



Evolving And Expanding Role of Pedal Artery Imaging

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Disclosures

- BD
- Siemens
- Aveera Medical
- Moonrise Medical

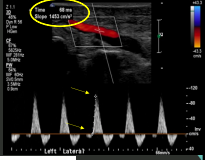


Need Better Non-Invasive Testing for Complex Patients






PAT

Pedal Acceleration Time



	No Ischemia Class 1	Mild Ischemia Class 2	Moderate Ischemia Class 3	Severe Ischemia Class 4
Clinical Symptoms	Asymptomatic	Greater than 2 block claudication	Less than 2 block claudication	CLTI (Tissue loss, rest pain)
PAT	20-120ms	121-180ms	181-224ms	Greater than 225ms
ABI	1.3 - 0.90	0.89 - 0.69	0.68 - 0.50	0.49 - 0.00


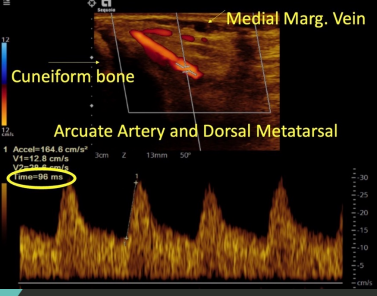

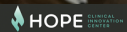
Sommerset et al. AVS 2019

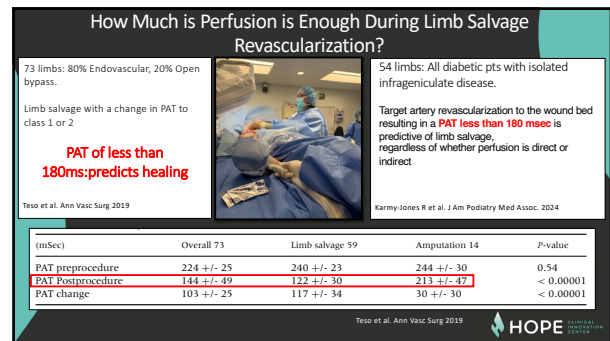
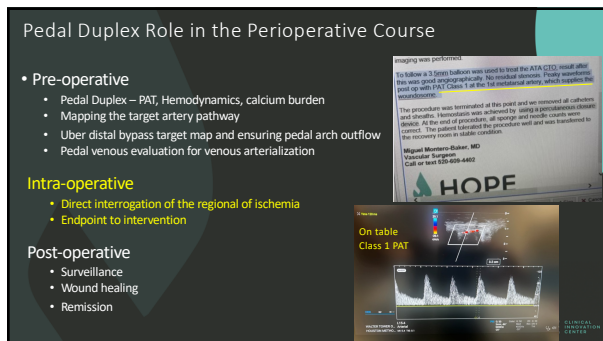
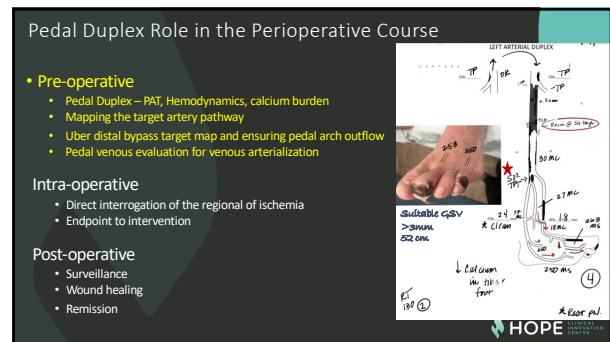
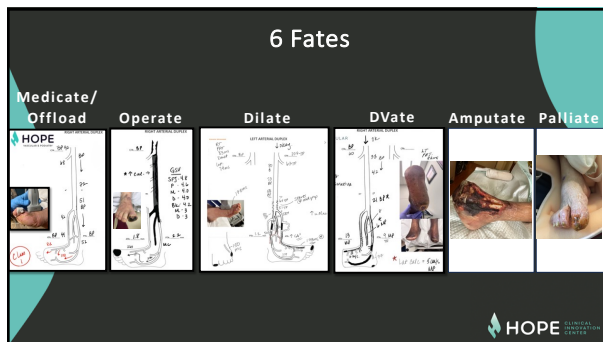
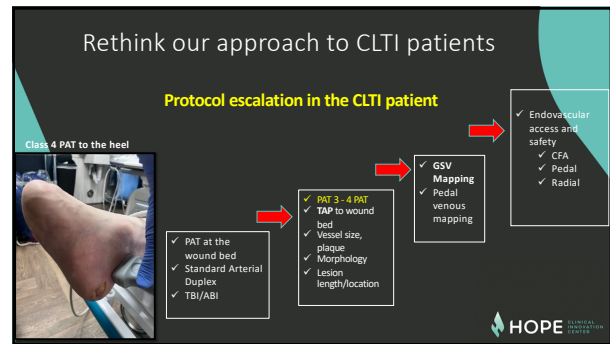
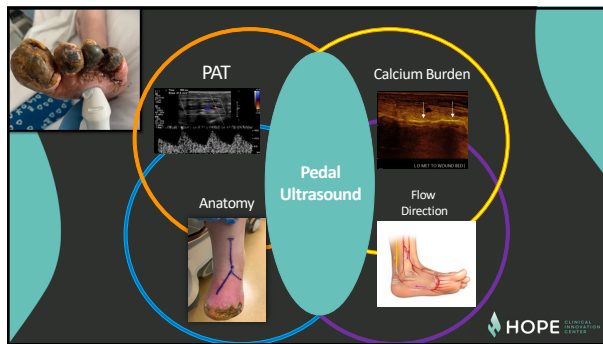



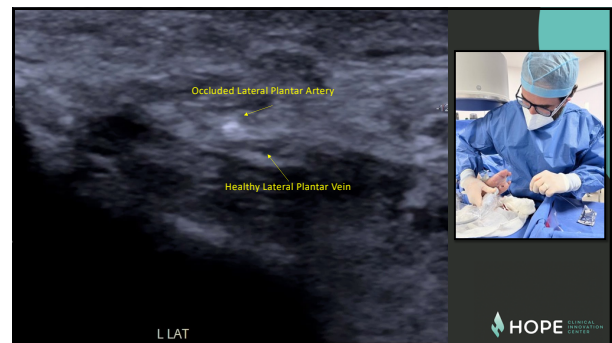
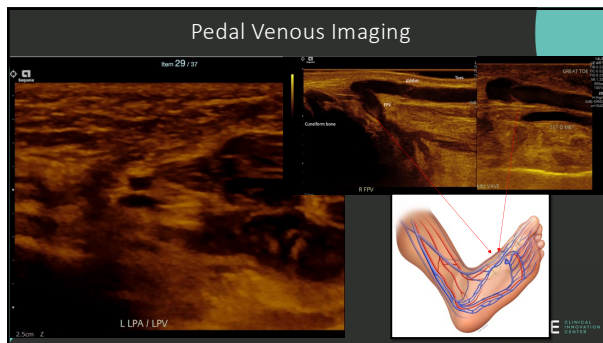
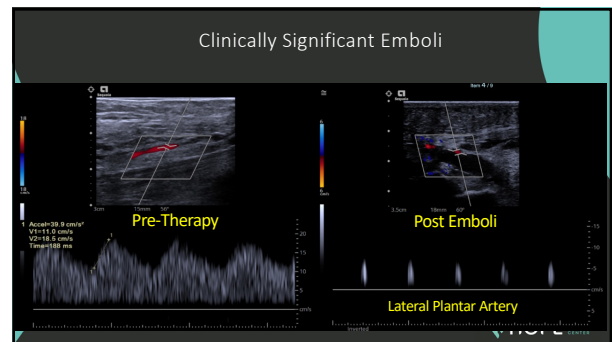
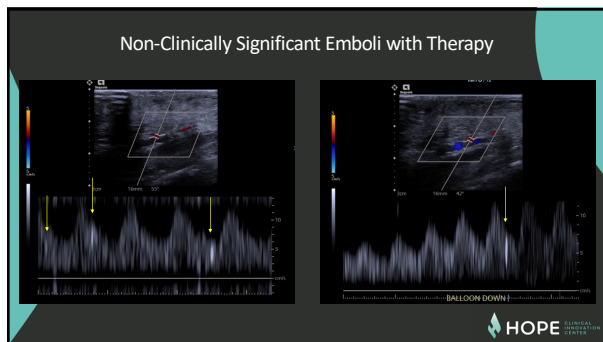
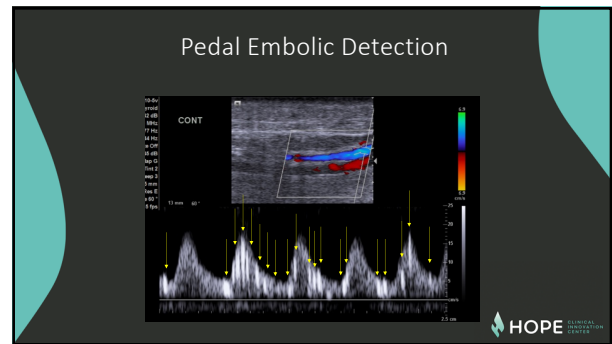
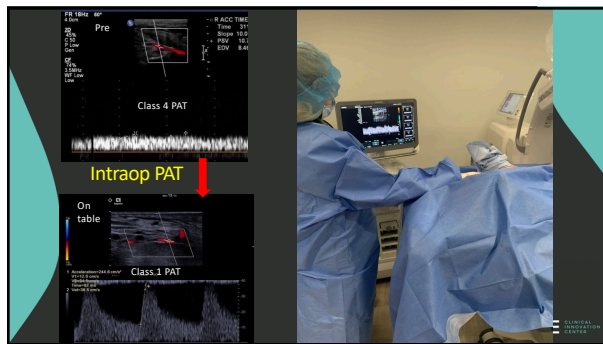
Correlation of PAT with Degrees of Ischemia

	No ischemia Class 1	Mild Ischemia Class 2	Moderate to severe Ischemia Class 3	Severe Ischemia Class 4
Clinical symptoms	Asymptomatic	Greater than 2 block claudication	Greater than 2 block claudication	CLTI Tissue Loss; Rest Pain
PAT	20 - 120 ms	121 - 180 ms	181 - 1224 ms	Greater than 224 ms
ABI	1.3 - 0.9	0.89 - 0.69	0.68 - 0.50	0.49 - 0.00
Toe Pressure	> 30 mmHg			< 30 mmHg
TCP02	> 44			< 26

Sommerset J et al. AVS 2019
Petro A et al. AVS 2024
Trihan et al. Front Cardiovasc Med 2022;doi:10.3389





Think like a vascular surgeon/ interventionalist....
Provide pre-operative details to plan for intervention.

Post Operative DVA

- Inflow
- Anastomosis
- Proximal conduit
- Distal conduit
- Lateral plantar vein
- Medial Marginal Vein
- Outflow - GSV

New Pedal Ultrasound Flow Test

Maturation and Conversion

Document arterIALIZED pedal venous flow outside the conduit with ultrasound.

MATURATION

DVA is **open** with clear signs arterIALIZED outside the LPV

DUS Evaluation for MATURATION – DVA OPEN

CONVERSION

DVA is **closed** with clear signs arterialized outside the LPV

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Conversion → Wound Healing

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New Area of Interest:

Spine Stimulation in CLTI Patients

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- 82-year-old male
- Non-smoker
- Diabetic


Lives at the Oregon Coast Cattle rancher

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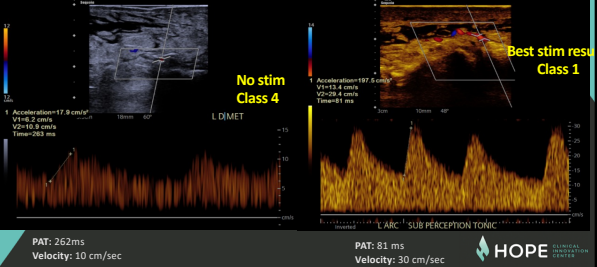
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- Declined DVA
- Opted for spinal cord stimulator for pain control



Real Time Comparison with Stimulation off and on (LEFT)

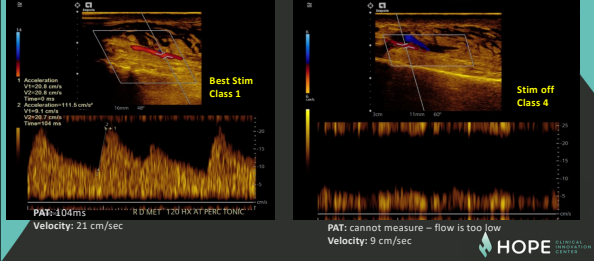


PAT: 262ms
Velocity: 10 cm/sec

PAT: 81ms
Velocity: 30 cm/sec

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Real Time Comparison with Stimulation on and off (RIGHT)



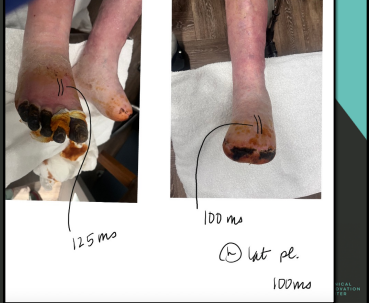
PAT: 104ms
Velocity: 21 cm/sec

PAT: cannot measure – flow is too low
Velocity: 9 cm/sec

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Follow up

Flow is optimized
Class 1 PAT bilaterally



125ms


100ms

let pl.

100ms

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Conversion – Major amputations avoided

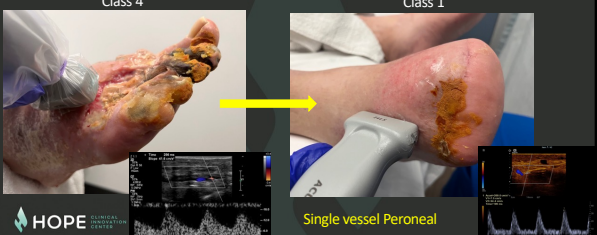


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Opportunity to improve diagnostic test accuracy for CLTI patients.

Class 4

Class 1



Single vessel Peroneal

HOPE

