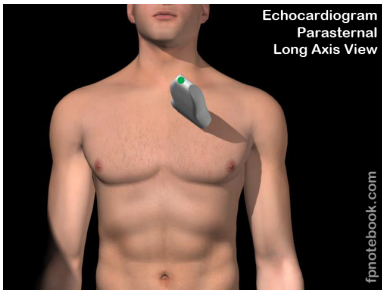
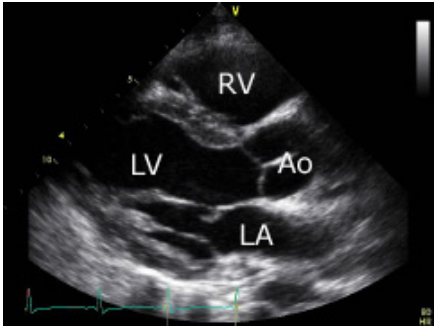
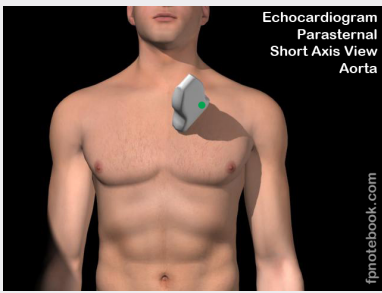
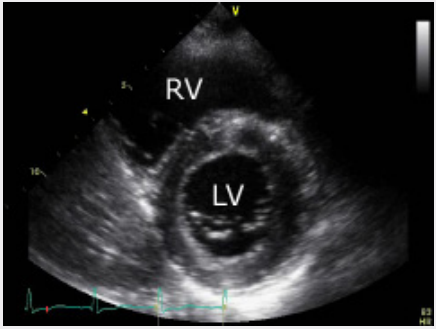
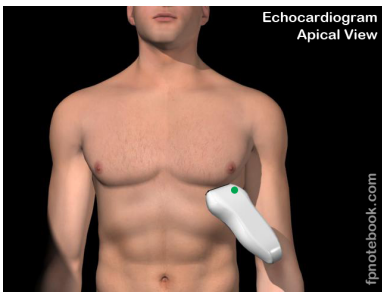
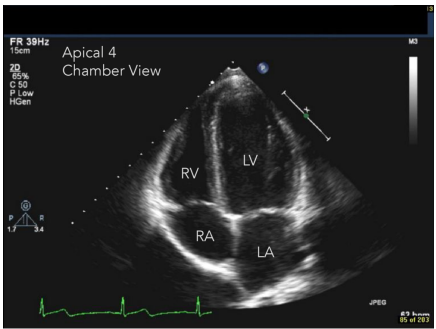

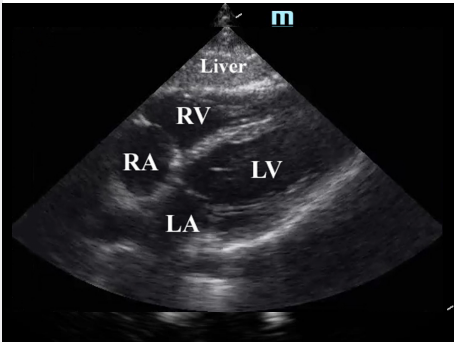


POCUS Club

Focussed echo & cardiac assessment

Standard cardiac views

Probe orientation corresponds to marker on **right of screen**.

Cardiac view	Technique	Assess	Echo
<p>Parasternal long axis (PLAX)</p>	 <p>Echocardiogram Parasternal Long Axis View</p> <p>Slide vertically between 2-5th intercostal spaces (left sternal edge) to find window.</p>	<p>Best for LV function assessment.</p> <p>Assess mitral valve opening - should almost touch septum in diastole.</p> <p>Can calculate E-point septal separation (EPSS) and fractional shortening.</p>	
<p>Parasternal short axis (PSAX)</p>	 <p>Echocardiogram Parasternal Short Axis View Aorta</p> <p>Turn 90° clockwise from PLAX.</p>	<p>Fan from AV to LV apex.</p> <p>LV should contract concentrically towards the middle.</p> <p>Good for assessing RWMA.</p>	
<p>Apical 4-chamber (A4C)</p>	 <p>Echocardiogram Apical View</p> <p>Start below nipple line, try rib space below or more lateral.</p>	<p>Best for assessing RV size and function.</p> <p>Can measure TAPSE (tricuspid annular plane systolic excursion)</p>	
<p>Subxiphoid/subcostal (SC)</p>	 <p>Echocardiogram Subxiphoid View</p> <p>Probe almost flat on abdomen, try sliding to right of xiphisternum and aim obliquely towards heart.</p>	<p>Good for pericardial fluid and in cardiac arrest.</p> <p>Good for gross cardiac function.</p> <p>IVC - centre RA, lift probe slightly to get IVC in transverse section then rotate 90° anti-clockwise.</p>	

Optimise

Consider **left lateral** position for PLAX, PSAX, A4C.
Pencil grip for all views apart from subxiphoid (use **overhead grip**).

Large movements to find window, then fine tune.
 Consider more pressure (eg. in larger patients).
 Always consider **depth**, **focus**, **gain**.

Cardiac assessment

Dimensions

"3-4-5-6" rule (approx. max size in cm of RVOT, aortic root, LA and LV in PLAX view).
 Normal RV:LV is ~0.7 (A4C view). If **1:1 or more** this is definitely **abnormal**.

Effort

LV should **contract by ~1/3** in systole (fractional shortening).

Mitral valve should almost touch septum in diastole (**EPSS <7mm normal**, >10 = heart failure).

NB: EPSS may be falsely abnormal in AR and MS.

Assess for regional wall motion abnormality (RWMA).

Fluid

Assess for **pericardial effusion** and signs of tamponade (paradoxical RV collapse in diastole, plethoric IVC).

Gradient

Gross assessment of valve movements and use of colour flow to identify regurgitation and stenosis.

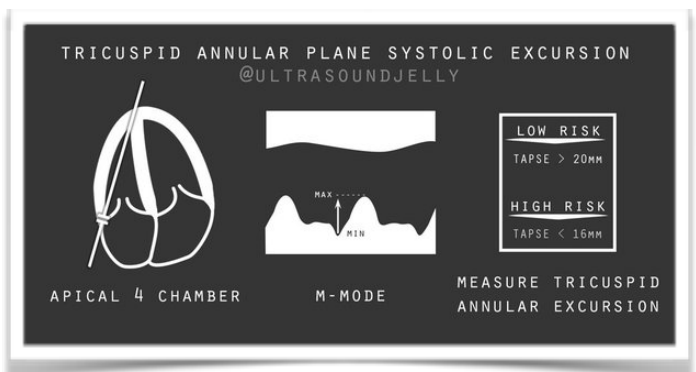
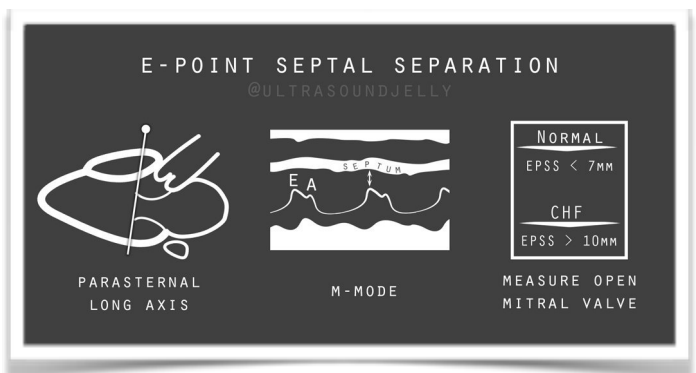
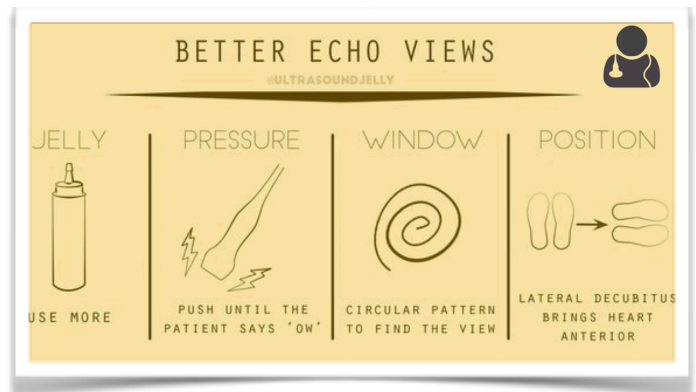
IVC diameter and phasic variation (measure of LA pressures).

RV function and strain

RV contracts in longitudinal fashion due to its crescent shape.

TAPSE is a good measure of RV function (Daley et al. 2017) - **M-mode** through tricuspid annulus in A4C view, measure height of wave.

<16mm = abnormal



SIGNS OF RV STRAIN

(i.e. from acute PE)

Dilated RV
TAPSE <16mm
LV septal flattening
 ("D-sign")
McConnell's sign (RV free fall akinesis)
Tricuspid regurgitation

RESOURCES & REFERENCES

5 Min Sono: http://5minsono.com/heart_views/ <http://5minsono.com/cardiunction5minvid/>
 The POCUS Atlas: <http://www.thepocusatlas.com/ea-echo>
 UltrasoundGEL Podcast: https://www.ultrasoundgel.org/posts/EJHu_SYVE4oBT4igNHGBrg
 Ultrasound of the week: <https://www.ultrasoundoftheweek.com/tag/>