

Medication [Drug Class]	PREPARATIONS	TYPICAL DOSAGE	ADMINISTRATION NOTES & POTENTIAL ADVERSE EFFECTS
Amlodipine* [arterial dilator]	Tablets: 2.5, 5, 10 mg	PO: 0.625-1.25 mg per cat , q12-24h	<ul style="list-style-type: none"> • Generally start at lower range and uptitrate dose to desired BP • Initial dose is typically q24h • Hypotension, RAAS activation, gingival hyperplasia
Aspirin [NSAID/antithrombotic]	Tablet: 81 mg	PO: 1-2 mg/kg, q24h Alternative: PO: ¼ of an 81 mg tablet, per cat , q3 days (or twice a week)	<ul style="list-style-type: none"> • May cause GI signs especially with higher doses
Atenolol* [beta-blocker]	Tablets: 25, 50, 100 mg	PO: 1.0-2.5 mg/kg, q12h Alternative: PO: 6.25-12.5 mg per cat , q12h	<ul style="list-style-type: none"> • For HR control in CM: The target HR in hospital is ≈160 bpm • Initiation should not be considered when active CHF is present • Cats without CHF can tolerate higher initial and target doses • Abrupt discontinuation should be avoided, gradual down titration is recommended • Myocardial depression, bradycardia (sinus and AVB), hypotension
Benazepril* [ACEI]	Tablets: 5, 10, 20, 40 mg	PO: 0.25-0.5 mg/kg, q12h or 0.5 mg/kg, q24h	<ul style="list-style-type: none"> • Generally start at lower range and increase to maximal dose with monitoring of renal function and serum potassium and BP. • Contraindications: dehydration, hyponatremia • Hyperkalemia, azotemia, acute renal failure
Buprenorphine [opioid/analgesic]	For injection: 0.3 mg/ml	Parenteral: 5-10µg/kg IV/IM/ SC PO (buccal mucosa): 0.2-0.3 mls of injectable preparation per cat	<ul style="list-style-type: none"> • Oral administration at home can be used for emergency treatment of pain associated with acute ATE.
Butorphanol [opioid/analgesic/ anxiolytic]	For injection: 2 mg/ml or 10 mg/ml concentrations	Parenteral: 0.1-0.4 mg/kg, IV/ IM/SC	<ul style="list-style-type: none"> • Effects range from "antianxiety" to heavy sedation depending on dose • Can be safely used in dyspneic cats to help reduce stress and facilitate diagnostics • Typical dose for anxiolysis in acute heart failure is 0.1-0.2 mg/kg, IM repeated in 30-60 min if needed
Clopidogrel [thienopyridine- antithrombotic]	Tablet: 75 mg	PO: 18.75 mg per cat , q24h	<ul style="list-style-type: none"> • No specific monitoring required • Superior to aspirin for prevention of a second ATE event • Bitterness of preparation may cause ptyalism in some patients

<p>Diltiazem [calcium channel blocker]</p>	<p>Diltiazem Tablets: 30, 60, 90, 120 mg Sustained release capsules: 60, 120, 180, 240 mg including the Dilacor XR[®] formulation (the 240 mg capsule, when opened, contains 4 x 60 mg tablets) Cardizem CD[®]: 120, 180, 240 mg</p>	<p>Standard formulation PO: 7.5 mg per cat, q8h Sustained release PO: 30 – 60 mg per cat, q12 - 24h</p>	<ul style="list-style-type: none"> Initial therapy at the lower end of the dose range Cardizem CD[®] can be formulated into smaller capsules Neither of the sustained release formulations (Cardizem CD[®] or Dilacor XR[®]) can be reformulated into a suspension Cats without CHF can tolerate higher initial and target dosages Hypotension, myocardial depression, AVB
<p>Enalapril* [ACEI]</p>	<p>Tablet: 2.5, 5, 10, 20 mg</p>	<p>PO: 0.25 - 0.5 mg/kg, q12h or 0.5 mg/kg, q24h</p>	<ul style="list-style-type: none"> Generally start at lower range and increase to maximal dose with monitoring of renal function and serum potassium and BP. Contraindications: dehydration, hyponatremia Hyperkalemia, azotemia, acute renal failure
<p>Furosemide* [loop diuretic]</p>	<p>For injection: 10 mg/ml, 50 mg/ml Veterinary formulations (Salix[®]): Tablets: 12.5, 50 mg Human formulations: Tablets: 20, 40, 80 mg tablets 1% syrup (10 mg/ml)</p>	<p>Parenteral: 0.5-2.0 mg/kg, q1-8h IV/IM/SC Dosing intervals depend on the response to therapy: initial boluses every 2h, thereafter q6-8h. CRI: 0.25-0.6 mg/kg/h PO: 1-2 mg/kg, q12 - 24h to a maximum total daily dose of 4-6 mg/kg</p>	<ul style="list-style-type: none"> Parenteral boluses and CRI treatment of life-threatening pulmonary edema is tapered over 12-24h as the clinical signs resolve Typical chronic heart failure dose is 1-2 mg/kg q12h Compounded liquids (from tablets) may be better-tolerated than the commercially available, alcohol-based, 1% syrup Polydipsia and polyuria can exacerbate urinary incontinence Azotemia, hypochloremia, hypokalemia, hypomagnesemia, hyponatremia, metabolic alkalosis are common dose dependent side-effects Hypokalemia is common in inappetent patients
<p>Heparin-Unfractionated [antithrombotic]</p>	<p>For injection: 1,000, 5,000, 10,000 IU/ml</p>	<p>Parenteral: 150-300 IU/kg SC q8h CRI: 10-20 IU/kg/h</p>	<ul style="list-style-type: none"> Monitor for bleeding including GI tract and urinary tract Careful monitoring of clotting times is required with prolonged use Can be combined with aspirin and/or clopidogrel There are numerous variants in ampule size and concentration so overdosing is a very real risk, take care when using or prescribing
<p>Heparin-Low Molecular Weight [antithrombotic]</p>	<p>For injection: Dalteparin (Fragmin[®]) 10,000 IU/ml and many variants Enoxaparin (Lovenox[®], Xaparin[®]) 100 mg/ml and many variants</p>	<p>Dalteparin-Parenteral: 100-200 IU/kg SC q12-24h Enoxaparin-Parenteral: 1-2 mg/kg SC q12-24h</p>	<ul style="list-style-type: none"> No specific monitoring required Can be combined with aspirin and/or clopidogrel There are numerous variants in ampule size and concentration so overdosing is a very real risk, take care when using or prescribing

<p>Hydrochlorothiazide* [thiazide diuretic]</p>	<p>Tablets: 25, 50 mg</p>	<p>PO: 0.5-2.0 mg/kg, q12-24h</p>	<ul style="list-style-type: none"> • This is typically used as a rescue diuretic when furosemide resistance is encountered (e.g. the recommended maximum daily dose is exceeded) • A small reduction (\approx 25%) in furosemide dosage may limit adverse effects when hydrochlorothiazide is introduced as a rescue diuretic in chronic heart failure • Monitor renal parameters, electrolytes and PCV closely when used with other diuretics • Hypovolemia, azotemia, hypochloremia, hypokalemia, hypomagnesemia, hyponatremia, metabolic alkalosis are very common side-effects when used in combination with furosemide
<p>Nitroglycerine Ointment [vasodilator]</p>	<p>2% paste (Nitrol[®], Nitro-Bid[®], Nitrostat[®]): 1 inch = 15 mg</p>	<p>Topical administration: 2-4 mg per cat q6-8h for 1 to 2 days</p>	<ul style="list-style-type: none"> • Delivered dose is affected by perfusion of the application area • Apply to hairless/well-perfused skin sites • Duration of administration typically 12-24h • Hypotension is possible
<p>Omega-3 Fatty Acids [nutraceutical, fish oil]</p>	<p>Docosahexaenoic acid (DHA) and eicosapentaenoic (EPA) combined in a fixed-dose capsule (Typically, 1.5:1 or 2:1 EPA:DHA)</p> <p>Note: most commercial 1 gm (1000 mg) omega 3 capsules contain 180 mg EPA and 120 mg DHA. EPA and DHA are also available in separate capsules.</p>	<p>PO: EPA, 40 mg/kg, daily dosage</p> <p>PO: DHA 25 mg/kg, daily dosage</p> <p>PO combination formulation= 1 gm (1000mg) capsule per 5 kg body weight (or per cat) per day</p>	<ul style="list-style-type: none"> • Gel caps or soft pills with 180 mg EPA and 120 DHA are often appropriate size • Avoid products with Vitamin A or D (Vitamin E is a safe additive) • Adverse GI side-effects are possible and can limit tolerance, especially early in therapy.
<p>Pimobendan [inodilator]</p>	<p>Chewable tablet (Vetmedin[®]): 1.25, 2.5, 5, 10 mg</p> <p>Capsules (Vetmedin[®], available in some countries outside of the US): 1.25, 2.5, 5.0 mg</p>	<p>PO: 0.625-1.25 mg per cat q12h</p>	<ul style="list-style-type: none"> • Do not reformulate into a suspension • Initial dose should be given on an empty stomach if a rapid onset of action is desired • Contraindicated in patients with known outflow tract obstruction • Potential idiosyncratic side-effects (none consistently reported)
<p>Sotalol* [antiarrhythmic/ beta-blocker]</p>	<p>Tablets: 80, 120, 160, 240 mg</p>	<p>PO: 1-2.5 mg/kg, q12h</p>	<ul style="list-style-type: none"> • Use with caution and at the lower end of the dosage range in CHF • Cats without CHF and or myocardial failure will tolerate higher initial and target doses • Do not combine with atenolol, other beta-blockers or diltiazem • Myocardial depression, bradyarrhythmias (sinus and AVB), pro-arrhythmia

<p>Spironolactone* [aldosterone receptor blocker, K⁺ sparing diuretic]</p>	<p>Tablets: 25, 50, 100 mg</p>	<p>PO: 1-2 mg/kg, q12-24h</p>	<ul style="list-style-type: none"> • Negligible to weak diuretic effect: administered for cardioprotective/anti-fibrotic effects • Higher dosages may be used for right-sided CHF • Risk of hyperkalemia may be exacerbated by co-therapy with an ACEI, especially if furosemide is not also administered • Facial excoriations have been reported
<p>Taurine [amino acid]</p>	<p>Tablets/Caplets/Capsules: 250, 500, 1000 mg Powders of various strengths</p>	<p>PO: 250-500 mg per cat, q12h</p>	<ul style="list-style-type: none"> • Empirical therapy can be administered in suspected deficiency cases • Deficiency can be confirmed prior to supplementation by measuring whole blood/ plasma concentrations

Note: This is a FELINE formulary only; typical dosage ranges are shown; clinicians should be familiar with the pharmacology, indications, contraindications, monitoring and toxicity of any drug prescribed. When wide dosage ranges are shown, the clinician should understand potential needs for up-titration of doses as well as potential for cardiac depression and hypotension in cats with heart failure or impaired ventricular function.

When proprietary names are not indicated, there are usually generic equivalents available.

*These drugs are generally available as a suspension or solution from a compounding pharmacy. Consult with a registered pharmacist regarding stability and storage.

Drugs not associated with an asterisk should not be reformulated or reconstituted without consultation with a registered pharmacist.

With the (possible) exception of nitroglycerine ointment, cardiac medications are ineffective with administered topically.

Abbreviations used in this table:

ACEI = angiotensin converting enzyme inhibitor
 ATE = arterial thromboembolism
 AVB = atrioventricular block
 BP = blood pressure
 CHF = congestive heart failure
 CM = cardiomyopathy
 CRI = constant rate infusion
 GI = gastrointestinal
 h = hour
 HR = heart rate
 IM = intramuscularly
 IV = intravenously
 PCV = packed cell volume
 PO = per os (by mouth)
 q h = every ___ hours
 RAAS = renin angiotensin aldosterone system
 SC = subcutaneously