

## DEFINITY CASES WILLIAM BEAUMONT HOSPITAL EXPERIENCE

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Royal Oak, MI  
  
Assistant Clinical Professor - Oakland University / William Beaumont School of Medicine

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## DISCLOSURES

- Speakers Bureau – Lantheus Medical Imaging, Inc.
- Off-label uses of contrast to be discussed

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## CASES

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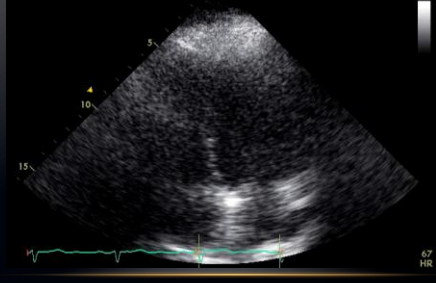
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280 KG MALE WITH DYSPNEA - BASELINE

Lossy compression - not intended for diagnosis



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280 KG MALE WITH DYSPNEA - BASELINE

Lossy compression - not intended for diagnosis



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280 KG MALE WITH DYSPNEA - DEFINITY

Lossy compression - not intended for diagnosis



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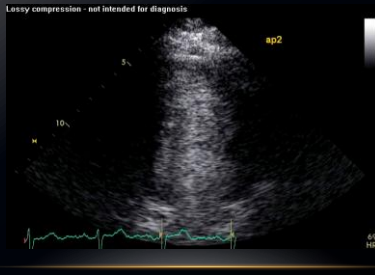
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### 280 KG MALE WITH DYSPNEA - DEFINITY



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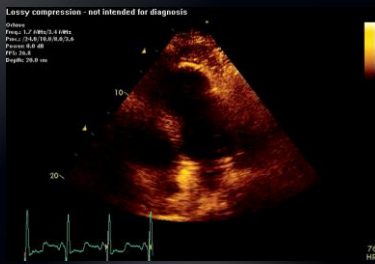
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### 72 YO WITH HX OF NSTEMI AND SEPSIS



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### 72 YO WITH HX OF NSTEMI AND SEPSIS



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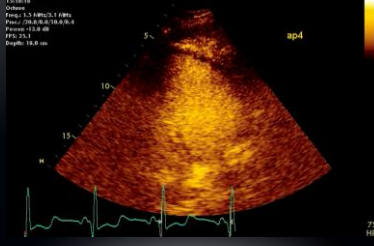
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### 72 YO WITH HX OF NSTEMI AND SEPSIS

Lossy compression - not intended for diagnosis

1518419  
08/26/11  
Patient: 72 Y.O. M  
Exam: 208 08/26/11 08/26/11  
Frame: 1154 08  
FPS: 23.1  
Depth: 19.0 cm



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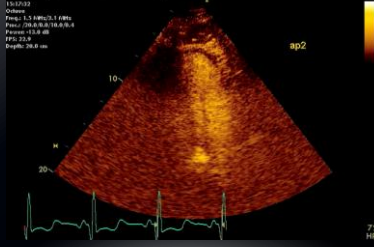
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### 72 YO WITH HX OF NSTEMI AND SEPSIS

Lossy compression - not intended for diagnosis

1518420  
08/26/11  
Patient: 72 Y.O. M  
Exam: 208 08/26/11 08/26/11  
Frame: 1155 08  
FPS: 23.0  
Depth: 19.0 cm



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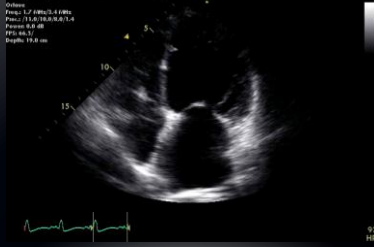
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### 50 YO MALE WITH CHEST PAIN & ELEVATED ENZYMES

Lossy compression - not intended for diagnosis

1518421  
08/26/11  
Patient: 50 Y.O. M  
Exam: 208 08/26/11 08/26/11  
Frame: 1156 08  
FPS: 23.0  
Depth: 19.0 cm



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### 50 YO MALE WITH CHEST PAIN & ELEVATED ENZYMES

Lossy compression - not intended for diagnosis

Volume  
Frame: 1/7 (00:02:14.000)  
Frame: 1/7 (00:02:14.000)  
Frame: 0.00 dB  
FPS: 30.0  
Depth: 13.0 cm



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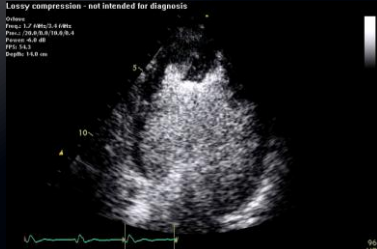
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### 50 YO MALE WITH CHEST PAIN & ELEVATED ENZYMES

Lossy compression - not intended for diagnosis

Volume  
Frame: 1/7 (00:02:14.000)  
Frame: 10/20 (00:02:14.000)  
Frame: 0.00 dB  
FPS: 30.0  
Depth: 13.0 cm



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### 50 YO MALE WITH CHEST PAIN & ELEVATED ENZYMES

Lossy compression - not intended for diagnosis

Volume  
Frame: 1/7 (00:02:14.000)  
Frame: 10/20 (00:02:14.000)  
Frame: 0.00 dB  
FPS: 30.0  
Depth: 13.0 cm



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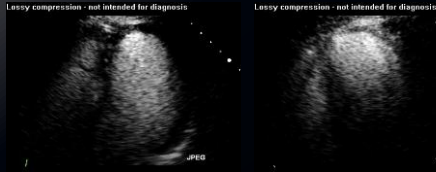
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DOBUTAMINE STRESS ECHO – 47 YO WITH ATYPICAL CHEST PAIN (185 KG)

Apical 4 Chamber



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DOBUTAMINE STRESS ECHO – 47 YO WITH ATYPICAL CHEST PAIN (185 KG)

Apical 2 Chamber



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DOBUTAMINE STRESS ECHO – 47 YO WITH ATYPICAL CHEST PAIN (185 KG)

Parasternal Long Axis



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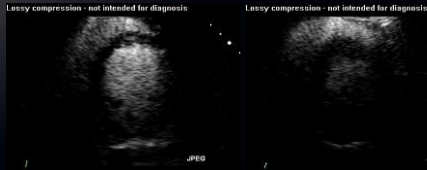
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### DOBUTAMINE STRESS ECHO – 47 YO WITH ATYPICAL CHEST PAIN (185 KG)

Parasternal Short Axis



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### OTHER USES OF ULTRASOUND CONTRAST

- Tricuspid Flow for RV systolic pressure
- Mitral Stenosis
- Aortic Stenosis
- Perfusion Imaging
  - Ischemia
  - Viability

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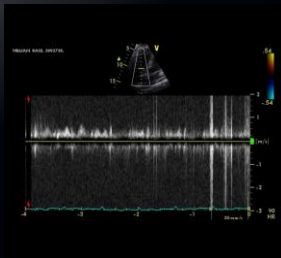
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### TRICUSPID INSUFFICIENCY - BASELINE



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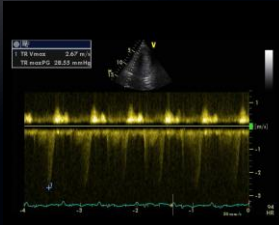
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### TRICUSPID INSUFFICIENCY - DEFINITY



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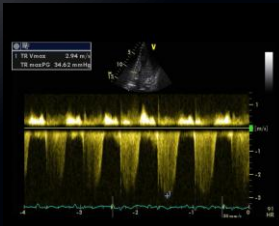
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### TRICUSPID INSUFFICIENCY - 2<sup>ND</sup> BOLUS



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### EXPERIENCE AT WILLIAM BEAUMONT HOSPITAL 2002-2010

- 1006 Bed Hospital
- Interventional Cases with 2D and 3D Echo guidance including
  - TAVI, Mitral Clip
  - Percutaneous closure of ASD, PFO, perivalvular leaks, etc.
- 13,000+ Definity studies 2002-2011
- 4 reported adverse reactions
  - Patient #1 - Chest tightness, low back pain, leg pain, flushing
  - Patient #2 - Lethargy, grey color, diaphoresis, back pain dizziness, flushing
  - Patient #3 - Severe dyspnea
  - Patient #4 - Dyspnea, wheezing
- 2 others
  - #5 - Severe dyspnea
  - #6 - Transient hypotension - responded to fluids

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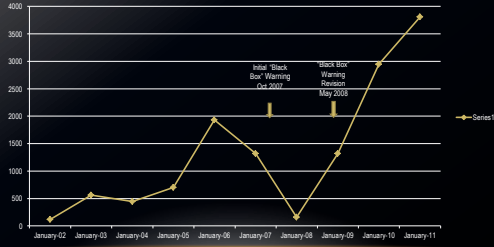
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### ULTRASOUND CONTRAST USE 2002-2010




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### ASE STATEMENT ON CONTRAST

Research has shown that up to 20% of echos exhibit reduced image quality that would benefit from the application of contrast. ASE believes that the application of contrast on resting and stress echo studies can benefit the health care system by reducing the number of repeat tests. The new ICAEL accreditation standards address the use of contrast agents in adult transthoracic and stress echocardiography.

"Use of contrast for suboptimal image quality. Contrast is indicated for use when two contiguous segments are not visualized as it provides greater accuracy in determining left ventricular function."

- A) If contrast is used, there must be a written policy for the use of contrast agents.
- B) If contrast is not able to be used there must be a policy for alternative imaging.
- C) Contrast should be used in the presence of poor endocardial border definition for quantification of chamber dimensions, volumes, ejection fraction and assessment of regional wall motion.
- D) Poor endocardial border definition is defined as the inability to detect two or more contiguous segments in any three of the apical views.
- E) Contrast should also be used to assess conditions such as hypertrophic cardiomyopathy or when left ventricular thrombus is suspected."

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### ASE CONSENSUS STATEMENT

- In difficult to image patients
  - To improve endocardial border definition
  - To reduce variability in LV volume ejection fraction measurements
  - To obtain diagnostic assessment of segmental wall motion at rest and with stress

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### ASE CONSENSUS STATEMENT (CONT'D)

- To confirm or exclude the echocardiographic diagnosis of:
  - Apical variant of hypertrophic cardiomyopathy
  - Ventricular non-compaction
  - Apical Thrombus
- Complications of myocardial infarction including:
  - LV Aneurysm
  - Pseudoaneurysm
  - Myocardial Rupture
- To enhance Doppler signals when a clearly defined spectral profile is not visible

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Thank You

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