Cardiac numbers — VHS, VLAS, echo, ACVIM

VERTEBRAL HEART SCORE (BUCHANAN & BÜCHELER 1995)

Right lateral. Long axis: carina → apex. Short axis: perpendicular at the widest point. Transfer both from the CRANIAL edge of T4; sum in vertebrae to 0.1 v.

General dog 8.5–10.5 v (mean 9.7 ± 0.5) · Cat 7.5 ± 0.3 v (Litster & Buchanan 2000)

VLAS (Malcolm 2018): carina → caudal LA border from T4. ≤ 2.3 normal · > 2.3 suggests LA enlargement · ≥ 3.0 strongly supports.

BREED-SPECIFIC VHS (RIGHT LATERAL, 95 % RANGES — LAMB 2001; JEPSEN-GRANT 2013 ET AL.)

BREED	VHS	BREED	VHS
Boxer	10.8 – 12.4	Pug	9.8 – 11.6
Bulldog (Eng/Fr)	11.0 – 14.4	Pomeranian	9.6 – 11.4
Boston Terrier	10.3 – 13.1	Whippet	10.5 – 11.8
Cavalier KCS	10.1 – 11.1 (mean 10.6)	German Shepherd	8.5 – 10.5
Labrador	10.2 – 11.4	Norwich Terrier	10.0 – 11.2
Dachshund / mixed	use general 8.5 – 10.5	Yorkshire (VLAS)	≤ 2.4

ACVIM 2019 — MMVD STAGE B2 (KEENE ET AL.) → START PIMOBENDAN

All of: murmur ≥ 3/6 · LA:Ao ≥ 1.6 (RPS short axis, early diastole) · LVIDDN ≥ 1.7 · breed-adjusted VHS > 10.5

LVIDDN = LVIDd (cm) ÷ BW (kg)^0.294 (Cornell 2004)

Radiograph-only surrogate (no echo available): VHS ≥ 11.5 AND VLAS ≥ 3.0, or a VHS rise ≥ 0.5 v over 6 months.

B1 = MMVD without remodelling meeting these criteria (monitor) · C = current/past CHF · D = refractory CHF.

DOG ECHO

LA:Ao < 1.5 normal · ≥ 1.6 enlarged

FS ≈ 25–45 % (Boxer, Dobermann lower)

FS = (LVIDd – LVIDs) / LVIDd

Chamber pattern (lateral): LA ↑ = LEFT MAIN-STEM BRONCHUS lifted at the carina, caudal waist lost (VLAS > 2.3) · LV = tall heart, straight caudal border · RV = ↑ sternal contact, reverse-D on VD · global = pericardial effusion, DCM, expiration

DCM: thin globular LV, FS < 20 %, LA ↑. MMVD: thick club leaflets, prolapse, MR jet. Pericardial effusion: anechoic rim — scan R auricle & heart base before draining.

CAT ECHO — ACVIM 2020 (LUIS FUENTES)

LV wall (end-diastole) < 5 mm normal · 5–6 mm equivocal (re-check) · ≥ 6 mm hypertrophy (HCM phenotype)

Measure 2D in ≥ 2 RPS views, thickest septum & free wall, EXCLUDE papillary muscles; M-mode and 2D not interchangeable.

LA:Ao < 1.5 normal · > 1.8, LA ≥ 16 mm, LA FS < 12 %, LAA velocity < 0.25 m/s = CHF/ATE risk → stage B2 → clopidogrel

Spontaneous echo contrast ('smoke') = stasis → thrombus risk.

Cat VHS 7.5 ± 0.3; 'valentine' heart on VD is a late sign — echo earns its keep.