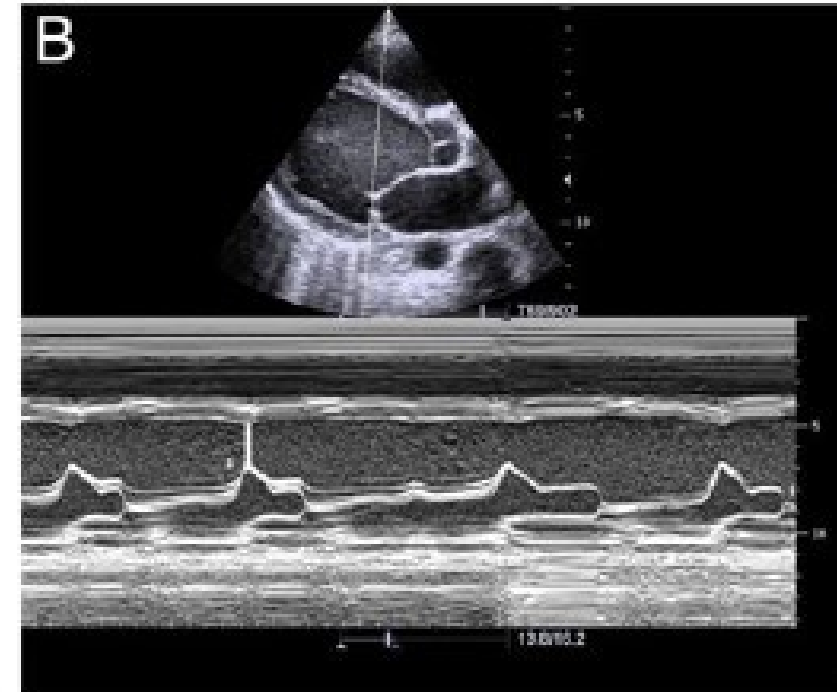
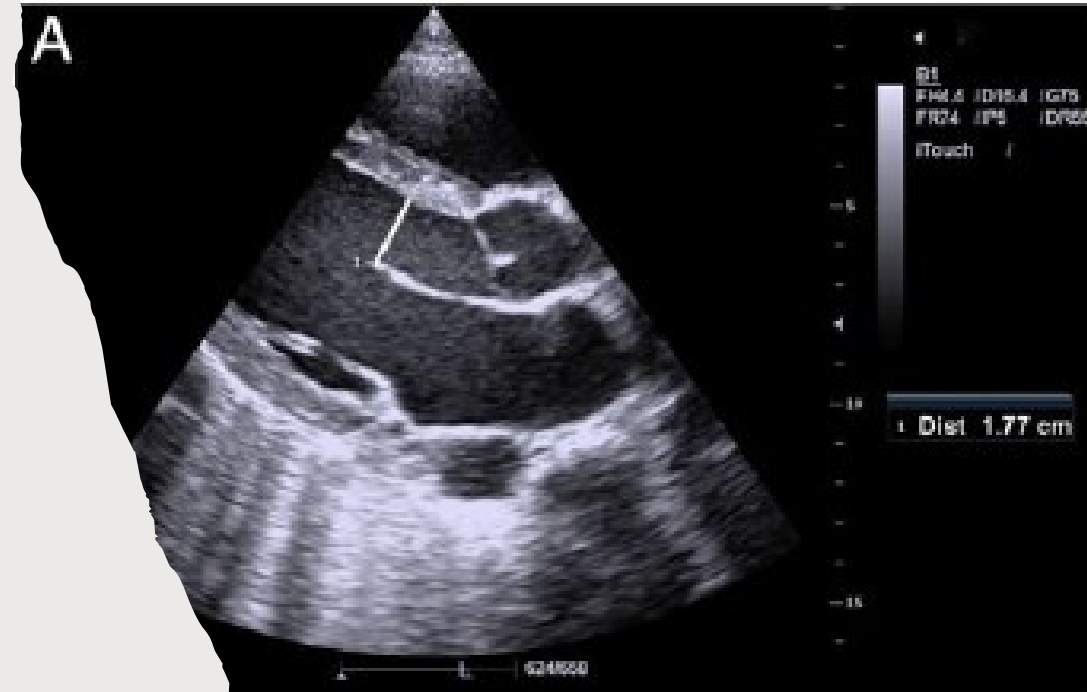


DYSPNEA IN THE PERIPARTUM PERIOD

Erica Warkus, MD, PhD
SAEM Sono Soapbox
May 2023





HR: 109 bpm
BP: 141/79 mmHg
RR: 22 bpm
O₂: 98%
T: 98.6° F

32 YO ♀ - ARRIVED BY EMS

CC: Panic attack - "Can't catch my breath"

PREGNANT – G1P2, 36 weeks, no PMHx

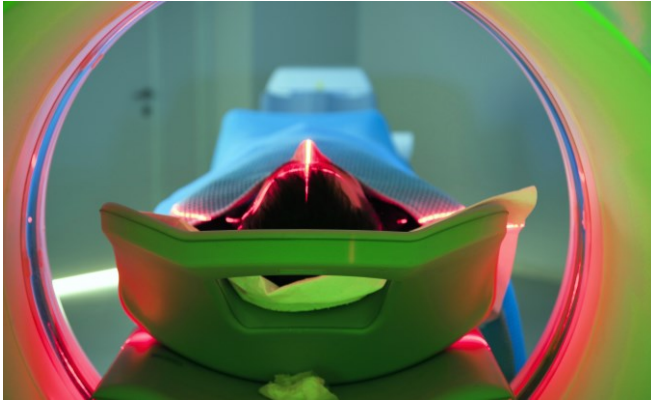
- Dyspnea on exertion
- Lower extremity swelling
- Palpitations & chest pressure
- *"Feeling anxious"*

Sent by OB:

"Fetal HR 134 bpm, no contractions, no fetal distress"

DIFFERENTIAL - THE TOP 3

(NON-INFECTIOUS)



Most Popular

- Pulmonary embolism
- ~0.5 per 1,000^{1, 5}

~0.05%

of pregnancies



Most Common

- Preeclampsia/HDP
- ~23 - 45 per 1,000²

~3.0%

of pregnancies



Most Deadly

- Peripartum Cardiomyopathy
- ~1 per 500 - 1,000^{3, 4}

~0.15%

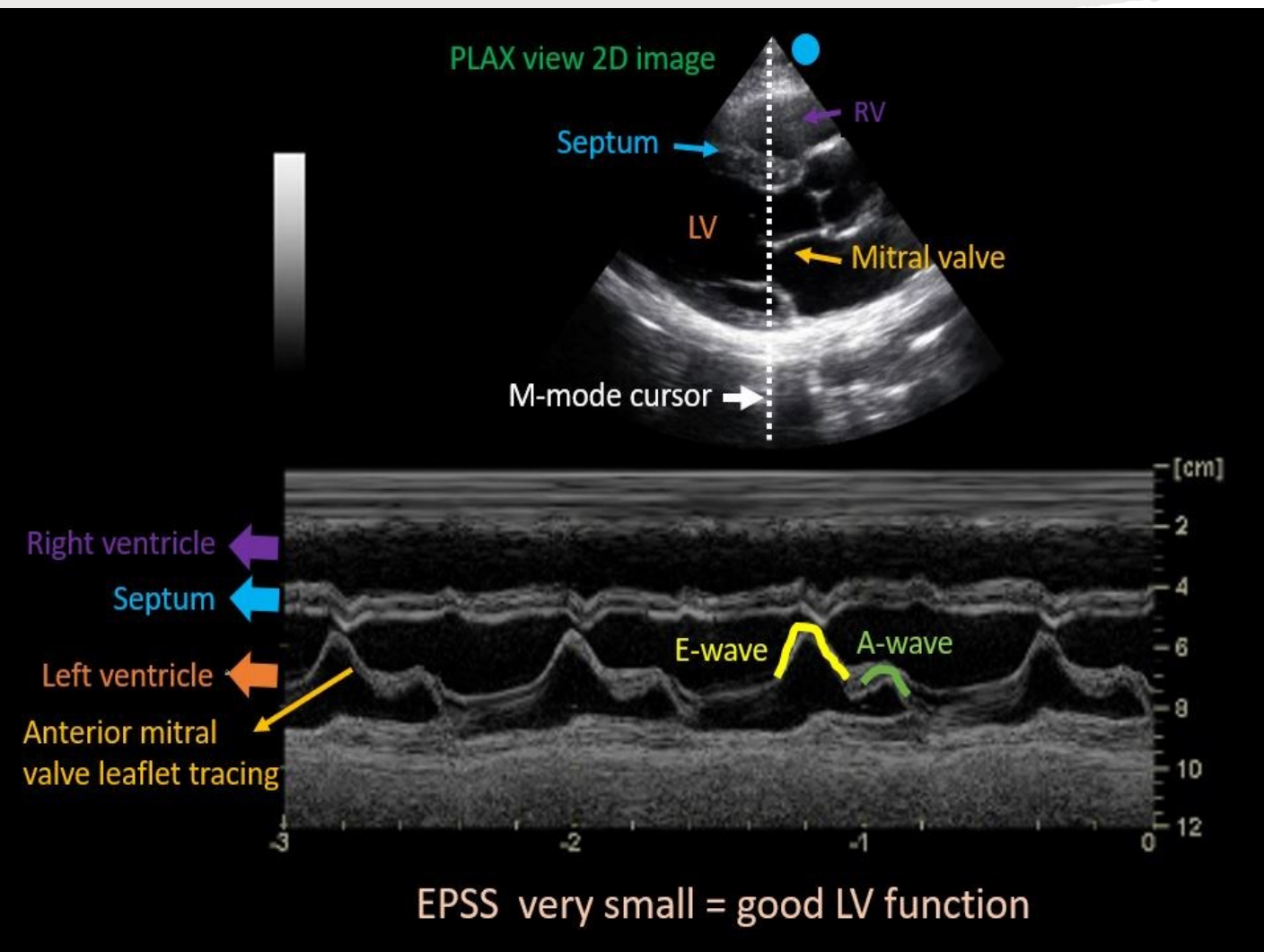
of pregnancies

MOST DEADLY?

WHAT DO YOU DO?

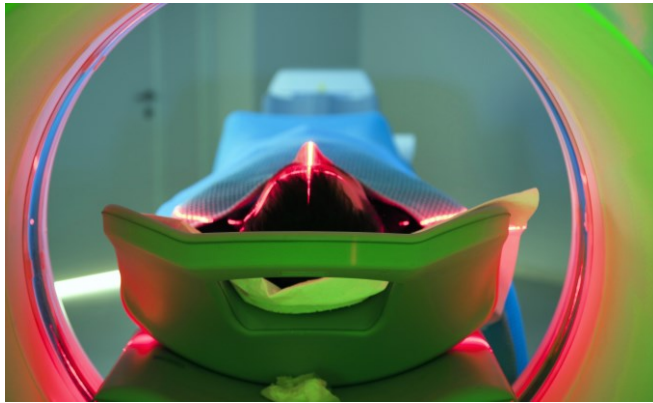
PREGNANT PEOPLE ARE SCARY

HR: 109 bpm
BP: 141/79 mmHg
RR: 22 bpm
O₂: 98%
T: 98.6° F



MEASUREMENT	Δ PREGNANCY ^{6, 7, 29}	
LV mass, mm	↑	+20%
HR	↑	+15-20 bpm
RR	↑	+2-5 bpm
SV & CO	↑	+30-50%
TVR	∅ / ↑	
EF%	∅	
BP	↓	- 10 mmHg

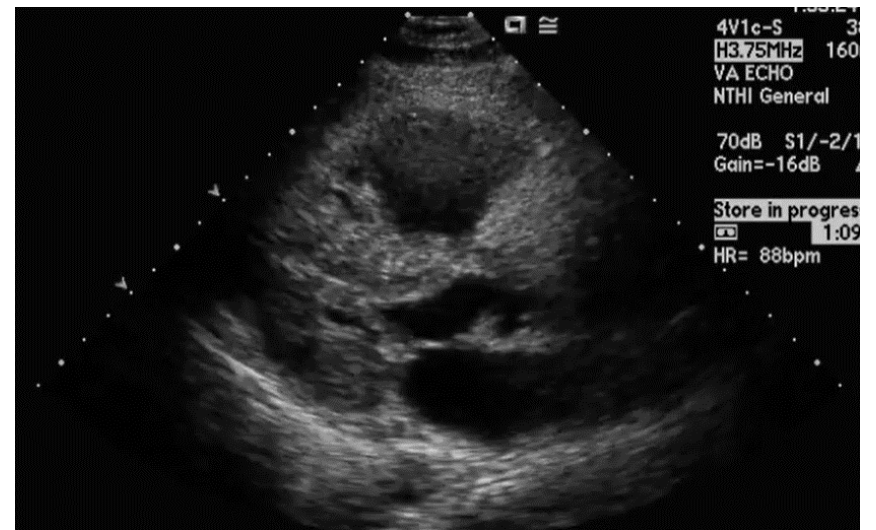
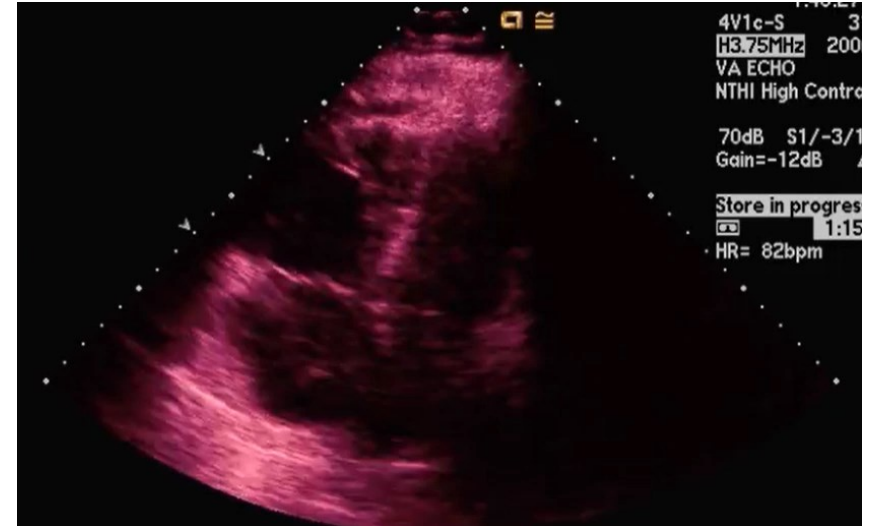
KEY POCUS FINDINGS



Pulmonary Embolism

MCCONNELL'S SIGN ^{9,10}

- Paradoxical motion of the interventricular septum
- $\pm$ Plethoric IVC or (+) DVT U/S ²⁶



KEY POCUS FINDINGS

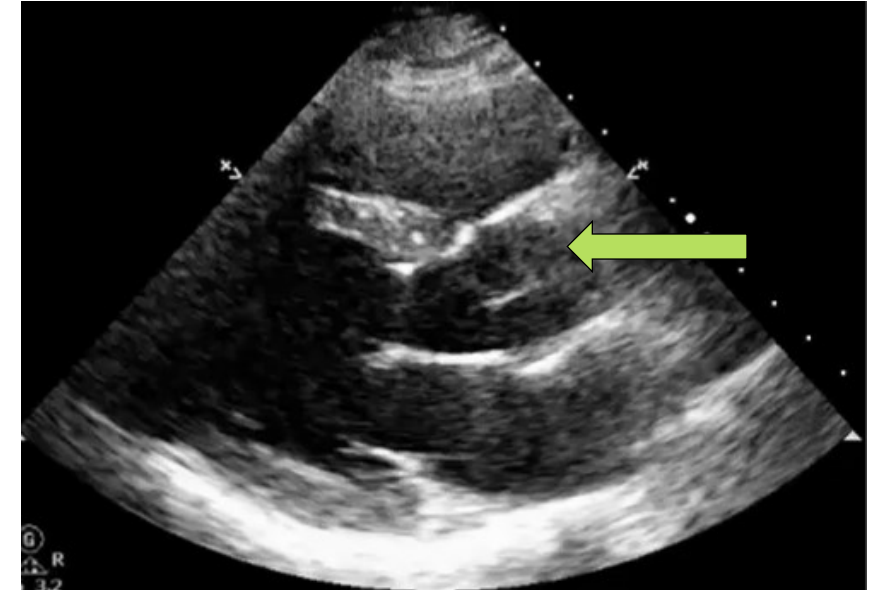
Normal EF₂₈



Preeclampsia /
Eclampsia

DIASTOLIC DYSFUNCTION (EF $\geq$ 65%)*, ¹³ $\pm$ Thickened IV septum & LV wall

- SBP > 140, Prot:Cr > 0.3



KEY POCUS FINDINGS

Normal EF₂₈



Systolic Dysfunction₂₇

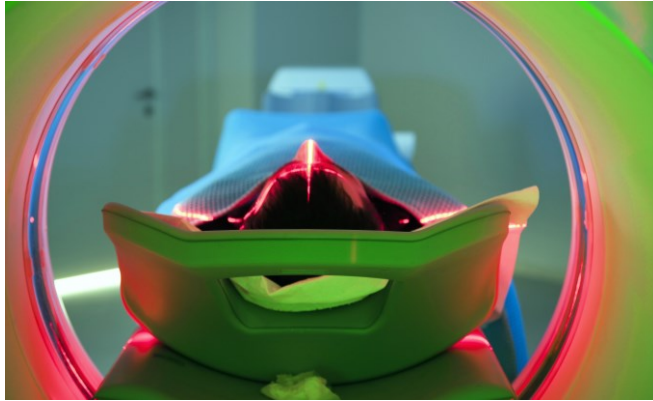


Peripartum Cardiomyopathy

SYSTOLIC DYSFUNCTION (EF < 45%)¹⁵

- ± pulmonary edema **(B Lines)**¹⁶
- Exam: CHF (edema, crackles, S3)¹⁷

KEY POCUS FINDINGS



Pulmonary Embolism

MCCONNELL'S SIGN ^{9, 10}

- Paradoxical motion of the interventricular septum
- $\pm$ Plethoric IVC or (+) DVT U/S ²⁶



Preeclampsia / Eclampsia

DIASTOLIC DYSFUNCTION (EF $\geq$ 65%)*, ¹³ $\pm$ Thickened IV septum & LV wall

- SBP > 140, Prot:Cr > 0.3



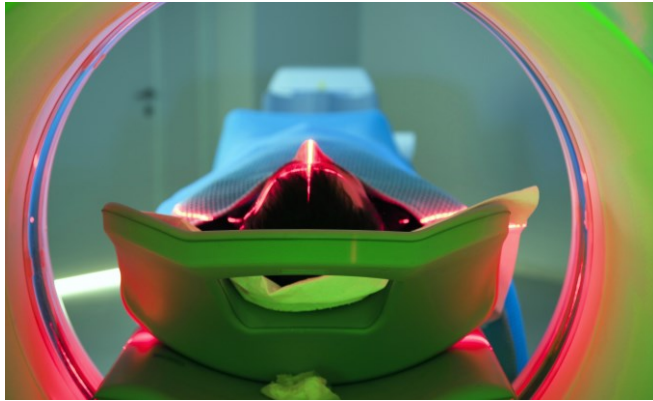
Peripartum Cardiomyopathy

SYSTOLIC DYSFUNCTION (EF < 45%) ¹⁵

- $\pm$ pulmonary edema **(B Lines)** ¹⁶
- Exam: CHF (edema, crackles, S3) ¹⁷

SILVER BULLET

(USE WITH POCUS TO RULE OUT WITH HIGH CERTAINTY)



Pulmonary Embolism

MCCONNELL'S SIGN ^{9, 10}

- Paradoxical motion of the interventricular septum
- ± Plethoric IVC or (+) DVT U/S ²⁶
- Rule out: **D-Dimer** ^{11, 12}



Preeclampsia / Eclampsia

DIASTOLIC DYSFUNCTION (EF ≥ 65%)*, ¹³ ± Thickened IV septum & LV wall

- SBP > 140, Prot:Cr > 0.3
- Rule out: **UA Protein-Cr ratio < 0.3** ¹⁴



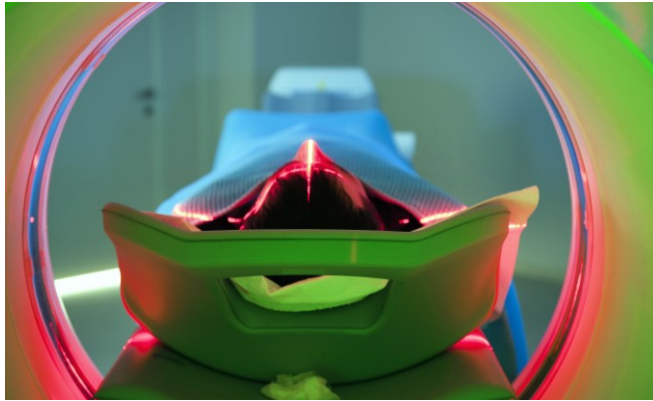
Peripartum Cardiomyopathy

SYSTOLIC DYSFUNCTION (EF < 45%) ¹⁵

- ± pulmonary edema **(B Lines)** ¹⁶
- Exam: CHF (edema, crackles, S3) ¹⁷
- Rule out: **NT-ProBNP < 300 ng/dL** ¹⁸

GOLDEN TICKET

(SEVERE DISEASE & GUARANTEED ADMISSION)



Pulmonary Embolism

MCCONNELL'S SIGN^{9, 10}

- Paradoxical motion of the interventricular septum
- ± Plethoric IVC or (+) DVT U/S²⁶
- Rule out: **D-Dimer**^{11, 12}
- Severe: ↑ troponin, ↓ O₂, **NT-proBNP >450 ng/dL**

22, 23, 26,



Preeclampsia / Eclampsia

DIASTOLIC DYSFUNCTION (EF ≥ 65%)*, ¹³ ± Thickened IV septum & LV wall⁸

- SBP > 140, Prot:Cr > 0.3
- Rule out: **UA Protein-Cr ratio < 0.3**¹⁴
- Severe: ↑ LFTs, AMS, **NT-proBNP >450 ng/dL**

20, 21, 28



Peripartum Cardiomyopathy

SYSTOLIC DYSFUNCTION (EF < 45%)¹⁵

- ± pulmonary edema (**B Lines**)¹⁶
- Exam: CHF (edema, crackles, S3)¹⁷
- Rule out: **NT-ProBNP <300 ng/dL**¹⁸
- Severe: pulmonary edema, ↓ O₂, arrhythmia, ↑ troponin, ↑ Cr, ↑ LFTs, **NT-proBNP >450 ng/dL**¹⁹

23, 24, 25, 27



SUMMARY

POCUS + Labs =

Efficient, high-quality patient care. Save time, improve patient flow and avoid unnecessary radiation/diagnostics.

SILVER BULLET

Negative Dimer, Prot:Cr or NT-proBNP can rule out PE/DVT, Preeclampsia and Peripartum Cardiomyopathy, respectively, with nearly 100% sensitivity.

GOLDEN TICKET (to admission)

Don't miss these signs of severe or life-threatening disease.

SLIDES, REFs & RESOURCES:

Can be found at: tinyurl.com/SAEM-SonoSoapbox or by scanning the QR code →



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• * It is beyond the scope of POCUS ultrasound to quantitatively evaluate diastolic dysfunction.



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