

## Contrast Echo: Beaumont Experience

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Beaumont Health System

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## Echo Department Protocol

- Based on ASE guidelines
- Based on contrast package insert recommendations (we use Definity)
- Based on patient needs as decided by our Medical Directors

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## Contraindications (Absolute)

- Allergy or previous complication
- Known or suspected intracardiac shunt (Suspected shunt would be patient with new CVA/TIA or with aneurysmal interatrial septum  $\geq 1.5$ cm, in either case we would do an agitated saline contrast to r/o PFO/ASD)
- Not into intra-arterial line

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### Decision to Use Contrast

- Sonographer makes the decision based on protocol
- We use it if 2 or more wall segments are not visualized in any window
- It is used to confirm or exclude an intracardiac thrombus, mass, apical variant of hypertrophic cardiomyopathy, ventricular noncompaction
- Occasionally used to enhance certain Doppler signals (eg. TR for RVSP)

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### Equipment Needed (For Patients Already with an IV access)

- Definity Vial
- 0.9% Saline
- 10 cc syringe
- (2) 18 gauge needles
- Definity Agitator
- Alcohol swab
- Saline Flush

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### Department Protocol

- Technician makes decision to use contrast
- Educate patient and identify potential contraindications
- Identify optimal IV access (ask nurse if unsure) or have IV started by nursing staff
- Test IV port access with 2cc's saline for patency (using port closest to patients body so contrast has less distance to travel)

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## Department Protocol

- Agitate Definity vial and vent with 18 gauge needle
- Draw all (2cc's ) of contrast into 8cc's of saline and roll syringe in hand to mix evenly
- Clean IV line access with alcohol swab
- Pinch off med line in IV line and **SLOWLY** inject 1-2 cc's ( If needed for additional images we inject 1-2cc's bolus at a time)
- Lastly we flush the IV line with saline to clear out the line of contrast

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## Optimizing Image Quality

- Set ultrasound machine settings to contrast pre-set
- MFF
  - Mechanical Index
  - Frequency
  - Focus
- Settings work together to provide optimal contrast enhancement
  - Ensure proper focal placement
  - Properly adjusted frequency
  - Optimal power (MI) settings

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## Optimizing Image Quality

Mechanical index (MI)<sup>1</sup>  
 Measure of acoustic power output  
 Adjust accordingly for penetration needs while limiting bubble destruction  
 Will vary by patient

Controls that affect MI<sup>2</sup>  
 Transducer Frequency  
 Depth  
 Focal Zone  
 Sector size

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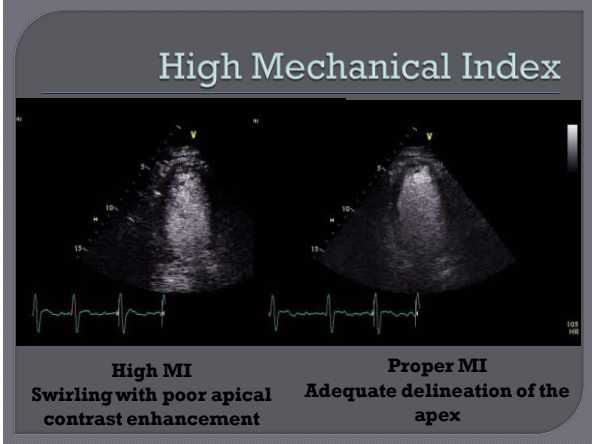
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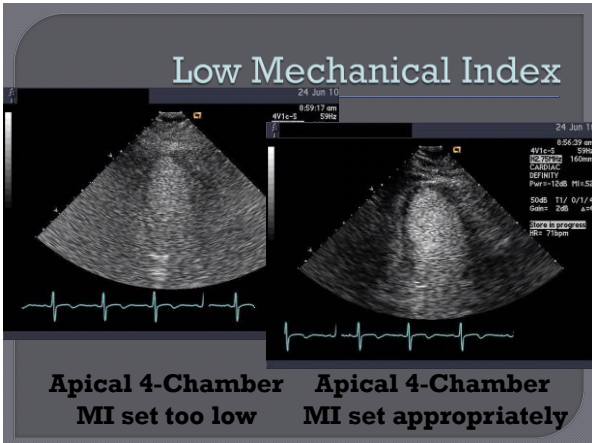
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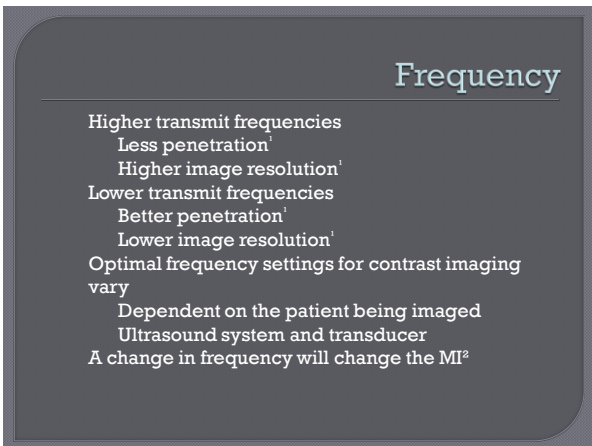
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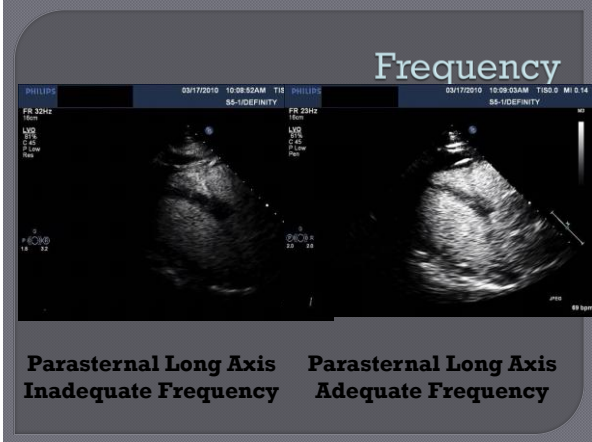
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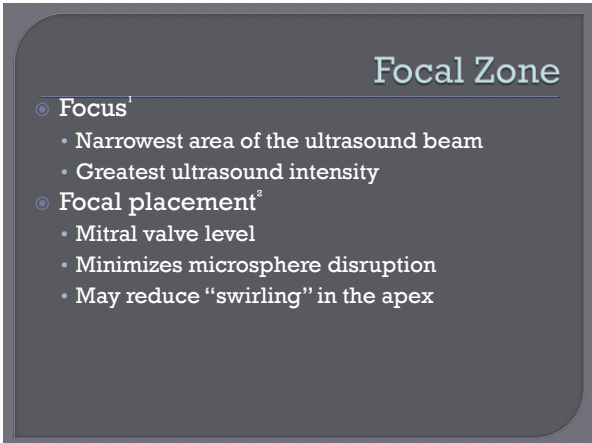
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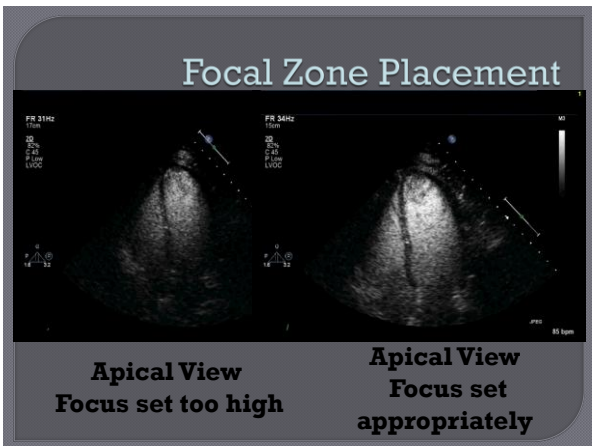
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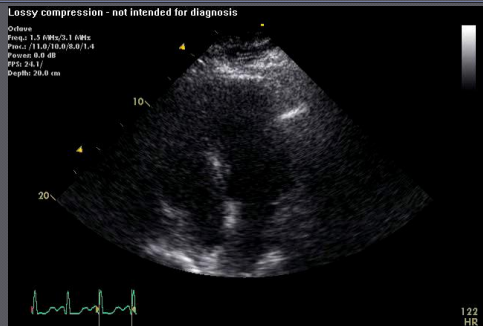
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### Is overall function normal ?



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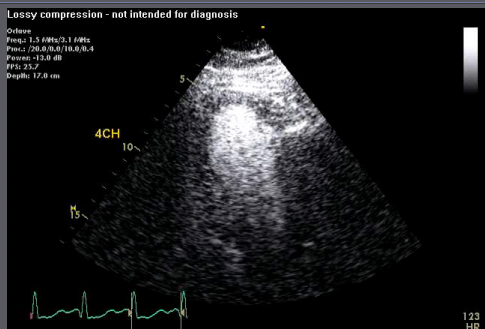
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### Hyperdynamic Wall Motion



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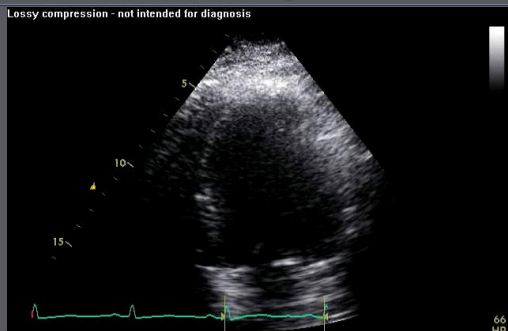
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### Global or segmental? EF?



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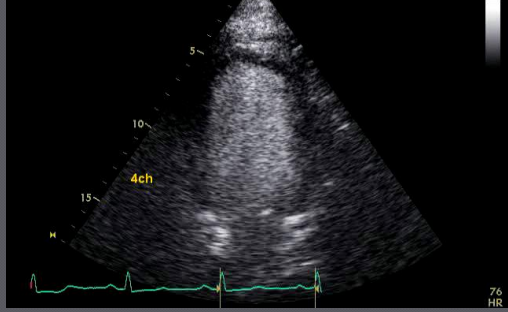
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# Global Hypokinesia; EF 40%

Lossy compression - not intended for diagnosis



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# THANK-YOU!!!!



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