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Appendix 1 (table S1)

The Duke minor criterion "predisposing heart condition" in native valve infective endocarditis – a systematic review

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Table S1: Definitions of valve lesions according to guidelines and proposals 1970–2014.

	1970s	1980s	1990s	2000s		2010s	
Guidelines	**Various publications**		**AHA/ACC 1998**	**AHA/ACC 2006**	**ESC 2007**	**AHA/ACC 2014**	**ESC 2012**
Aortic stenosis							
At risk						Vmax <2m/s	
Mild		AVA >1.5cm^2 (1,5), AVA Index >0.9cm^2/m^2 (5)	AVA >1.5cm^2	Vmax <3m/s, mean ΔP <25mmHg, AVA >1.5cm^2	not defined	Vmax 2.0-2.9m/s or mean ΔP <20mmHg	not defined
Moderate		AVA 0.8-1.5cm^2, peak ΔP ≤80 (1), AVA 0.71-1.09cm^2, peak ΔP ≤70 (2), AVA 1.1-1.5cm^2, AVAI ≥0.6-0.9cm^2/m^2 (5)	AVA >1.0-1.5cm^2	Vmax 3-4m/s, mean ΔP 25-40mmHg, AVA 1.0-1.5 cm^2	not defined	Vmax 3.0-3.9m/s or mean ΔP 20-39mmHg	not defined
Severe	AVA ≤0.5cm^2 (3) AVA ≤1.0cm^2 (4)	AVA ≤0.8-1.0cm^2, AVAI ≤0.4-0.6cm^2/m^2 (5)	AVA <1.0cm^2 mean ΔP >50mmHg	Vmax >4m/s, mean ΔP >40mmHg, AVA <1.0cm^2, AVAI <0.6cm^2/m^2	AVA <1.0cm^2 AVAI <0.6cm^2/m^2	Vmax ≥4m/s or mean ΔP ≥ 40mmHg, AVA <1.0cm^2 or AVAI ≤0.6cm^2/m^2	AVA <1.0cm^2, AVAI <0.6cm^2/m^2, mean ΔP >40mmHg, Vmax >4m/s, V ratio <0.25
Aortic insufficiency							
Mild			not defined	Jet width <25% of LVOT, VC <0.3cm, RVol <30ml/beat, RF <30%, ERO <0.10/m^2	not defined	Jet width <25% of LVOT, Vena contracta <0.3cm, RVol <30ml/beat, RF <30%, ERO <0.10/m^2	not defined

	1970s	1980s	1990s	2000s		2010s	
Guidelines	**Various publications**		**AHA/ACC 1998**	**AHA/ACC 2006**	**ESC 2007**	**AHA/ACC 2014**	**ESC 2012**
Moderate			not defined	Jet >mild, no severe AR VC 0.3-0.6cm RVol 30-59ml/beat RF 30%-49% ERO 0.10-0.29/m^2	not defined	Jet 25%-64% of LVOT, VC 0.3-0.6cm, RVol 30-9ml/beat RF 30%-49% ERO 0.10-0.29/m^2	not defined
Severe	QAr 1.1-6.5 L/min (7)	Visualisation by aortic root cineangiography (>3+, ≥3+) (6,9), RF ≥ 30% (9)	Austin-Flint rumble, LV dilation (end-diastolic >70mm, end-systolic >50mm), reduced LV function, PHT <300ms	Jet width >65% of LVOT Vena contracta >0.6cm RVol ≥60ml/beat RF ≥50% ERO ≥0.3/m^2	Jet width ≥65% of LVOT, VC >0.6cm, PHT <200ms, Rvol ≥60ml/beat, RF ≥50%, ERO ≥0.30cm^2, holodiast. flow reversal in desc. aorta, moderate or greater LV enlargement	Jet width >65% of LVOT, Vena contracta >0.6cm, RVol ≥60ml/beat, RF ≥50%, ERO ≥0.3/m^2	Large central jet, dense CW signal, holodiastolic flow reversal in desc. aorta (EDV >20 cm/s), VC >6mm, PHT <200ms, ERO ≥30mm^2, Rvol ≥60ml/beat, LV enlargement
Mitral stenosis	MVA <2.5cm^2 (8)				"clinically significant MS" MVA <1.5cm^2		
Progressive						MVA >1.5cm^2, Diastolic PHT <150ms	
Mild			MVA >1.5cm^2, mean ΔP <5mmHg	mean ΔP < 5mmHg. sPAP < 30mmHg, MVA > 1.5cm^2	not defined		not defined
Moderate			MVA 1.0-1.5cm^2, mean ΔP ≥5mmHg, sPAP >50mmHg	mean ΔP 5-10mmHg sPAP 30-50mmHg MVA 1.0-1.5cm^2	not defined		not defined
Severe		MVA <1.5 cm^2, MPG ≥12mmHg (9)	MVA <1.0 cm^2, sPAP >60mmHg	mean ΔP >10mmHg, sPAP >50, MVA <1.0cm^2	not defined	MVA ≤1.5cm^2, Diastolic PHT, ≥150ms	MVA <1.0cm^2, mean ΔP >10mmHg
Mitral insufficiency	MR >2L/min (8)		**not defined**				
At Risk						Jet <20% LA on Doppler, VC <0.3cm	
Progressive						Central Jet 20-40% LA, VC <0.7cm, RVol <60ml, RF <50%, ERO <0.4cm^2	

	1970s	1980s	1990s	2000s		2010s	
Guidelines	**Various publications**		**AHA/ACC 1998**	**AHA/ACC 2006**	**ESC 2007**	**AHA/ACC 2014**	**ESC 2012**
Mild				Jet <4cm^2 or <20% LA, VC <0.3cm, RVol <30ml, RF <30%, ERO <0.2cm^2	not defined		not defined
Moderate				Jet >mild but no severe MR, VC 0.3-0.69cm, RVol 30-59ml, RF 30-49%, ERO 0.2-0.39cm^2	not defined		not defined
Severe		RF ≥30%, Cardiac Catheterization ≥3+ (9)		Jet >40% of LA or wall impinging, VC ≥0.7cm, RVol ≥60ml, RF ≥50% ERO ≥0.40cm^2	VC ≥0.7cm, MR jet area >40% of LA or wall impinging, large flow convergence, syst. reversal in PV, valve flail or ruptured papillary muscle, E-Wave >1.2 m/s, Rvol ≥60ml/beat, RF ≥50%, ERO ≥0.40cm^2	Central Jet >40% LA VC ≥0.7cm RVol ≥60ml, RF ≥50% ERO ≥0.40cm2	Large central jet reaching post. wall of LA, dense/triangular CW signal, large flow convergence zone, VC ≥7mm, syst. PV flow reversal, E-wave ≥1.5 m/s, TVI mitral/aortic >1.4, Rvol ≥60ml/beat, ERO ≥0.40cm^2, LV and LA enlargement
Tricuspid insufficiency			**not defined**				
Mild				not defined	not defined	Central Jet Area <5 cm^2, VC not defined	not defined
Moderate				not defined	not defined	Central Jet 5-10 cm^2, VC not defined but <0.7cm, Hepatic Vein Flow: systolic blunting	not defined
Degree of Severity not defined	clinical, ECG, mostly post-trauma and Ebstein's Anomaly + catheter: right atrial v waves 8-28 mmHg (10); pulse wave doppler (experimental): RSVP > 35 mmHg, mPAP 22 mmHg or less (11)			Severe: VC >0.7cm, Hepatic Vein Flow: systolic reversal	Severe: VC >0.7cm, large flow convergence, hepatic vein systolic reversal, inferior cava dilatation and resp. variation <<50%, E-Wave >1m/s	Severe: Central Jet >10 cm^2, VC >0.7cm, Hepatic Vein Flow: systolic reversal	Severe: Very large jet, CW signal dense/triangular (peak <2m/s in massive TR), VC >0.7cm, hepatic vein systolic reversal, E-Wave >1m/s, PISA radius >9mm, Rvol ≥45ml/beat, ERO ≥0.40cm^2

Tricuspid stenosis			**not defined**		**not defined**		
Degree of Severity not defined	atrial a wave 12-20 mmHg, diastolic mean gradient 4-8 mmHg (12)	Usefulness of Doppler echocardiography in detecting tricuspid valve stenosis (Perez 1985)		Severe: Valve area <1.0 cm^2	"mean gradient >5mmHg is considered indicative of clinically significant TS"	Severe: PHT ≥190 ms, Valve area ≤1.0 cm^2	Severe: mean gradient >5mmHg
Pulmonic insufficiency	no data	no data	**not defined**		**not defined**		**not defined**
Severe				Color jet fills outflow tract, dense continuous wave Doppler signal with a steep deceleration slope		Color Jet fills RVOT, CW Jet dense, steep deceleration, may terminate abruptly	
Pulmonic stenosis			**not defined**		**not defined**		**not defined**
Severe	RV systolic Pressure >50mmHg (mild), 50-99 moderate, >100 (severe) (13)			Vmax >4 m/s or max. gradient >60 mmHg		Vmax >4 m/s, peak instantaneous gradient >64 mmHg	

AVA: Aortic Valve Area; AVAI: Aortic Valve Area Index; MVA: Mitral Valve Area; MR: Mitral Regurgitation; RVol: Regurgitant Volume; RF: Regurgitant Fraction; VC: Vena contracta; ERO: Effective Regurgitant Orifice; PHT: Pressure Half Time; LA: Left Atrium/Atrial; LVOT: Left Ventricular Outflow Tract; RVOT: Right Ventricular Outflow Tract; sPAP: Systolic Pulmonic Artery Pressure; mPAP: Mean Pulmonic Artery Pressure; RVSP: Right Ventricular Systolic Pressure; MPG: Mean Pressure Gradient; PV: Pulmonary Vein/Veins.

Definition large flow convergence: defined as flow convergence radius ≥0.9 cm for central jets, with a baseline shift at a Nyquist of 40 cm/s.

Definition 3+ in evaluation of regurgitation in cardiac catheterization: Contrast rapidly outlines the left atrium and there is equalization of contrast density between the left atrium and left ventricle. Equalization does not occur until after the end of the third systole.

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