

RIGHT VENTRICLE (RV)

size and function | pulmonary hypertension

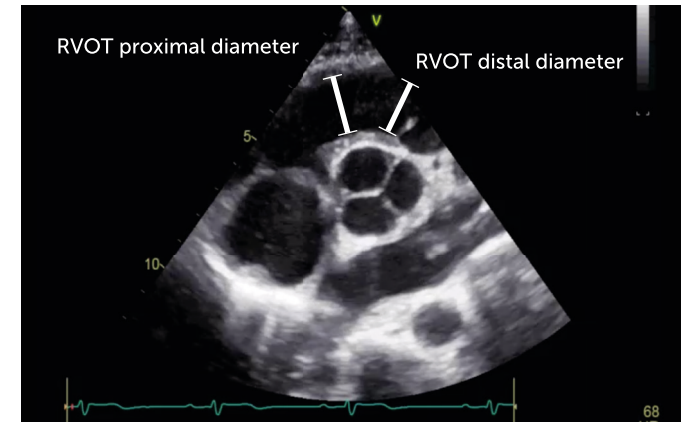
RV measurements:

RV basal diameter	25 - 41mm
RV mid diameter	19 - 35mm
RV longitudinal diameter	59 - 83mm
RVOT PLAX diameter	20 - 30mm
RVOT proximal (PSAX)	21 - 35mm
RVOT distal	17 - 27mm
RV wall thickness (subcostal)	1 - 5mm

RV systolic function:

EYEBALLING	
TAPSE	> 17mm (normal)
TDI (S')	> 9.5 cm/s (normal)
fractional area change (FAC)	< 35% (abnormal)
RV 3D EF (%)	< 45% (abnormal)
RV free wall 2D strain (%)	> -20*

*preliminary mentioned in the guidelines, but in reality > -25 until -30 (limited data)



Peak tricuspid regurgitation velocity (m/s)	Presence of other echo signs of pulmonary hypertension	Echocardiographic probability of pulmonary hypertension
< 2.8 or not measurable	No	Low
< 2.8 or not measurable	Yes	Intermediate
2.9 - 3.4	No	
2.9 - 3.4	Yes	High
> 3.4	Not required	

Table 1: Echocardiographic probability of pulmonary hypertension in symptomatic patients with a suspicion of pulmonary hypertension

Table 1 & 2: Nazzareno Galiè et al., European Heart Journal, 2015

A: The ventricles	B: Pulmonary artery	C: Inferior vena cava and right atrium
Right ventricle/ left ventricle basal diameter ratio > 1.0	Right ventricular outflow Doppler acceleration time < 105 msec and/or midsystolic notching	Inferior cava diameter > 21 mm with decreased inspiratory collapse (< 50% with a sniff or < 20% with quiet inspiration)
Flattening of the interventricular septum (left ventricular eccentricity index > 1.1 in systole and/or diastole)	Early diastolic pulmonary regurgitation velocity > 2.2 m/sec	Right atrial area (end-systole) > 18cm ²
	PA diameter > 25 mm	

Table 2: Echocardiographic signs suggesting pulmonary hypertension used to assess the probability of pulmonary hypertension in addition to tricuspid regurgitation velocity measurement.

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RV systolic function (additional):

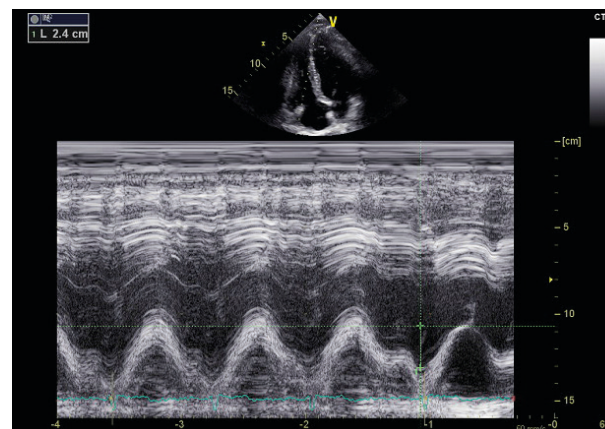
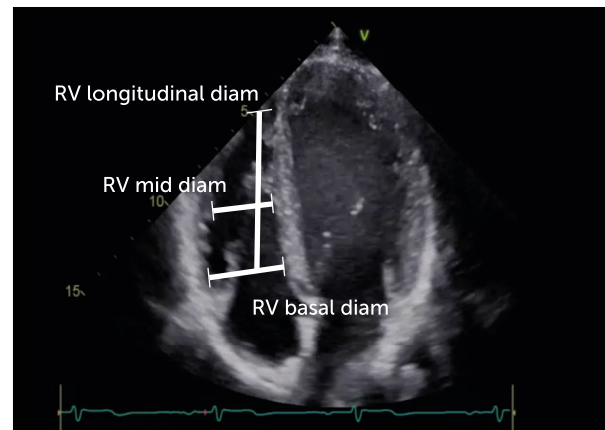
RIMP by PW-Doppler = PW-Doppler myocardial performance index: > 0.43 (abnormal)
 RIMP TDI (tissue Doppler) = Tissue Doppler myocardial performance index: > 0.54 (abnormal)

RV measurements:

	Men	Women
RV EDA indexed to BSA: (cm ² /m ²)	5 - 12.6	4.5 - 11.5
RV ESA: (cm ²)	3 - 15	3 - 11
RV ESA indexed to BSA: (cm ² /m ²)	2.0 - 7.4	1.6 - 6.4

3D Volumes:

RV EDV indexed to BSA: (mL/m ²)	35 - 87	32 - 74
RV ESV indexed to BSA: (mL/m ²)	10 - 44	8 - 36

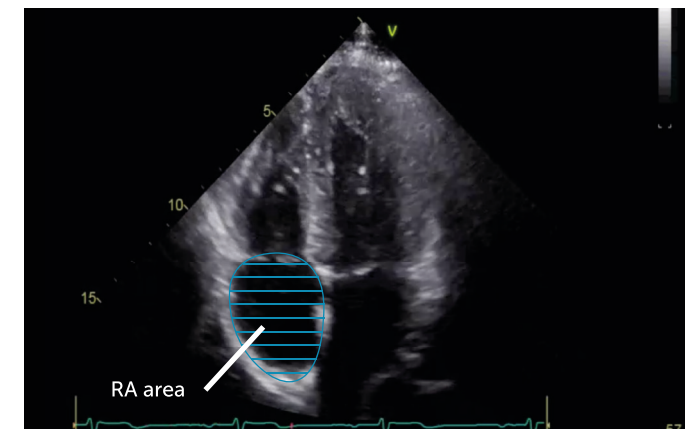


TAPSE > 17mm (normal)

RA measurements:

RA area	> 18cm ²	
	Men	Women
RA minor axis dimension: (cm/m ²)	1.9 ± 0.3	1.9 ± 0.3
RA major axis dimension: (cm/m ²)	2.5 ± 0.3	2.4 ± 0.3
2D echocardiographic RA volume (mL/m ²):	21 ± 6	25 ± 7

Data are expressed as mean ± SD.



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Roberto M. Lang et al., European Heart Journal, 2015
 Nazzareno Galiè et al., European Heart Journal, 2015
 Matthias Schneider et al., International Journal of Cardiovascular Imaging, 2018
 Carol Mitchell et al., Journal of the American Society of Echocardiography, 2019