

Supplementary table 1 | Common challenges in filling pressure assessment in the acute setting

Parameter	View and technique	Relevant value(s)	Notes
Isovolumic relaxation time	Transmitral filling (PW Doppler)	<ul style="list-style-type: none"> • Normal: IVRT 70 + 12 ms • Abnormal diastolic function: IVRT >110 ms • Restrictive physiology: IVRT <60 ms 	<ul style="list-style-type: none"> • Independent of inotropic status • Not widely used (requires phonocardiogram for accurate measurement)
E/A ratio	Transmitral filling (PW Doppler)	<ul style="list-style-type: none"> • Normal: E/A ratio 0.75–1.40 • Abnormal diastolic function: E<A velocity • Restrictive physiology: E>A velocity 	<ul style="list-style-type: none"> • Age-dependent and filling-dependent • Not possible to assess in AF or atrial flutter • Might change in presence of ischaemia/incoordination
E deceleration time	Transmitral filling (PW Doppler)	<ul style="list-style-type: none"> • Normal: E DT 160–240 ms • Abnormal diastolic function: E DT >240 ms • Restrictive physiology: E DT <160 ms 	<ul style="list-style-type: none"> • Weak negative correlation with PCWP ($r = 0.54$) • Sensitivity 86%, specificity 59%
E/E'	Transmitral filling (PW Doppler) plus TDI	<ul style="list-style-type: none"> • Normal: <10 • Elevated LAP (septal or average): ≥ 15 • Elevated LAP (lateral): ≥ 12 • PPV: <8 (lateral) predicts PCWP <18 mmHg (sensitivity 83%, specificity 88%) 	<ul style="list-style-type: none"> • If between 10 and 15, will need additional measures • More accurate in patients with reduced EF • Not validated in: MS, MAC, MVR, MR, AF, pacing • Does not necessarily correlate with presence of pulmonary oedema
Pulmonary vein S/D	PW Doppler	<ul style="list-style-type: none"> • If S/D >0.65 in presence of normal E/A and EF, LAP unlikely to be elevated 	<ul style="list-style-type: none"> • Normal values vary with age
Pulmonary vein DT	PW Doppler	<ul style="list-style-type: none"> • Calculate LAP • PV-DT <160 ms correlates with PCWP >18 mmHg 	<ul style="list-style-type: none"> • Sensitivity 97%, specificity 96% • Good correlation with PCWP ($r = -0.89$) • Confounding variables: HR, CO, age, LV compliance, LV afterload, LV relaxation, LAP, PPV
Colour M-mode propagation velocity	Colour M-mode across MV, measure from MV annulus to 4 cm into left ventricle, slope of first aliasing velocity	<ul style="list-style-type: none"> • <50 cm/s might indicate diastolic disease • PPV: E/Vp <1.7 predicts PCWP <18 mmHg (sensitivity 80%, specificity 100%) 	<ul style="list-style-type: none"> • Difficult to obtain high-quality images in TTE • Fairly low sensitivity
IVC diameter (cm) and collapse with sniff (%)	Subcostal M-mode or 2D echo	<ul style="list-style-type: none"> 0–5 mmHg: <ul style="list-style-type: none"> • ≤ 2.1 cm, >50% collapse 5–10 mmHg: <ul style="list-style-type: none"> • ≤ 2.1 cm, >50% collapse • >2.1 cm, >50% collapse +15 mmHg: <ul style="list-style-type: none"> • >2.1 cm, >50% collapse 	<ul style="list-style-type: none"> • Affected by pressures: intrathoracic, intrapericardial, intra-abdominal • Affected by right heart pathology • Changes in PPV

A, peak late transmitral filling velocity; AF, atrial fibrillation; CO, cardiac output; D, peak pulmonary vein diastolic wave; DT, deceleration time; E, early transmitral filling velocity; E', peak mitral annular velocity; echo, echocardiography; EF, ejection fraction; HR, heart rate; IVC, inferior vena cava; IVRT, isovolumic relaxation time; LAP, left atrial pressure; LV, left ventricular; MAC, mitral annular calcification; MR, mitral regurgitation; MS, mitral stenosis; MV, mitral valve; MVR, mitral valve replacement; PCWP, pulmonary capillary wedge pressure; PPV, positive pressure ventilation; PW, pulsed-wave; S, peak pulmonary vein systolic wave; TDI, tissue Doppler imaging; TTE, transthoracic echocardiography; Vp, peak aortic velocity.