

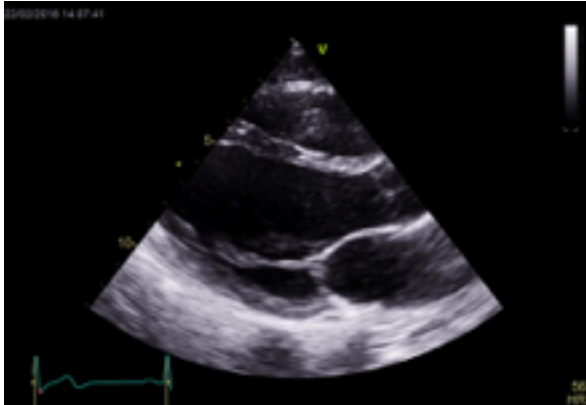
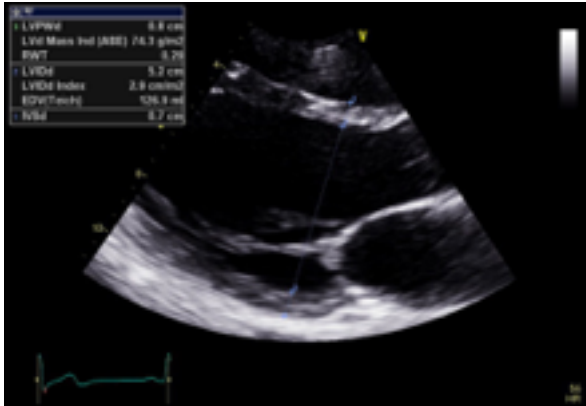
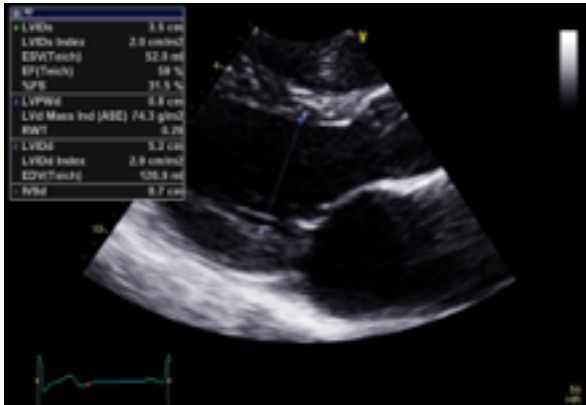

WSU Echocardiography Comprehensive Imaging Sequence

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	4.2 Supra-sternal Images and Measurements [~4]
The number of stored images in the full imaging sequence is ~62.	

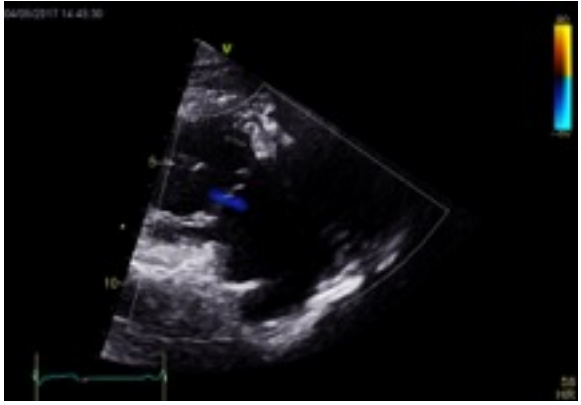
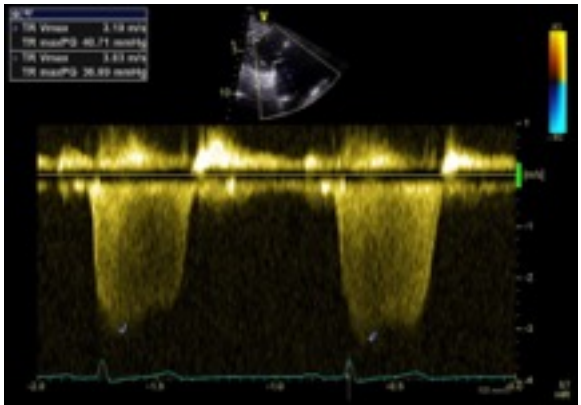
Part 1.1

Parasternal Imaging Sequence	
I. Parasternal Long Axis (PLAX) Imaging Sequence (11 images & measurements)	II. Parasternal Short Axis (PSSA) Imaging Sequence (8 images & measurements)
<ol style="list-style-type: none"> 1. 2D loop of left ventricular (LV) function 2. 2D linear measurement of the LV (IVS, LV & PW) at end diastole 3. 2D FS% measurement 4. 2D linear measurement of the LVOT 5. 2D linear measurement of aortic root & ST junction 6. 2D linear measurement of ascending aorta 7. 2D loop focused on the aortic (AV) & mitral valve (MV) 8. Colour Doppler imaging of the AV & MV 9. 2D loop of TV 10. Colour Doppler imaging of tricuspid valve (TV) 11. (CW Doppler measurement of TR if visible). 	<ol style="list-style-type: none"> 1. 2D loop at the level of the AV 2. (Zoomed) 2D loop of the AV 3. 2D loop of the LV at the level of the MV 4. 2D loop of the LV at the level of the papillary muscles 5. 2D loop of the LV at the level of the apex 6. 2D loop of the pulmonary valve (PV) 7. Colour Doppler imaging of the PV 8. CW Doppler measurement of the peak PV flow.

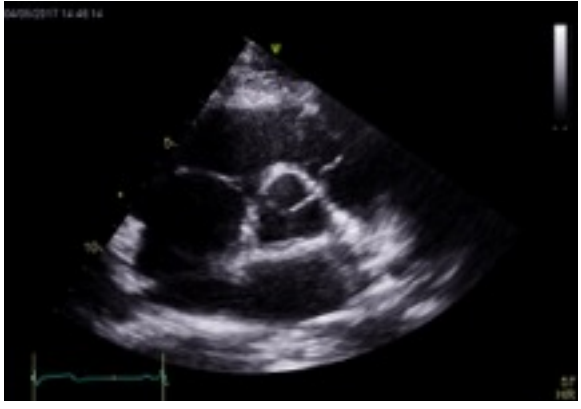
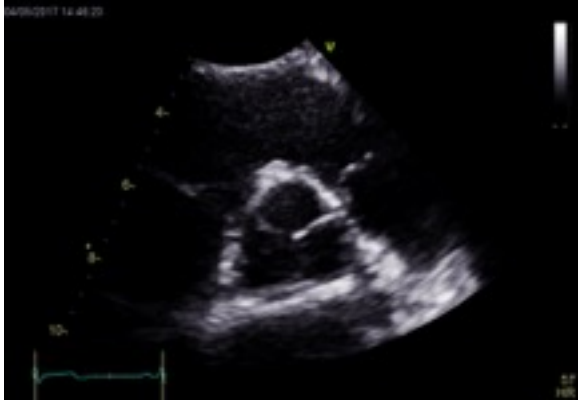

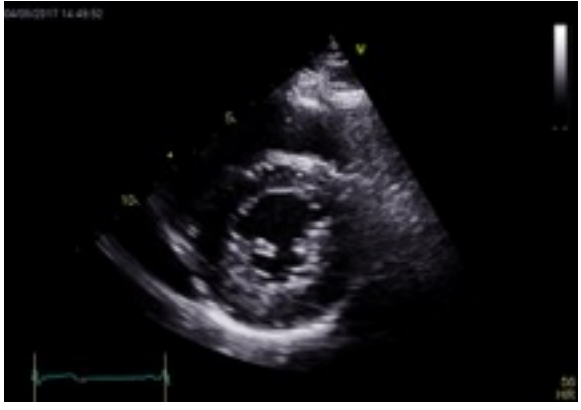
Part 1.2

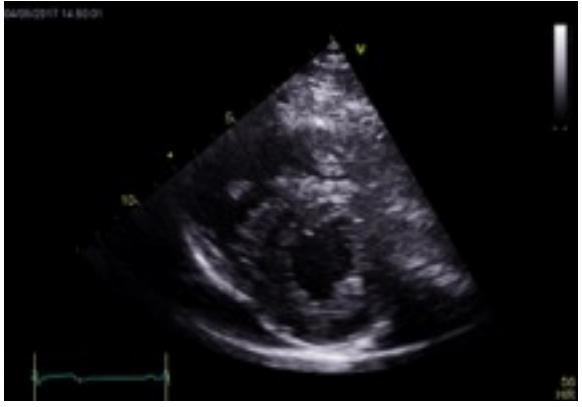
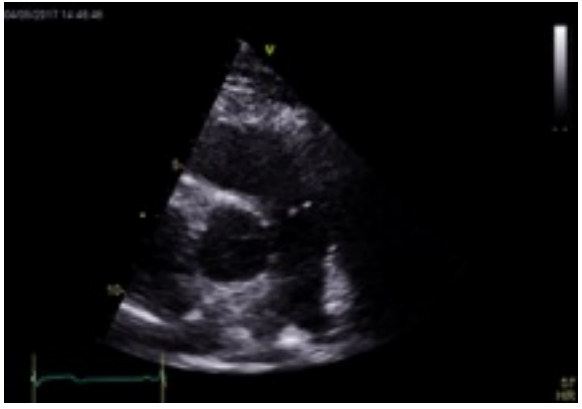
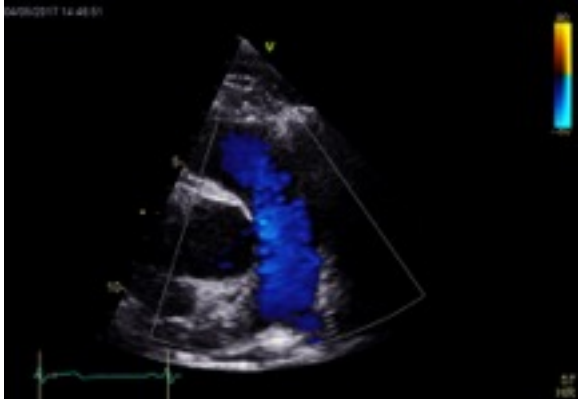
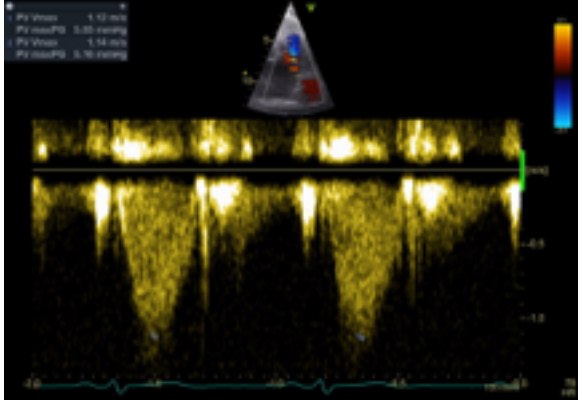
	I. PLAX Imaging Sequence	Images & measurements																								
1	2D loop of left ventricular (LV) function	 <p>2D loop of left ventricular (LV) function showing the heart's motion over time. The image shows a cross-section of the heart with the left ventricle clearly visible. A green ECG trace is overlaid at the bottom left.</p>																								
2	2D linear measurement of the LV (IVS, LV & PW) at end diastole	 <p>2D linear measurement of the LV (IVS, LV & PW) at end diastole. The image shows a cross-section of the heart with a blue line indicating the measurement of the left ventricular wall thickness (IVS), the left ventricular diameter (LV), and the posterior wall thickness (PW). A data box is overlaid on the top left of the image.</p> <table border="1"> <tr><td>LVPMW</td><td>0.8 cm</td></tr> <tr><td>LVW Mass Ind (ABZ)</td><td>74.3 g/m²</td></tr> <tr><td>PWT</td><td>0.70</td></tr> <tr><td>LVWd</td><td>3.2 cm</td></tr> <tr><td>LVWd Index</td><td>2.8 cm/m²</td></tr> <tr><td>EDV(Teich)</td><td>126.9 ml</td></tr> <tr><td>IVSd</td><td>0.7 cm</td></tr> </table>	LVPMW	0.8 cm	LVW Mass Ind (ABZ)	74.3 g/m ²	PWT	0.70	LVWd	3.2 cm	LVWd Index	2.8 cm/m ²	EDV(Teich)	126.9 ml	IVSd	0.7 cm										
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EDV(Teich)	126.9 ml																									
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3	2D FS% measurement	 <p>2D FS% measurement. The image shows a cross-section of the heart with a blue line indicating the measurement of the left ventricular wall thickness (IVS), the left ventricular diameter (LV), and the posterior wall thickness (PW). A data box is overlaid on the top left of the image.</p> <table border="1"> <tr><td>LVWd</td><td>3.5 cm</td></tr> <tr><td>LVWd Index</td><td>2.8 cm/m²</td></tr> <tr><td>EDV(Teich)</td><td>52.8 ml</td></tr> <tr><td>EF(Teich)</td><td>58 %</td></tr> <tr><td>SFS</td><td>21.5 %</td></tr> <tr><td>LVPMW</td><td>0.8 cm</td></tr> <tr><td>LVW Mass Ind (ABZ)</td><td>74.3 g/m²</td></tr> <tr><td>PWT</td><td>0.70</td></tr> <tr><td>LVWd</td><td>3.2 cm</td></tr> <tr><td>LVWd Index</td><td>2.8 cm/m²</td></tr> <tr><td>EDV(Teich)</td><td>126.9 ml</td></tr> <tr><td>IVSd</td><td>0.7 cm</td></tr> </table>	LVWd	3.5 cm	LVWd Index	2.8 cm/m ²	EDV(Teich)	52.8 ml	EF(Teich)	58 %	SFS	21.5 %	LVPMW	0.8 cm	LVW Mass Ind (ABZ)	74.3 g/m ²	PWT	0.70	LVWd	3.2 cm	LVWd Index	2.8 cm/m ²	EDV(Teich)	126.9 ml	IVSd	0.7 cm
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4	2D linear measurement of the LVOT	 <p>2D linear measurement of the LVOT. The image shows a cross-section of the heart with a blue line indicating the measurement of the left ventricular outflow tract (LVOT). A data box is overlaid on the top left of the image.</p> <table border="1"> <tr><td>LVOT Diam</td><td>2.3 cm</td></tr> <tr><td>LVOT Index</td><td>1.268 cm/m²</td></tr> </table>	LVOT Diam	2.3 cm	LVOT Index	1.268 cm/m ²																				
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I. PLAX Imaging Sequence (cont.)		Images & measurements (cont.)
5 [& 6]	2D linear measurement of aortic root, ST junction & ascending aorta	
7	2D loop focused on the aortic (AV) & mitral valve (MV)	
8	Colour Doppler imaging of the AV & MV	
9	2D loop of TV	

	I. PLAX Imaging Sequence (cont.)	Images & measurements (cont.)								
10	Colour Doppler imaging of tricuspid valve (TV)	 <p>A colour Doppler ultrasound image of the tricuspid valve. The valve is seen in a parasternal short-axis view. A blue color indicates regurgitant flow from the right ventricle back into the right atrium during diastole. A color scale on the right indicates flow velocity from 0 to 20 cm/s.</p>								
[11]	(CW Doppler measurement of TR if visible)	 <p>A CW Doppler ultrasound image showing the spectral display of tricuspid regurgitation. The image shows a spectral display with a peak velocity of 3.78 m/s. The color scale on the right indicates flow velocity from 0 to 20 cm/s. The spectral display shows a dense, turbulent flow pattern with a peak velocity of 3.78 m/s. The color scale on the right indicates flow velocity from 0 to 20 cm/s.</p> <table border="1"> <tr> <td>TR Vmax</td> <td>3.78 m/s</td> </tr> <tr> <td>TR maxPG</td> <td>60.71 mmHg</td> </tr> <tr> <td>TR Vmax</td> <td>3.83 m/s</td> </tr> <tr> <td>TR maxPG</td> <td>58.89 mmHg</td> </tr> </table>	TR Vmax	3.78 m/s	TR maxPG	60.71 mmHg	TR Vmax	3.83 m/s	TR maxPG	58.89 mmHg
TR Vmax	3.78 m/s									
TR maxPG	60.71 mmHg									
TR Vmax	3.83 m/s									
TR maxPG	58.89 mmHg									

Part 1.3

	II. PSSA Imaging Sequence (cont.)	Images & measurements
1	2D loop at the level of the AV	
2	(Zoomed) 2D loop of the AV	
3	2D loop of the LV [level of the MV]	
4	2D loop of the LV [level of the papillary muscles]	

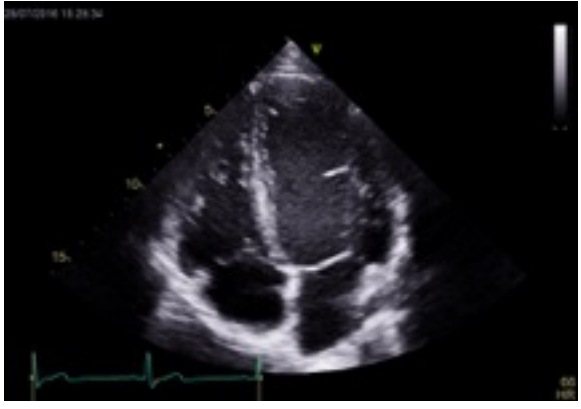
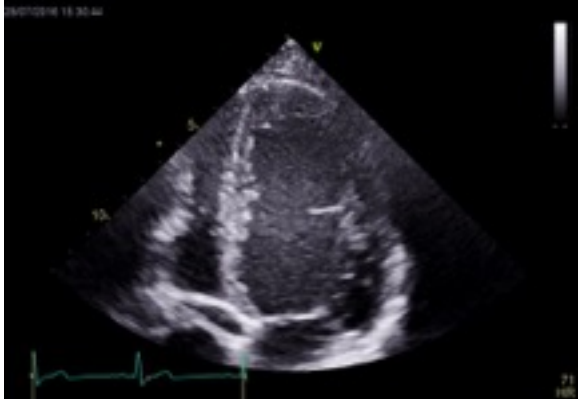

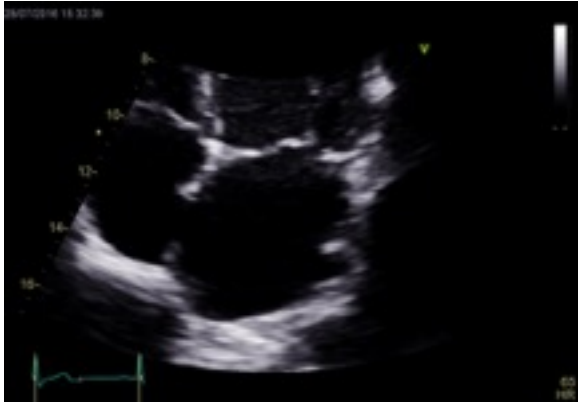
	II. PSSA Imaging Sequence (cont.)	Images & measurements (cont.)
5	2D loop of the LV at the level of the apex	
6	2D loop of the pulmonary valve (PV)	
7	Colour Doppler imaging of the PV	
8	CW Doppler measurement of the peak PV flow	 <p> PV (max) 1.12 m/s PV (max)PS 3.02 m/s PV (max) 1.14 m/s PV (max)PS 3.76 m/s </p>


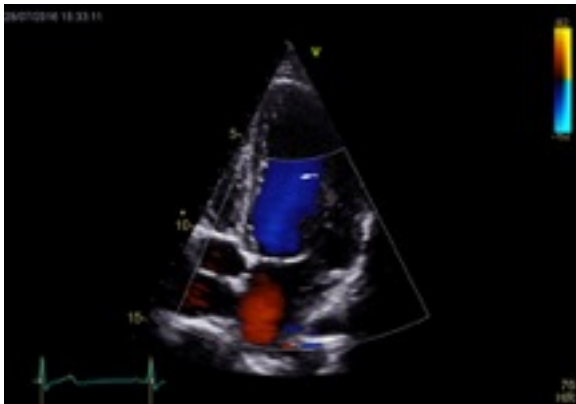
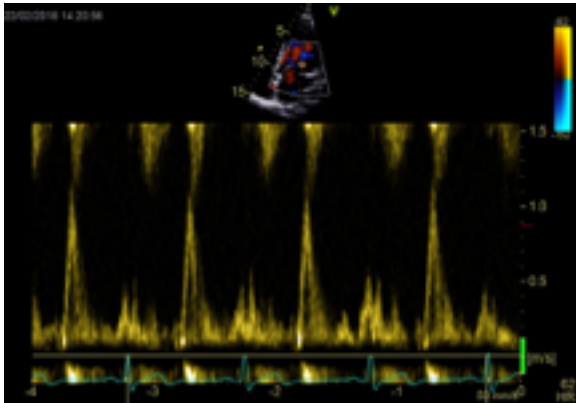
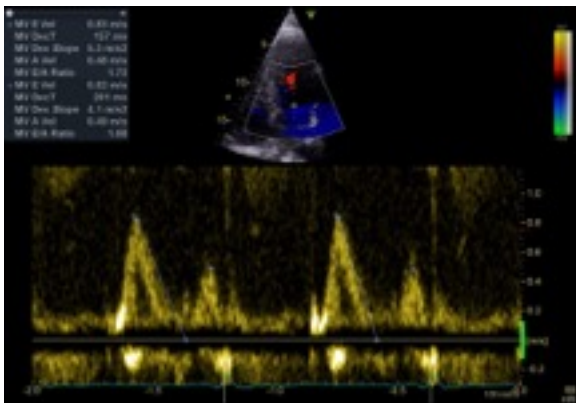
Part 2.1

Apical Imaging Sequence	
I. Apical 4 Chamber (A4C) Imaging Sequence (8 images & measurements)	II. Apical 5 Chamber (A5C) Imaging Sequence (4 images & measurements)
<ol style="list-style-type: none"> 1. 2D loop of all 4 chambers 2. 2D (reduced depth) loop of the LV 3. Single plane LVEF measurement 4. 2D (zoomed) loop of the MV and left atrium (LA) 5. LA area measurement (via zoomed view) 6. Colour Doppler image of the mitral valve 7. PW Doppler measurement of MV inflow (50mm/sec.) 8. PW Doppler measurement of MV inflow (E, A and DT measurement) 9. TDI measurement of septal s' and e' velocities 	<ol style="list-style-type: none"> 1. 2D loop of all 5 chambers 2. Colour Doppler imaging (LVOT & AV) 3. PW Doppler of LVOT flow (50mm/sec.) 4. PW Doppler of LVOT flow (VTI measurement) 5. CW Doppler of AV (50mm/sec.) 6. CW Doppler of AV (plus VTI measurement and AVA calculation) 7. (PHT of AR if appropriate)

Apical Imaging Sequence (continued)		
III. Right Ventricle (RV) Focused View Imaging Sequence (6 images & measurements)	IV. Apical 2 Chamber (A2C) Imaging Sequence (5 images & measurements)	V. Apical Long Axis Imaging Sequence (5 images & measurements)
<ol style="list-style-type: none"> 1. 2D loop of RV / TV / RA 2. 2D (zoomed) loop of the RV 3. Measure 2D basal and mid RV diameter 4. TDI measurement of RVs' (or 4B TAPSE) 5. Colour Doppler imaging of the tricuspid valve 6. CW Doppler measurement of the peak TR jet 	<ol style="list-style-type: none"> 1. 2D loop of 2 chambers 2. 2D (zoomed) loop of the LV 3. 2D (zoomed) loop of the LA and MV 4. LA volume measurement 5. Colour Doppler image of the mitral valve 	<ol style="list-style-type: none"> 1. 2D loop of 3 chambers 2. 2D (zoomed) loop of the LV 3. 2D (zoomed) loop of the LA and MV 4. Colour Doppler image of the AV & MV 5. CW Doppler measurements of AV (AVA calculation (AS)) 6. (PHT of the AR jet if appropriate)


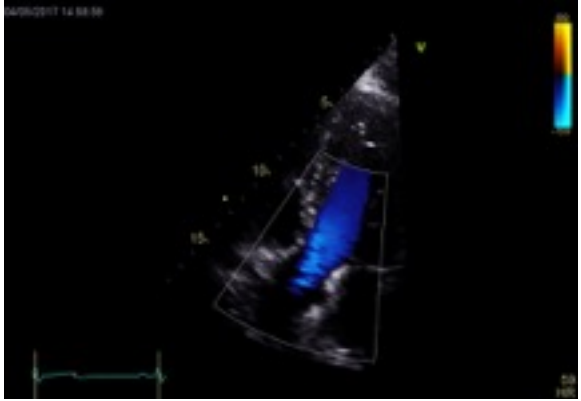
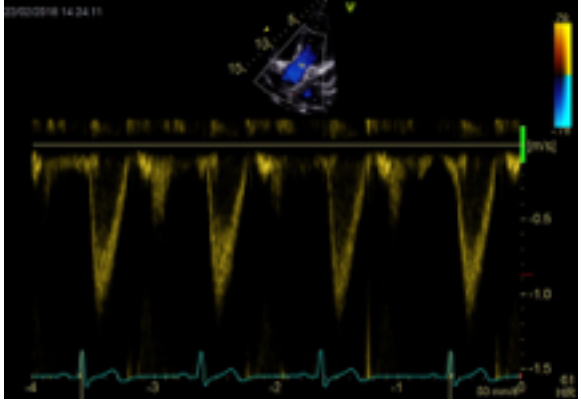
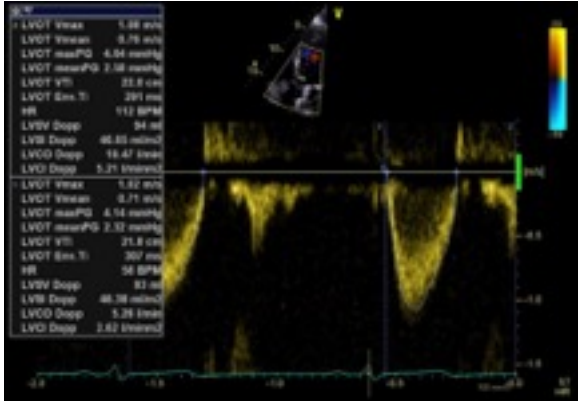
Part 2.2

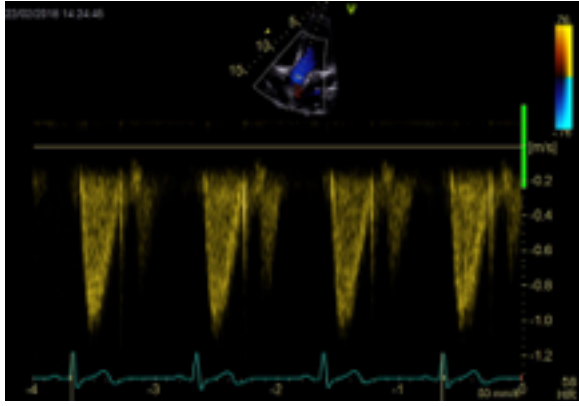
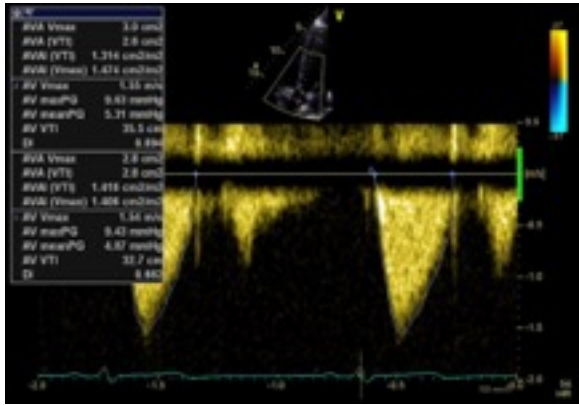
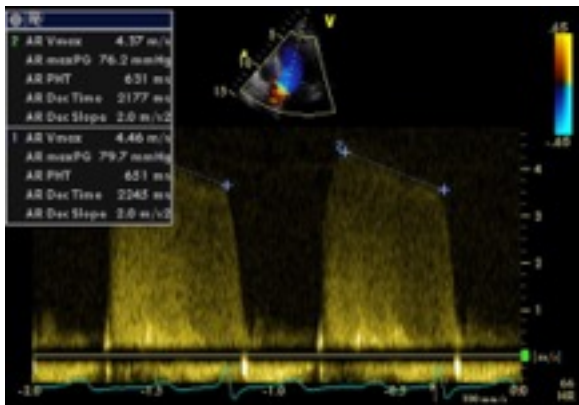
	I. A4C Imaging Sequence	Images & measurements
1	2D loop of all 4 chambers	
2	2D (zoomed) loop of the LV	
3	Single plane LVEF measurement	
4	2D (zoomed) loop of the MV and left atrium (LA)	

	I. A4C Imaging Sequence	Images & measurements (cont.)
5	LA area measurement (via zoomed view)	 <p>LA area measurement via zoomed view. The image shows a cross-section of the left atrium with a grid overlay for area calculation. Text in the top left corner reads: LALs AAC 6.1 cm², LALs AAC 28.7 cm², LAEDV AL AAC 71 ml, LAEDV WCD AAC 88 ml.</p>
6	Colour Doppler image of the mitral valve	 <p>Colour Doppler image of the mitral valve. The image shows a cross-section of the mitral valve with color-coded flow. A color scale on the right indicates flow velocity from 0 to 1.5 m/s.</p>
7	PW Doppler measurement of MV inflow (50mm/sec.)	 <p>PW Doppler measurement of MV inflow. The image shows a spectral Doppler waveform with a color scale on the right indicating flow velocity from 0 to 1.5 m/s. The waveform shows a characteristic E and A wave pattern.</p>
8	PW Doppler measurement of MV inflow (E, A and DT)	 <p>PW Doppler measurement of MV inflow (E, A and DT). The image shows a spectral Doppler waveform with a color scale on the right indicating flow velocity from 0 to 1.5 m/s. The waveform shows a characteristic E and A wave pattern. Text in the top left corner reads: MV E Vel 0.85 m/s, MV Decel 0.22 m/s², MV Dec Slope 6.7 m/s², MV A Vel 0.46 m/s, MV E/A Ratio 1.73, MV E Dec 0.22 m/s², MV Dec Slope 6.7 m/s², MV A Dec 0.46 m/s², MV E/A Ratio 1.88.</p>

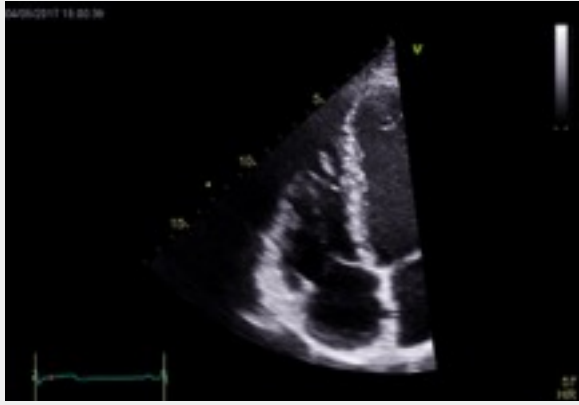
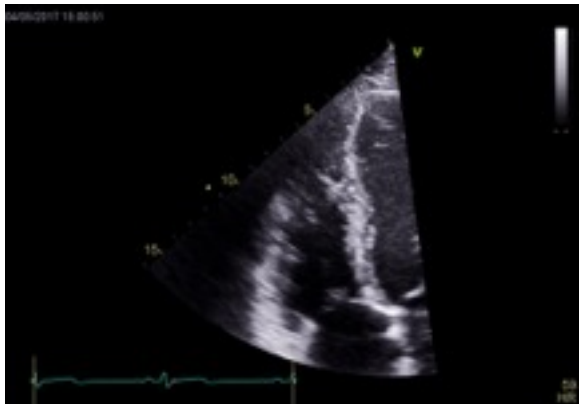
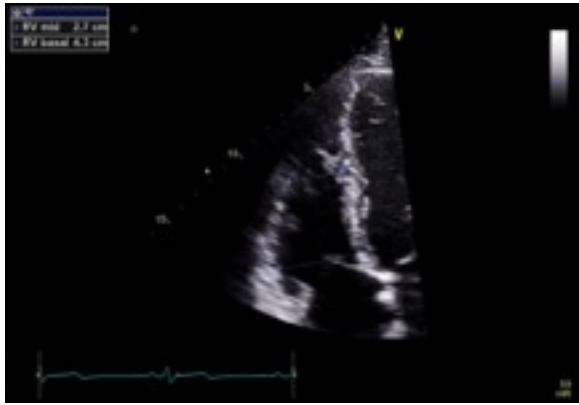
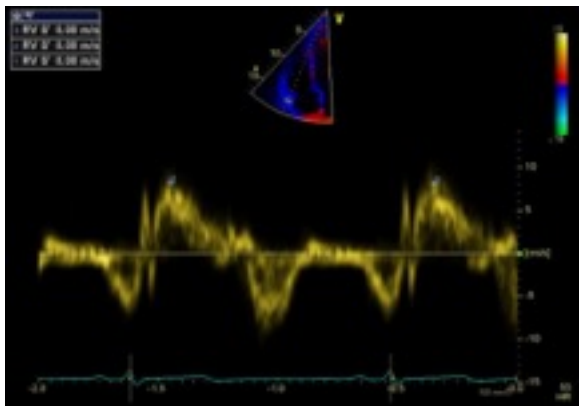
	I. A4C Imaging Sequence	Images & measurements (cont.)
9	TDI measurement of septal s' and e' velocities	

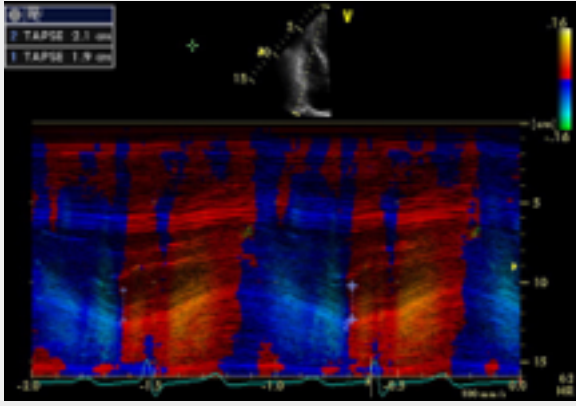
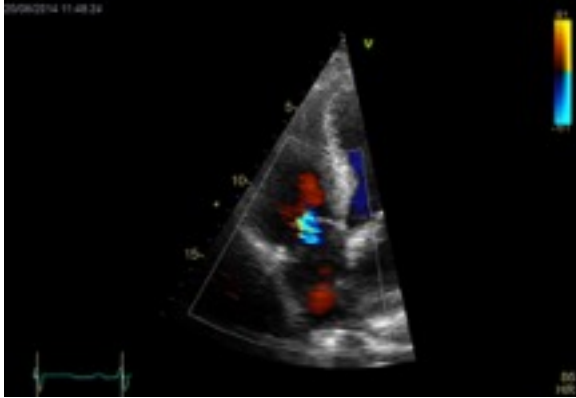
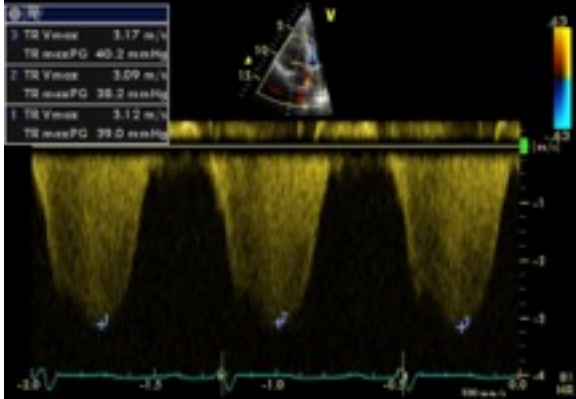
Part 2.3

	II. A5C Imaging Sequence	Images & measurements																																												
1	2D loop of all 5 chambers																																													
2	Colour Doppler imaging (LVOT & AV)																																													
3	PW Doppler of LVOT flow (50mm/sec.)																																													
4	PW Doppler of LVOT flow (VTI measurement)	 <table border="1"> <tr><td>LVOT Vmax</td><td>5.88 m/s</td></tr> <tr><td>LVOT Vmean</td><td>3.78 m/s</td></tr> <tr><td>LVOT maxPG</td><td>4.94 mmHg</td></tr> <tr><td>LVOT meanPG</td><td>2.38 mmHg</td></tr> <tr><td>LVOT VTI</td><td>23.8 cm</td></tr> <tr><td>LVOT Sss T1</td><td>291 ms</td></tr> <tr><td>HR</td><td>113 bpm</td></tr> <tr><td>LVM Sss</td><td>84 ml</td></tr> <tr><td>LVM Sss</td><td>48.38 ml/m²</td></tr> <tr><td>LVCO Sss</td><td>16.47 ml/m²</td></tr> <tr><td>LVCI Sss</td><td>5.21 ml/m²</td></tr> <tr><td>LVOT Vmax</td><td>5.82 m/s</td></tr> <tr><td>LVOT Vmean</td><td>3.71 m/s</td></tr> <tr><td>LVOT maxPG</td><td>4.94 mmHg</td></tr> <tr><td>LVOT meanPG</td><td>2.32 mmHg</td></tr> <tr><td>LVOT VTI</td><td>21.8 cm</td></tr> <tr><td>LVOT Sss T1</td><td>300 ms</td></tr> <tr><td>HR</td><td>95 bpm</td></tr> <tr><td>LVM Sss</td><td>83 ml</td></tr> <tr><td>LVM Sss</td><td>48.38 ml/m²</td></tr> <tr><td>LVCO Sss</td><td>5.38 ml/m²</td></tr> <tr><td>LVCI Sss</td><td>3.82 ml/m²</td></tr> </table>	LVOT Vmax	5.88 m/s	LVOT Vmean	3.78 m/s	LVOT maxPG	4.94 mmHg	LVOT meanPG	2.38 mmHg	LVOT VTI	23.8 cm	LVOT Sss T1	291 ms	HR	113 bpm	LVM Sss	84 ml	LVM Sss	48.38 ml/m ²	LVCO Sss	16.47 ml/m ²	LVCI Sss	5.21 ml/m ²	LVOT Vmax	5.82 m/s	LVOT Vmean	3.71 m/s	LVOT maxPG	4.94 mmHg	LVOT meanPG	2.32 mmHg	LVOT VTI	21.8 cm	LVOT Sss T1	300 ms	HR	95 bpm	LVM Sss	83 ml	LVM Sss	48.38 ml/m ²	LVCO Sss	5.38 ml/m ²	LVCI Sss	3.82 ml/m ²
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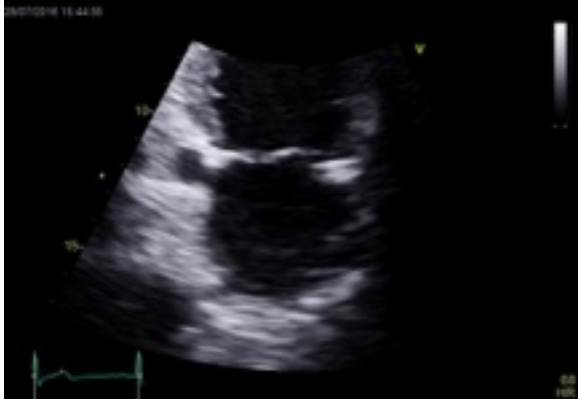

II. A5C Imaging Sequence		Images & measurements (cont.)																																				
5	CW Doppler of AV (50mm/sec.)																																					
6	CW Doppler of AV (plus VTI measurement and AVA calculation)	 <table border="1"> <tr><td>AVA Vmax</td><td>2.8 cm/s</td></tr> <tr><td>AVA (VTI)</td><td>2.8 cm/s</td></tr> <tr><td>AVA (VTI)</td><td>1.314 cm/s/m</td></tr> <tr><td>AVA (VTI)</td><td>1.424 cm/s/m</td></tr> <tr><td>AV Vmax</td><td>5.35 m/s</td></tr> <tr><td>AV maxPG</td><td>6.63 mmHg</td></tr> <tr><td>AV meanPG</td><td>5.31 mmHg</td></tr> <tr><td>AV VTI</td><td>35.5 cm</td></tr> <tr><td>IP</td><td>8.894</td></tr> <tr><td>AVA Vmax</td><td>2.8 cm/s</td></tr> <tr><td>AVA (VTI)</td><td>2.8 cm/s</td></tr> <tr><td>AVA (VTI)</td><td>1.418 cm/s/m</td></tr> <tr><td>AVA (VTI)</td><td>1.428 cm/s/m</td></tr> <tr><td>AV Vmax</td><td>5.35 m/s</td></tr> <tr><td>AV maxPG</td><td>6.63 mmHg</td></tr> <tr><td>AV meanPG</td><td>4.97 mmHg</td></tr> <tr><td>AV VTI</td><td>31.7 cm</td></tr> <tr><td>IP</td><td>8.862</td></tr> </table>	AVA Vmax	2.8 cm/s	AVA (VTI)	2.8 cm/s	AVA (VTI)	1.314 cm/s/m	AVA (VTI)	1.424 cm/s/m	AV Vmax	5.35 m/s	AV maxPG	6.63 mmHg	AV meanPG	5.31 mmHg	AV VTI	35.5 cm	IP	8.894	AVA Vmax	2.8 cm/s	AVA (VTI)	2.8 cm/s	AVA (VTI)	1.418 cm/s/m	AVA (VTI)	1.428 cm/s/m	AV Vmax	5.35 m/s	AV maxPG	6.63 mmHg	AV meanPG	4.97 mmHg	AV VTI	31.7 cm	IP	8.862
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7	(PHT of AR if appropriate)	 <table border="1"> <tr><td>AR Vmax</td><td>4.57 m/s</td></tr> <tr><td>AR maxPG</td><td>76.2 mmHg</td></tr> <tr><td>AR PHT</td><td>651 ms</td></tr> <tr><td>AR Dec Time</td><td>2177 ms</td></tr> <tr><td>AR Dec Slope</td><td>2.0 m/s²</td></tr> <tr><td>AR Vmax</td><td>4.46 m/s</td></tr> <tr><td>AR maxPG</td><td>79.7 mmHg</td></tr> <tr><td>AR PHT</td><td>651 ms</td></tr> <tr><td>AR Dec Time</td><td>2243 ms</td></tr> <tr><td>AR Dec Slope</td><td>2.0 m/s²</td></tr> </table>	AR Vmax	4.57 m/s	AR maxPG	76.2 mmHg	AR PHT	651 ms	AR Dec Time	2177 ms	AR Dec Slope	2.0 m/s ²	AR Vmax	4.46 m/s	AR maxPG	79.7 mmHg	AR PHT	651 ms	AR Dec Time	2243 ms	AR Dec Slope	2.0 m/s ²																
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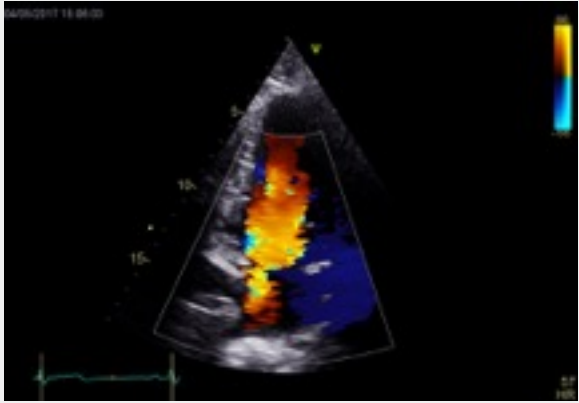
Part 2.4

III. RV Focused View Imaging Sequence		Images & measurements
1	2D loop of RV / TV / RA	
2	2D (zoomed) loop of the RV	
3	Measure 2D basal and mid RV diameter	
4	TDI measurement of RVs' (or TAPSE)	

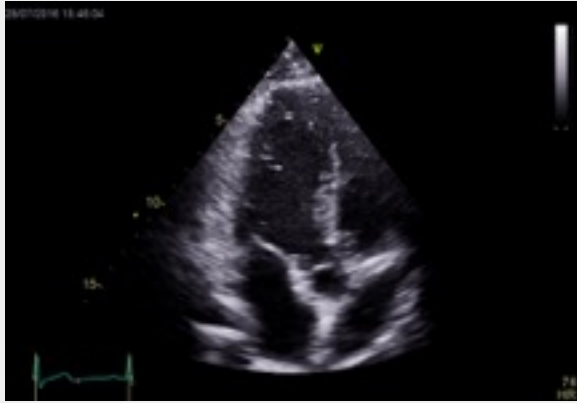
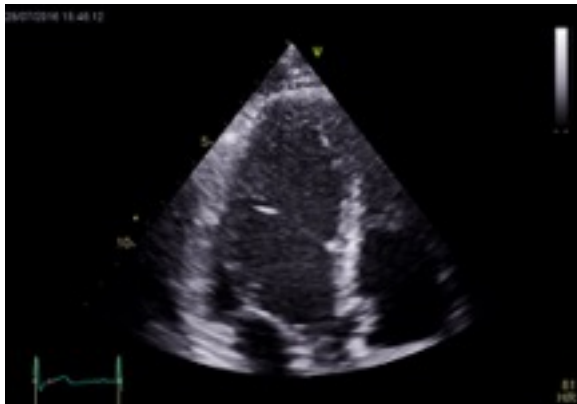
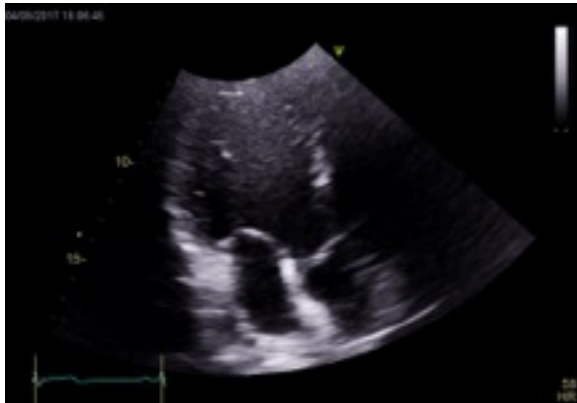

	III. RV Focused View Imaging Sequence	Images & measurements (cont.)
<p>4B</p>	<p>Tricuspid Annular Plane Systolic Excursion (TAPSE) measurement</p>	
<p>5</p>	<p>Colour Doppler imaging of the tricuspid valve</p>	
<p>6</p>	<p>CW Doppler measurement of the peak TR jet</p>	

Part 2.5

	IV. A2C Imaging Sequence	Images & measurements												
1	2D loop of 2 chambers	 <p>A 2D echocardiogram image showing a cross-section of the heart. The image is in grayscale and shows the internal structure of the heart, including the ventricles and atria. A green ECG trace is visible at the bottom left of the image. The image is labeled '1' in the top left corner.</p>												
2	2D (zoomed) loop of the LV	 <p>A 2D echocardiogram image showing a zoomed-in view of the left ventricle (LV). The image is in grayscale and shows the internal structure of the LV. A green ECG trace is visible at the bottom left of the image. The image is labeled '2' in the top left corner.</p>												
3	2D (zoomed) loop of the LA and MV	 <p>A 2D echocardiogram image showing a zoomed-in view of the left atrium (LA) and mitral valve (MV). The image is in grayscale and shows the internal structure of the LA and MV. A green ECG trace is visible at the bottom left of the image. The image is labeled '3' in the top left corner.</p>												
4	LA volume measurement	 <p>A 2D echocardiogram image showing a zoomed-in view of the left atrium (LA) with a volume measurement overlay. The image is in grayscale and shows the internal structure of the LA. A green ECG trace is visible at the bottom left of the image. The image is labeled '4' in the top left corner. A data box in the top left corner displays the following measurements:</p> <table border="1"> <tr> <td>LA (VIA L)</td> <td>74 ml</td> </tr> <tr> <td>LA (V) Index (M-L)</td> <td>47.37 ml/m²</td> </tr> <tr> <td>LA L A2C</td> <td>4.7 cm</td> </tr> <tr> <td>LA M A2C</td> <td>28.5 cm²</td> </tr> <tr> <td>LA (V) A-L A2C</td> <td>76 ml</td> </tr> <tr> <td>LA (V) M-L A2C</td> <td>73 ml</td> </tr> </table>	LA (VIA L)	74 ml	LA (V) Index (M-L)	47.37 ml/m ²	LA L A2C	4.7 cm	LA M A2C	28.5 cm ²	LA (V) A-L A2C	76 ml	LA (V) M-L A2C	73 ml
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	IV. A2C Imaging Sequence	Images & measurements (cont.)
5	Colour Doppler image of the mitral valve	 A colour Doppler ultrasound image of the mitral valve. The image shows a cross-section of the heart with a color-coded flow pattern. The flow is predominantly blue, indicating flow away from the transducer, but there is a significant area of yellow and red, indicating turbulent flow or regurgitation. A color scale on the right side of the image ranges from blue (low velocity) to red (high velocity). The image is framed by a black border with some technical details in the top left corner.

Part 2.6

	V. Apical Long Axis Imaging Sequence	Images & measurements (cont.)
1	2D loop of 3 chambers	
2	2D (zoomed) loop of the LV	
3	2D (zoomed) loop of the LA and MV	
4	Colour Doppler image of the AV & MV	

V. Apical Long Axis Imaging Sequence		Images & measurements (cont.)
5	CW Doppler measurements of AV	
6	(AVA calculation (AS) or PHT of the AR jet if appropriate)	

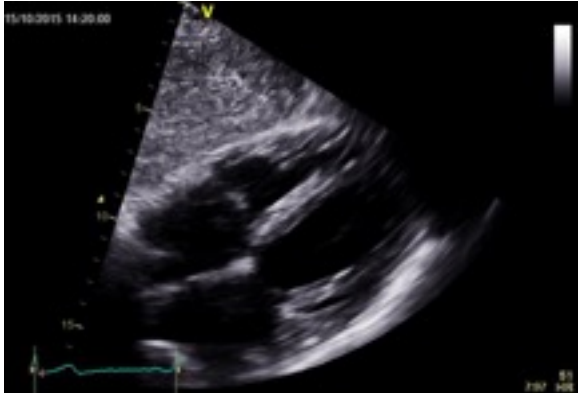

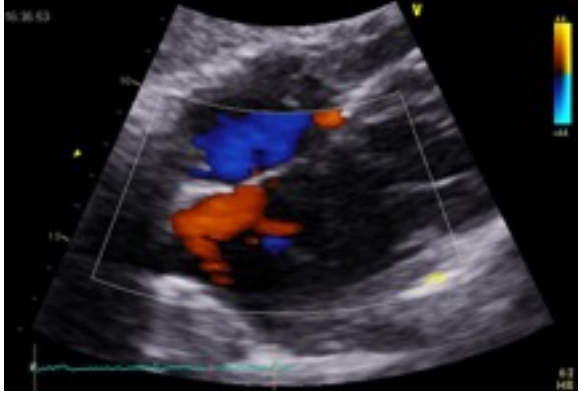
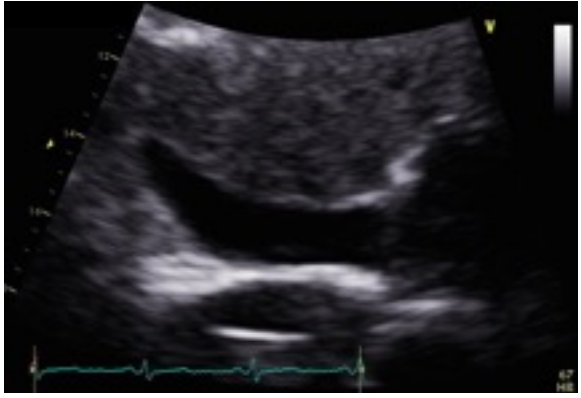
Part 3.1

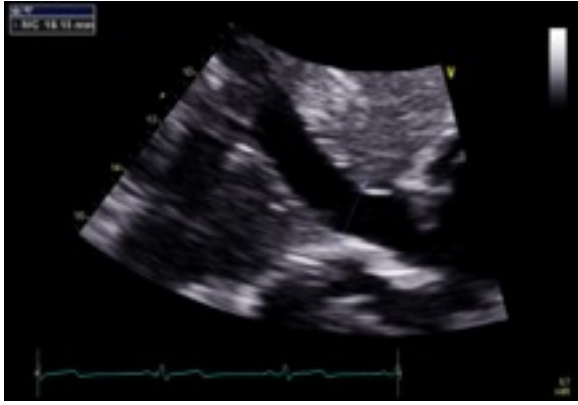
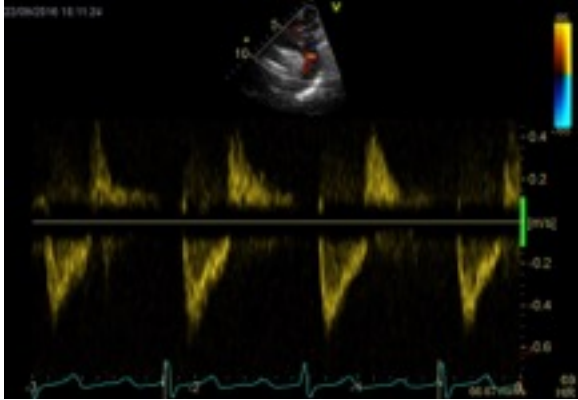
Subcostal Imaging Sequence

I. Subcostal Imaging Sequence (6 images & measurements)

1. 2D loop of the subcostal 4 chamber view
2. 2D (zoomed) loop of the inter-atrial septum
3. Colour Doppler (zoomed) image of the inter-atrial septum
4. 2D loop of the IVC (with demonstration of IVC reactivity)
5. 2D measurement of the IVC diameter
6. PW Doppler of descending thoracic aorta flow (for AR if appropriate)

Part 3.2

	I. Subcostal Imaging Sequence	Images & measurements
1	2D loop of the subcostal 4 chamber view	 <p>A 2D echocardiographic loop showing a subcostal 4-chamber view of the heart. The image displays the right and left ventricles and atria. A scale bar on the right indicates 10 cm. The date and time '11-10-2011 14:30:00' are visible in the top left corner.</p>
2	2D (zoomed) loop of the inter-atrial septum	 <p>A 2D echocardiographic loop showing a zoomed-in view of the inter-atrial septum. The image displays the septum between the right and left atria. A scale bar on the right indicates 10 cm. The date and time '11-10-2011 14:34:22' are visible in the top left corner.</p>
3	Colour Doppler (zoomed) image of the inter-atrial septum	 <p>A Colour Doppler echocardiographic image showing a zoomed-in view of the inter-atrial septum. The image displays the septum with color-coded flow. A scale bar on the right indicates 10 cm. The date and time '11-10-2011 14:34:22' are visible in the top left corner.</p>
4	2D loop of the IVC (with demonstration of IVC reactivity)	 <p>A 2D echocardiographic loop showing a view of the inferior vena cava (IVC). The image displays the IVC with a scale bar on the right indicating 10 cm. The date and time '11-10-2011 14:34:22' are visible in the top left corner.</p>

I. Subcostal Imaging Sequence		Images & measurements
5	2D measurement of the IVC diameter	 <p>A 2D B-mode ultrasound image showing a cross-section of the inferior vena cava (IVC). A yellow measurement line is drawn across the lumen of the vessel to determine its diameter. The image is in grayscale with a color scale on the right side. A green ECG trace is visible at the bottom of the frame.</p>
6	PW Doppler of descending thoracic aorta flow (for AR if appropriate)	 <p>A Pulsed-wave (PW) Doppler ultrasound image of the descending thoracic aorta. The image displays a color Doppler flow map at the top, with a yellow and red color scale on the right. Below the flow map, a spectral Doppler waveform shows the velocity of blood flow over time. The waveform shows a characteristic systolic flow with a small retrograde flow component, indicating aortic regurgitation (AR). A green ECG trace is visible at the bottom of the frame.</p>

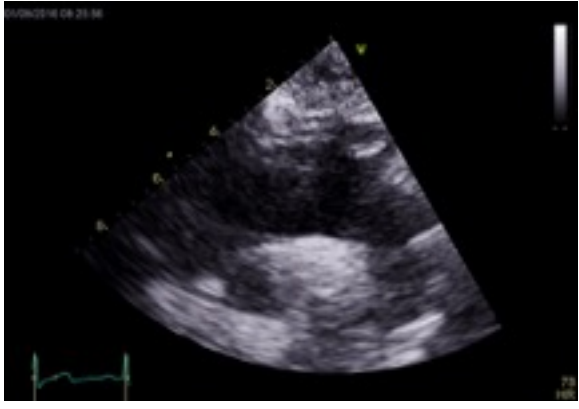
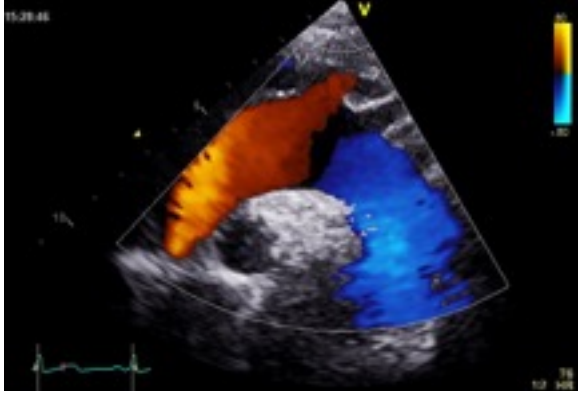
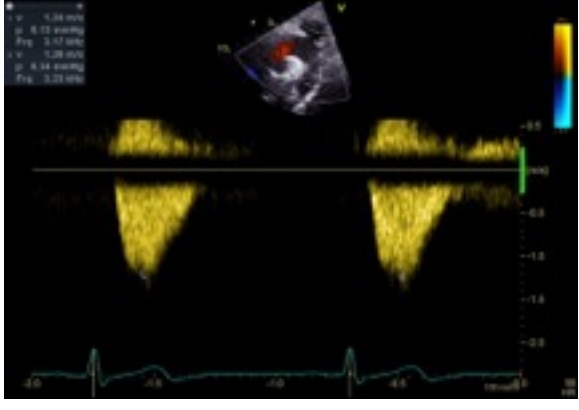
Part 4

Supra-sternal imaging sequence

II. Supra-sternal Imaging Sequence (4 images & measurements)

1. 2D loop of aortic arch
2. Colour Doppler image of the aortic arch
3. CW Doppler measurement of descending thoracic aorta flow
4. PW Doppler of descending thoracic aorta flow (for AR if appropriate)

Part 4.2

	I. Supra-sternal Imaging Sequence	Images & measurements
1	2D loop of aortic arch	
2	Colour Doppler image of the aortic arch	
3	CW Doppler measurement of descending thoracic aorta flow	
4	PW Doppler of descending thoracic aorta flow (for AR if appropriate)	