

Point of Care Ultrasound: an Introduction

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Goal/Objectives

- ▶ Goal:
 - ▶ Provide enough introduction to ultrasound that allows meaningful participation in hands-on practice sessions
- ▶ Objectives:
 - ▶ Identify different types of ultrasound probes
 - ▶ Describe basic movements of an ultrasound probe their effect on the image you obtain
 - ▶ Review methods to optimize your images for interpretation

POCUS vs "Gold Standards" for AAA

Stats:	POCUS
Sensitivity	99
Specificity	99
LR+	99
LR-	.01

Rubano et al. Systematic review: emergency department bedside ultrasonography for diagnosing suspected abdominal aortic aneurysm. Academic Emergency Medicine. 2013. 20(2): 128-133

Full-thickness Cuff Tears

Modality	Sensitivity	Specificity
MR	94	93
MR-Arthrogram	94	92
Ultrasound	92	93

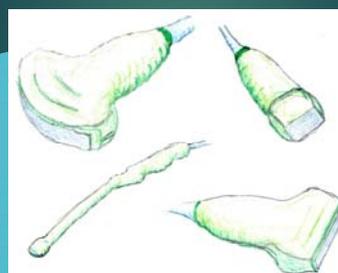
Modality	Cost (2016)
MR	\$3299.69
MR-Arthrogram	\$4556.72
US extremity	\$607.65

Bureau, NU and D Ziegler. Economics of Musculoskeletal Ultrasound. Current Radiology Reports. 2016 4(44): 1-7.

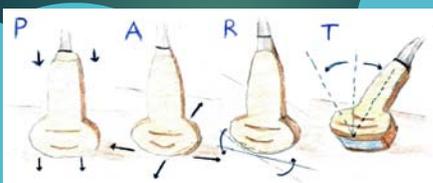
What is Ultrasound?

- ▶ Sound energy transmitted by probe, through a coupler (gel) into body, reflected back and transduced into an image
- ▶ The density and character of the tissue it bounces off of or transmits through provides data for the brightness
- ▶ The time it takes for sound waves to return provides data for the distance

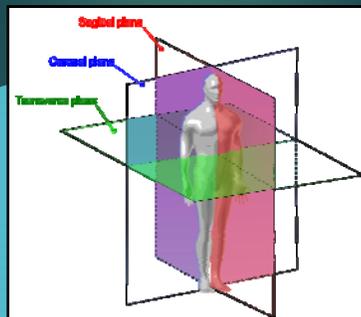
Ultrasound Probes



Probe Movements: PART



Ultrasound Scanning Planes



US Scanning in General

- ▶ Comfort
- ▶ Screen placement
- ▶ Exposure
- ▶ Anchoring the probe
- ▶ Probe conventions

50+ Shades of Gray

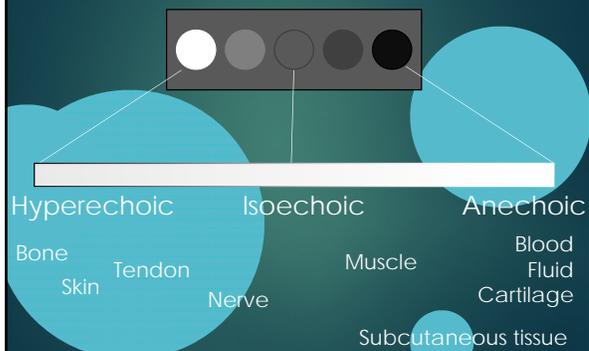


Image Adjustment: Gain

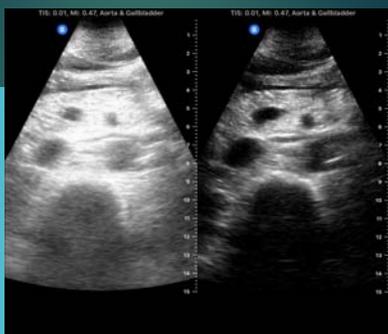
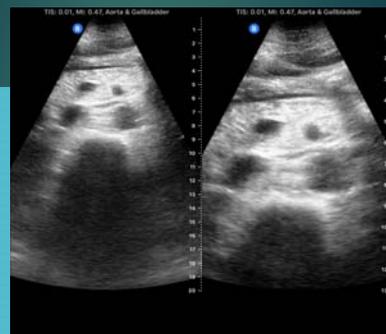


Image Adjustment: Depth



Adjusting your image

► Focus

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Sources

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- Bureau, NJ and D Ziegler. Economics of Musculoskeletal Ultrasound. *Current Radiology Reports*. 2016. 4(4): 1-7.
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<http://dx.doi.org/10.1186/1471-2475-12-119>
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