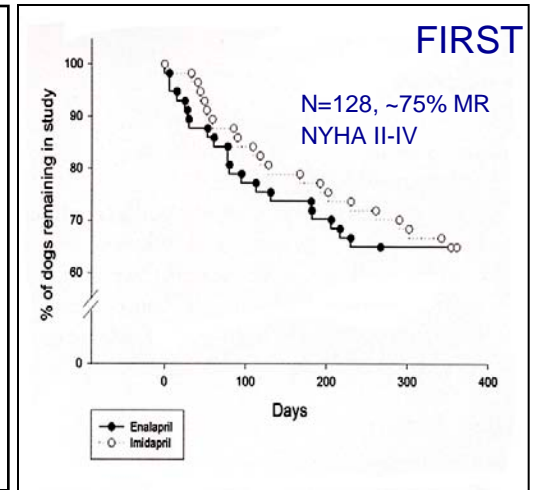
# Placebo-controlled, double-blind studies of ACE-I in CHF



Enalapril



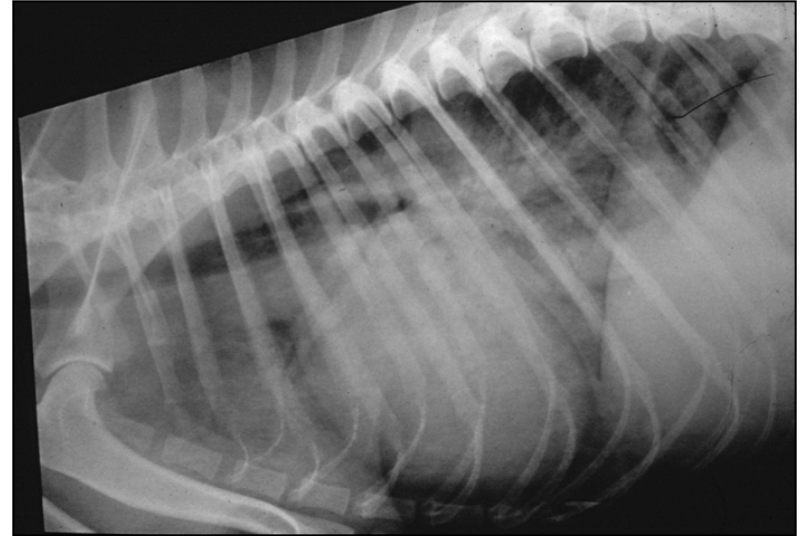
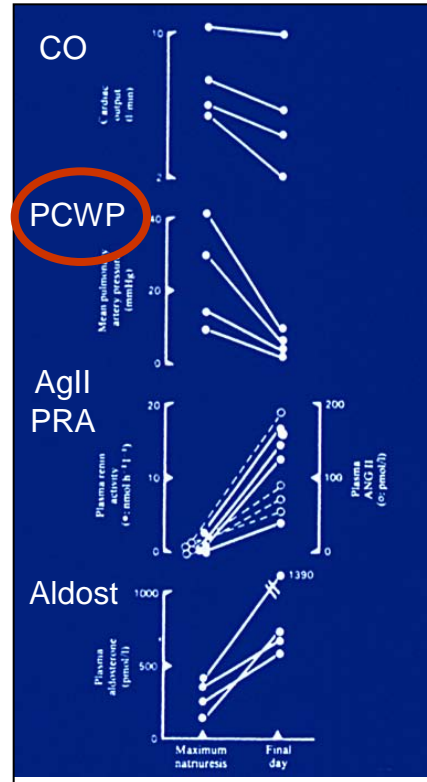
Benazepril



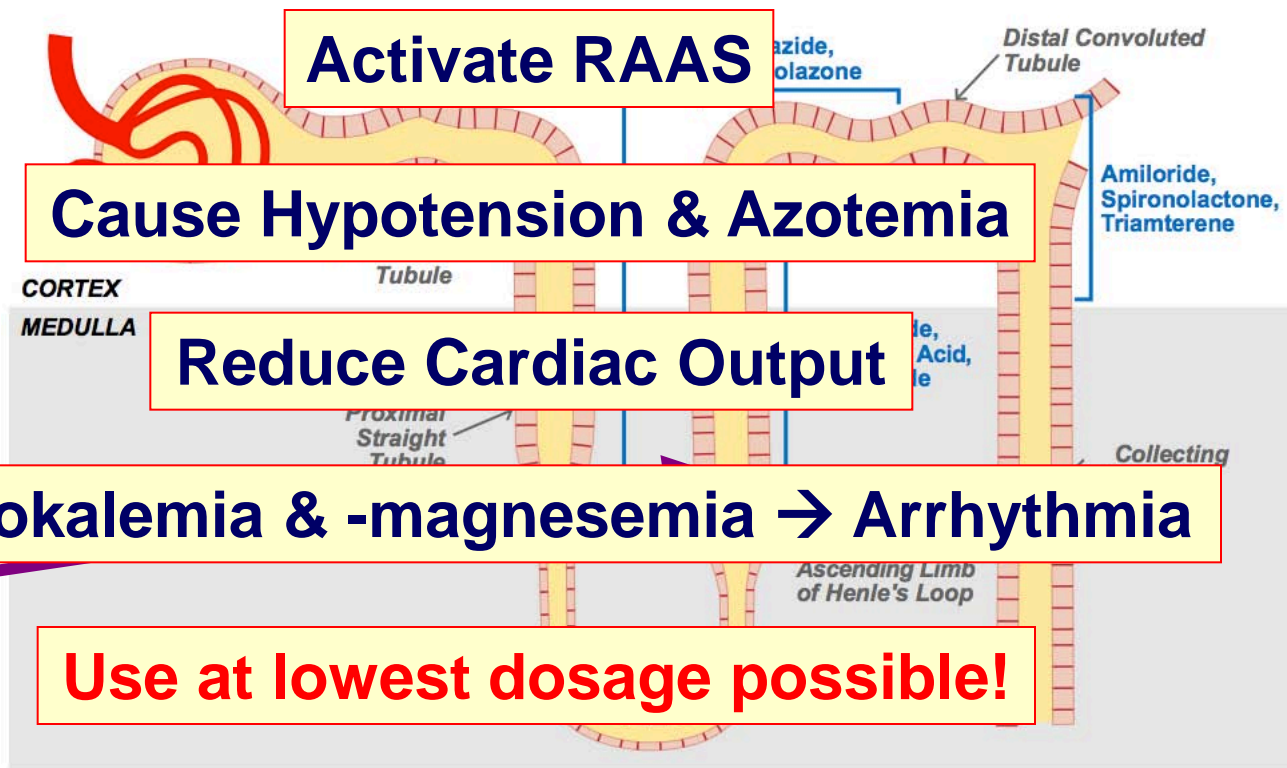
Imidapril

The harmful effects of chronic RAAS activation and benefits of ACE-Inhibition have been shown in multiple clinical trials in dogs with both CVD & DCM.

# Furosemide in Heart Failure



# Loop Diuretics



# Pimobendan

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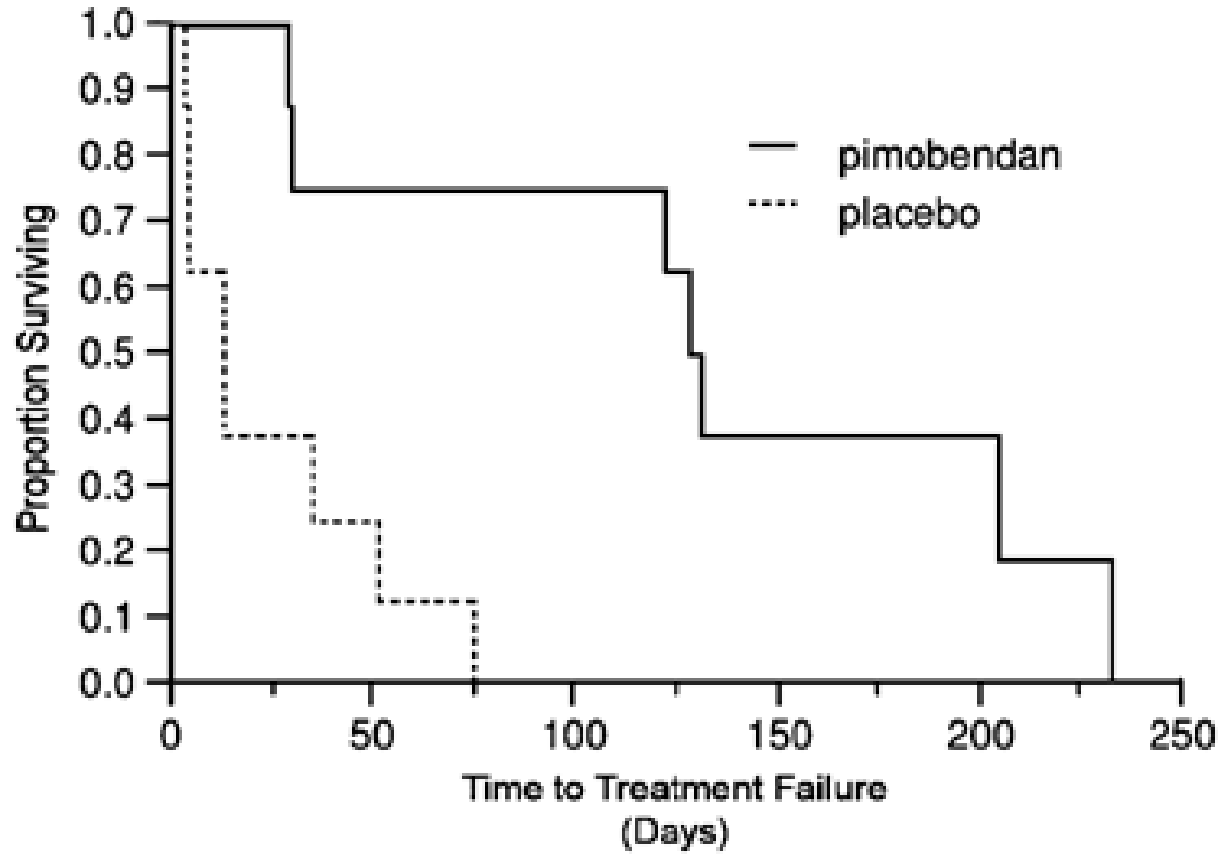
- Pimobendan at 0.25 mg/kg bid
- DCM in Dobies and Cockers (n=10 each breed)
- Double-blind, placebo-controlled
- Both breeds: improved NYHA scores
- Improved survival in Dobies only ( $p < 0.05$ )
  - Median Survival vs Placebo = 329 vs 50 days

A double-blind, randomized, placebo-controlled study of Pimobendan in dogs with Dilated Cardiomyopathy. Luis Fuentes V., Corcoran B., et al. J Vet Intern Med. 2002. 16:255–261.

# Pimobendan: DCM –Doberman Pinschers

N=16 dogs in Congestive Heart Failure, on Lasix and Benazepril  
Placebo controlled, double-blind trial  
LVSF <15%, Average = 9%  
Median = 130 vs 14 days; P=.002

Effect of Pimobendan on case fatality rate in Doberman Pinschers with Congestive Heart Failure caused by Dilated Cardiomyopathy. O'Grady M.R., Minors S.L. et al. J Vet Intern Med. 2008. 22: 90. Fig.1.



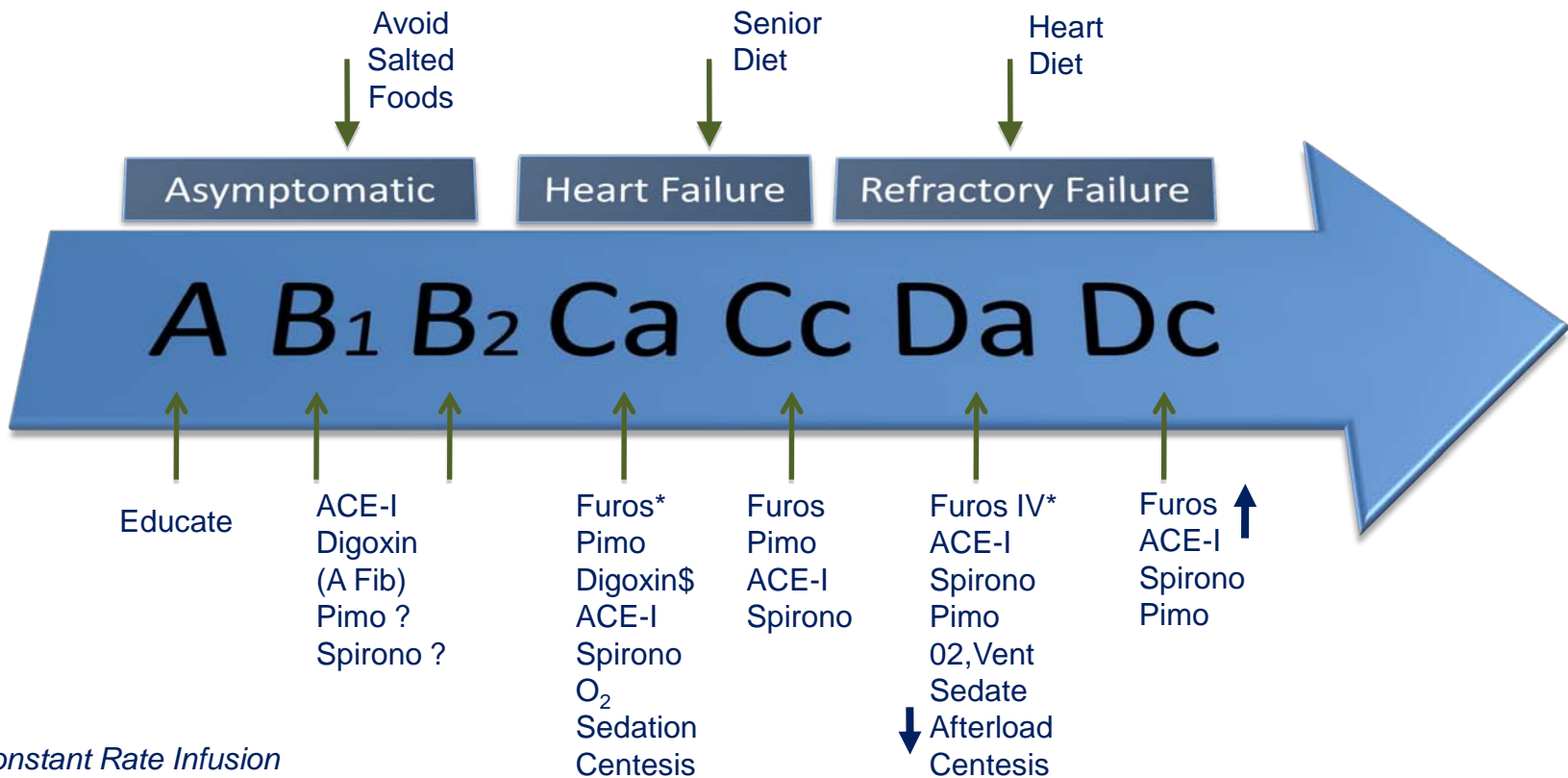


# Digoxin

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- Purified foxglove; No proof of efficacy in dogs
- Inhibits the  $\text{Na}^+$ ,  $\text{K}^+$  - ATPase pump of myocytes
  - Weak positive inotropy via increased intracellular  $\text{Ca}^{2+}$
- Normalizes baroreceptors
  - In heart failure, baroreceptor function is decreased
  - Digoxin re-sensitizes baroreceptors to arterial BP
  - Increased vagal tone and reduced sympathetic output
  - Arrhythmogenic
  - Narrow therapeutic window

# Dilated Cardiomyopathy- Summary



\* Possibly Constant Rate Infusion