

HFpEF Echo protocol

V2.0 11/04/2024

1 Acquisition

Standard echo acquisition in line with the British Society of Echocardiography Minimum Dataset.¹

Key views and corresponding measurements are as follows:

Key views	Measurements
Parasternal long axis 2D	LV end-diastolic dimension (cm) LV end-systolic dimension (cm) Maximum wall thickness (mm)
Parasternal long axis RV inflow CWD	TR $V_{\max}$ (m/s)
Apical 4 chamber 2D	LV ejection fraction (%)
Apical 2 chamber 2D	LV ejection fraction (%)
Apical 4 chamber 2D GLS*	Peak GLS (%)
Apical 2 chamber 2D GLS*	Peak GLS (%)
Apical long axis 2D GLS*	Peak GLS (%)
Apical 4 chamber 2D optimised for LA volume	LA volume (cm ³) LA reservoir strain (%)*
Apical 2 chamber 2D optimised for LA volume	LA volume (cm ³) LA reservoir strain (%)*
Apical 4 chamber mitral valve PWD	E $V_{\max}$ (cm/s) A $V_{\max}$ (cm/s) DT (ms)
Apical 4 chamber mitral valve TDI	Lateral e' (cm/s) Septal e' (cm/s)
Apical 5 chamber aortic valve CWD	AV $V_{\max}$ (m/s)
Apical 4 chamber modified for RV/RA 2D	Basal RV diameter Visual assessment of RV function
Apical 4 chamber modified for RV/RA CWD	TR $V_{\max}$ (m/s)
Apical 4 chamber lateral tricuspid valve annulus MM	TAPSE (cm)
Apical 4 chamber right ventricle TDI	RV S' (cm/s)
Subcostal 2D +/- MM	IVC diameter (mm) IVC diameter during inspiration (mm)
Multiple views	Mitral, aortic and tricuspid valve function

* As permitted by image quality and local feasibility.

Abbreviations

2D	Two-dimensional
A $V_{\max}$	Peak velocity in late diastole
AV $V_{\max}$	Aortic valve peak velocity
CWD	Continuous wave Doppler
DT	Flow deceleration time from peak E wave to end of E wave signal
E $V_{\max}$	Peak velocity in early diastole
GLS	Global longitudinal strain
IVC	Inferior vena cava
LA	Left atrium
LV	Left ventricle
MM	M-mode
PWD	Pulsed wave Doppler
RV	Right ventricle
TAPSE	Tricuspid Annular Plane Systolic Excursion
TDI	Tissue Doppler imaging
TR $V_{\max}$	Tricuspid regurgitation peak velocity

1. Robinson et al. A practical guideline for performing a comprehensive transthoracic echocardiogram in adults: the British Society of Echocardiography minimum dataset Echo Red Pract. 2020; 4: G59-G93.

2 Database fields

2.1 Core dataset

Left ventricular end-diastolic dimension (cm)	Numeric (xx.x) or Checkbox: Not possible
Left ventricular end-diastolic dimension indexed to BSA (cm/m ²)	Calculated (xx.xx)
Left ventricular end systolic dimension (cm)	Numeric (xx.x) or Checkbox: Not possible
Left ventricular end systolic dimension indexed to BSA (cm/m ²)	Calculated (xx.xx)
Maximum wall thickness (mm)	Numeric (xx.x) or Checkbox: Not possible
Maximum wall thickness indexed to BSA (mm/m ²)	Calculated (xx.xx)
Left ventricular ejection fraction (%)	Numeric (field length 2), or Radio: 1, normal 2, mildly reduced 3, moderately reduced 4, severely reduced
LA volume (cm ³)	Numeric (xxx.x) or Checkbox: Not possible
LA volume indexed to BSA (cm ³ /m ²)	Calculated
E V _{max} (Peak velocity in early diastole) (cm/s)	Numeric (field length 3) or Checkbox: Not possible
A V _{max} (Peak velocity in late diastole) (cm/s)	Numeric (field length 3) or Checkbox: Not possible
E/A ratio	Calculated (x.xx) or Checkbox: Not possible
DT (Flow deceleration time from peak E wave to end of E wave signal) (ms)	Numeric (field length 3) or Checkbox: Not possible
Lateral e' (cm/s)	Numeric (xx.x) or Checkbox: Not possible
Septal e' (cm/s)	Numeric (xx.x) or Checkbox: Not possible
Average e' (cm/s)	Calculated (xx.x) or Checkbox: Not possible
Lateral E/e'	Calculated (xx.x) or Checkbox: Not possible
Septal E/e'	Calculated (xx.x) or Checkbox: Not possible
Average E/e'	Calculated (xx.x) or Checkbox: Not possible
AV V _{max} (Aortic valve peak velocity) (m/s)	Numeric (xx.xx) or Checkbox: Not possible
Basal RV diameter	Numeric (xx.x) or Checkbox: Not possible
Visual assessment of right ventricular function	Radio: 1, normal 2, mildly reduced 3, moderately reduced 4, severely reduced 5, Not possible
TR V _{max} (Tricuspid regurgitation peak velocity) (m/s)	Numeric (xx.xx) or Checkbox: Not possible
Tricuspid regurgitation peak gradient (mmHg)	Calculated (xxx.x)
TAPSE (Tricuspid Annular Plane Systolic Excursion) (cm)	Numeric (xx.x)
RV S' (cm/s)	Numeric (xx.x) or Checkbox: Not possible
IVC (Inferior vena cava) diameter (mm)	Numeric (xx)
IVC (Inferior vena cava) diameter during inspiration (mm)	Numeric (xx)
Estimated right atrial pressure (mmHg)	Calculated (field length 2) or Checkbox: Not possible
Estimated pulmonary artery systolic pressure (mmHg)	Calculated (xxx.x) or Checkbox: Not possible
Mitral regurgitation	Radio. 1, Absent 2, Mild 3, Moderate 4, Severe 5, Not possible
Mitral stenosis	Radio. 1, Absent 2, Mild 3, Moderate 4, Severe 5, Not possible
Aortic regurgitation	Radio. 1, Absent 2, Mild 3, Moderate 4, Severe 5, Not possible
Aortic stenosis	Radio. 1, Absent 2, Mild 3, Moderate 4, Severe 5, Not possible
Tricuspid regurgitation	Radio. 1, Absent 2, Mild 3, Moderate 4, Severe 5, Not possible

2.2 Additional data

To enter if measurements available:

Peak GLS (Global longitudinal strain) apical 4 chamber (%)	Numeric (- xx.x) or Checkbox: Not possible
Peak GLS apical 2 chamber (%)	Numeric (- xx.x) or Checkbox: Not possible
Peak GLS apical long axis (%)	Numeric (- xx.x) or Checkbox: Not possible
Peak GLS average (%)	Calculated (- xx.x)
LA reservoir strain (%)	Numeric (- xx.x) or Checkbox: Not possible