



Sonography and Podiatry

Getting Started

By: Brendan Goode – April 2021



Topics to be covered

- Growth of sonography in podiatry
- Sound and the body
- Sourcing equipment and what to look for
- Service costs and consumables
- Scan preparation

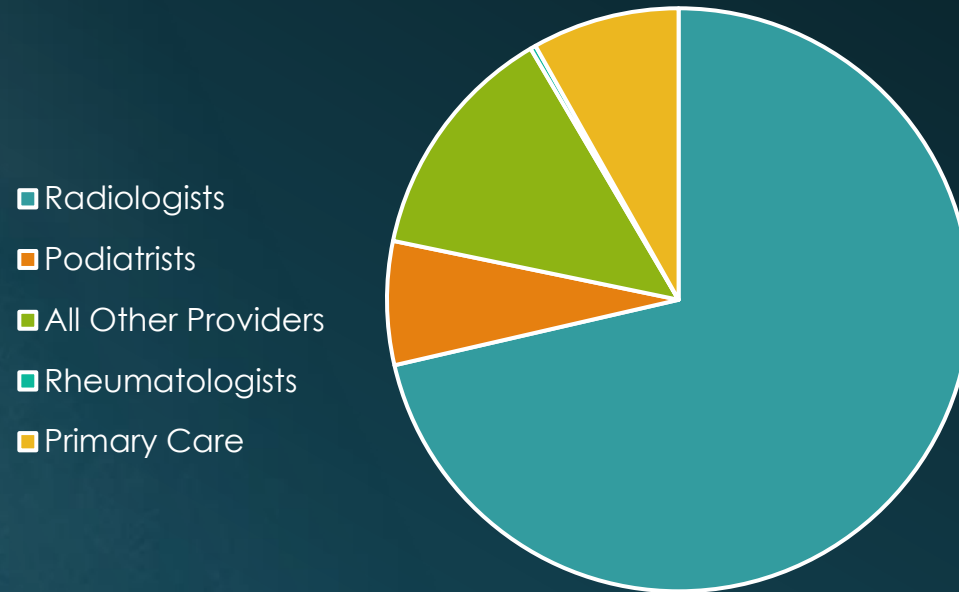
Use of sonography in podiatry

2012 North American study.

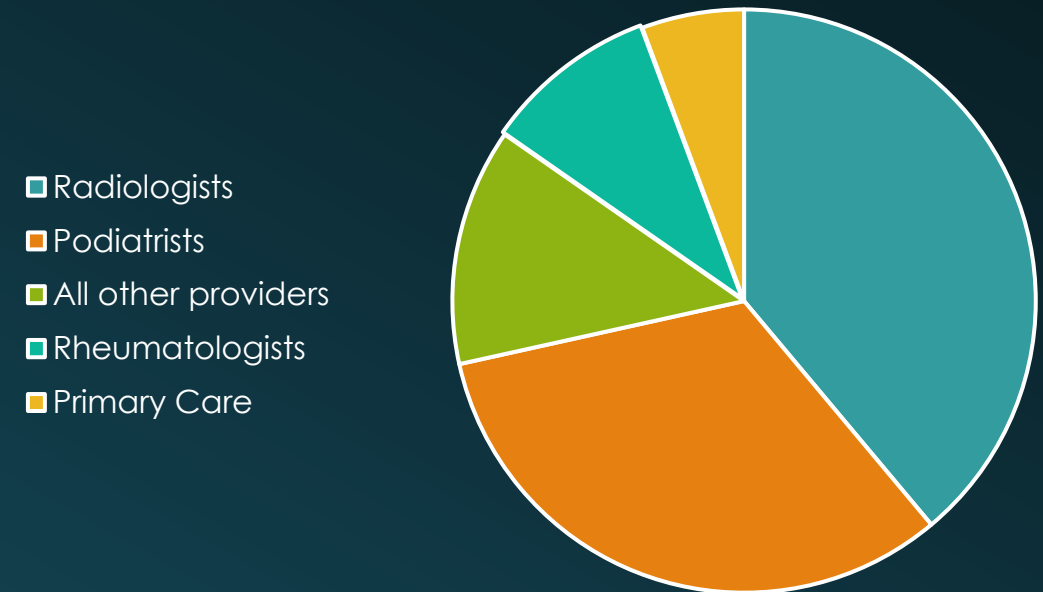
- In 2000 there was a total of **56,254** billed non-vascular, non-interventional MSK ultrasound examinations performed in North America.
- In 2009 there was a total of **233,964** billed non-vascular, non-interventional MSK ultrasound performed in North America. A growth of **316%**.
- Radiologist billing increased by **123%** between 2000 and 2009.
- Highest rate of increase, in surveyed cohorts, was in private podiatry practice with an increase of **18,472%** between 2000 and 2009.

Sharpe RE, Nazarian LN, Parker L, Rao VM, Levin DC. Dramatically increased musculoskeletal ultrasound utilization from 2000 to 2009, especially by podiatrists in private offices. J Am Coll Radiol. 2012 Feb;9(2):141-6. doi: 10.1016/j.jacr.2011.09.008. PMID: 22305701

Billed Musculoskeletal Ultrasound (MSK) Ultrasounds 2000



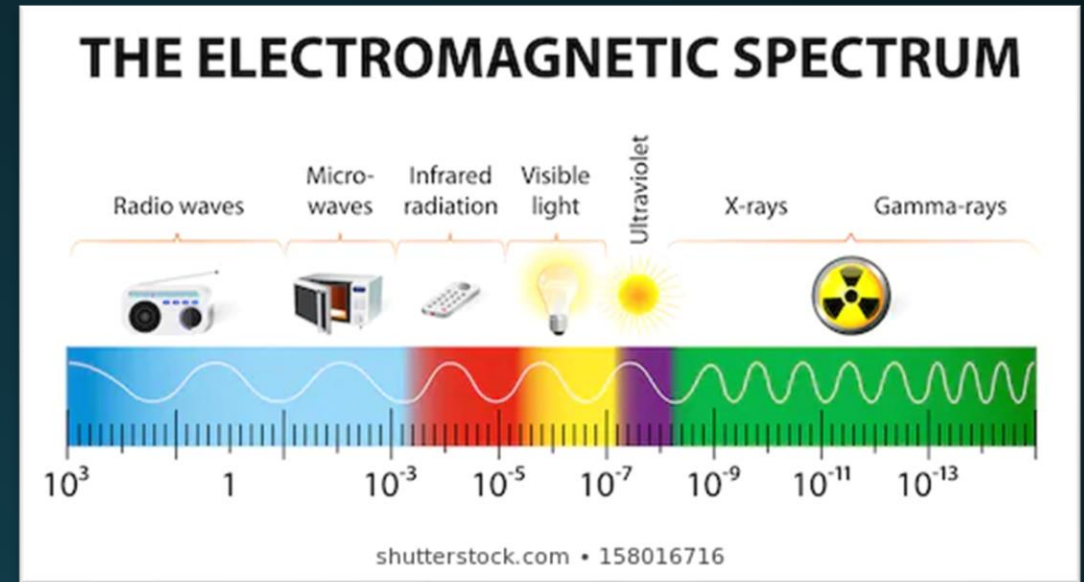
Billed MSK Ultrasound 2009



Sharpe RE, Nazarian LN, Parker L, Rao VM, Levin DC. Dramatically increased musculoskeletal ultrasound utilization from 2000 to 2009, especially by podiatrists in private offices. J Am Coll Radiol. 2012 Feb;9(2):141-6. doi: 10.1016/j.jacr.2011.09.008. PMID: 22305701

Sound and the body

- Sound is not part of the electromagnetic spectrum
- Sound does interact with tissue thermally and mechanically
- Other factors.



- 
- Thermal effects of sound
 - Mechanical effects of sound

Non thermal effects relate to regions of *low* and *high* pressure as the sound wave passes through tissue potentially resulting in cell cavitation.

The likelihood of inducing cell cavitation is indicated on the ultrasound machine by the mechanical index (MI) and should be kept **below 1.9**.

First law of thermodynamics broadly states that *energy cannot be created or destroyed but may be transformed from one form to another.*

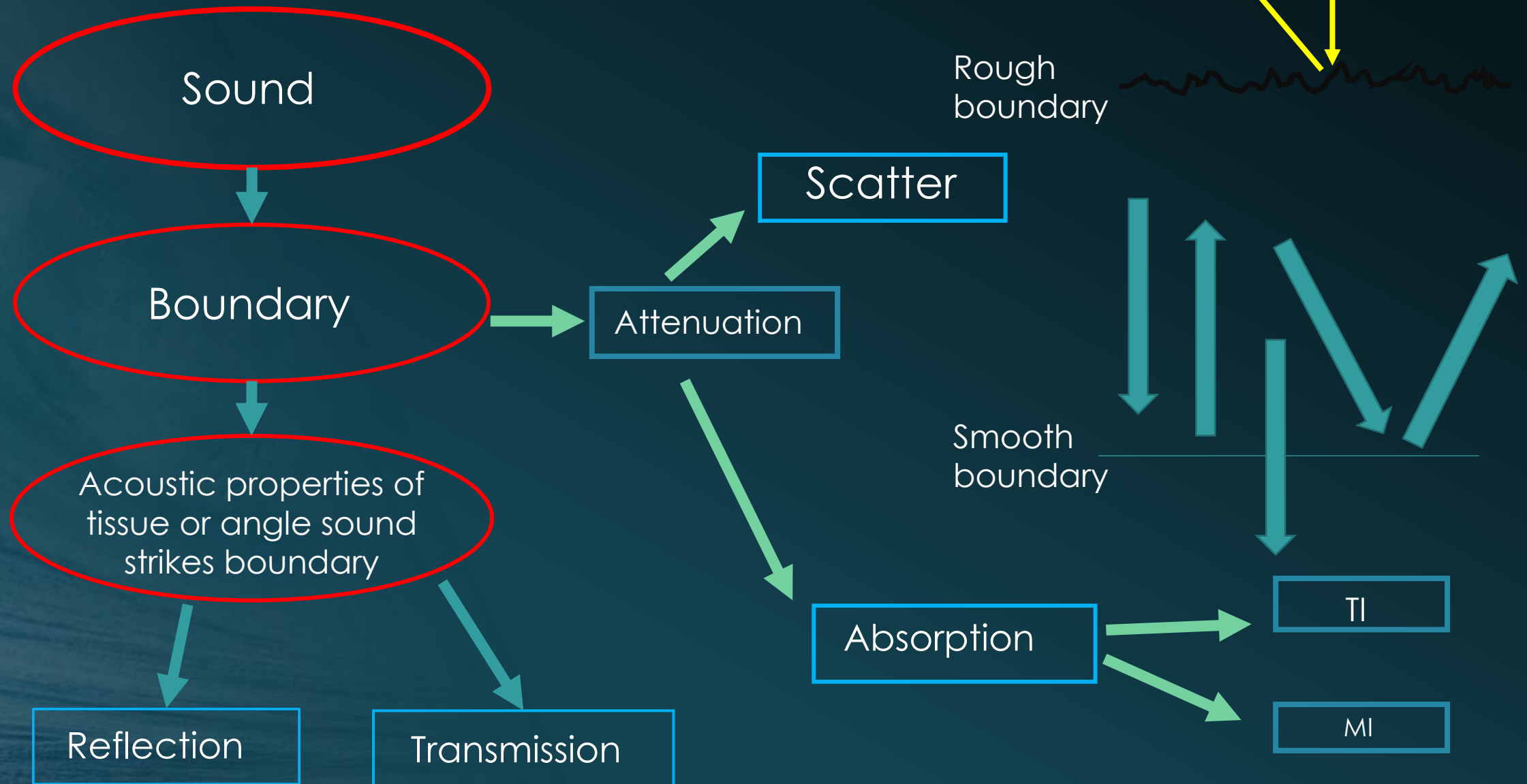
In sonography some of the energy attenuated by tissue is converted to heat.

The power produced by the ultrasound machine to raise tissue within the beam by 1°C is indicated on the ultrasound machine by the Thermal index (TI) and should be kept **below 1.0**.

Hariharan Shankar, Paul S. Pagel, David S. Warner; Potential Adverse Ultrasound-related Biological Effects: **A Critical Review**. *Anesthesiology* 2011; 115:1109–1124 doi: <https://doi.org/10.1097/ALN.0b013e31822fd1f1>

Bushberg J. T. (2002). The essential physics of medical imaging. Philadelphia: Lippincott Williams & Wilkins

Other factors



Sourcing equipment and what to look for

- Ebay
- Facebook marketplace
- Equipment manufactures
- Radiology departments
- Amazon

All Listings Auction Buy It Now Sort: Best Match View: [Grid]

1-48 of 564 results



Siemens Acuson Sequoia C512 Ultrasound Machine works well

AU \$3,500.00
AU \$30.00 postage or Best Offer
42 watching



Philips iE33 Ultrasound Machine

AU \$6,000.00



Portable ultrasound machine

AU \$7,800.00
AU \$13.80 postage or Best Offer
21 watching



3.5Mhz Convex Probe

SPECIAL OFFER
For You

VET Animal Veterinary Ultrasound Scanner Laptop System Convex for sheep a...

AU \$1,401.32
Free postage or Best Offer
Only 2 left

- Age
- Condition of unit including all cables
- Warranty
- Ultrasound probes



Service costs and consumables



Australian Medical Systems
Ultrasound & X-Ray Solutions
Tel: 1800 200 677



ORGANISE TO COLLECT MY PROBE



Monday to Friday - 8:30am - 5:00pm

 1300 611 503

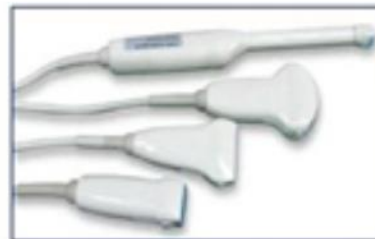
 +61 8 6114 5406



Medictronix

Electronic Solutions for the Medical Profession

[HOME](#) [ABOUT US](#) [MEDICAL IMAGING EQUIPMENT](#) [SERVICES](#) [SURPLUS EQUIPMENT](#) [CONTACT US](#)



May be more cost effective to purchase more than one of the same machine.

- Standard 10 amp plug and no radiation protection
- Nice to have a dimly lit room (dimmer switch)
- Chair
- Table
- Equipment cleaning
- Sonographic gel
- Removing gel from patient





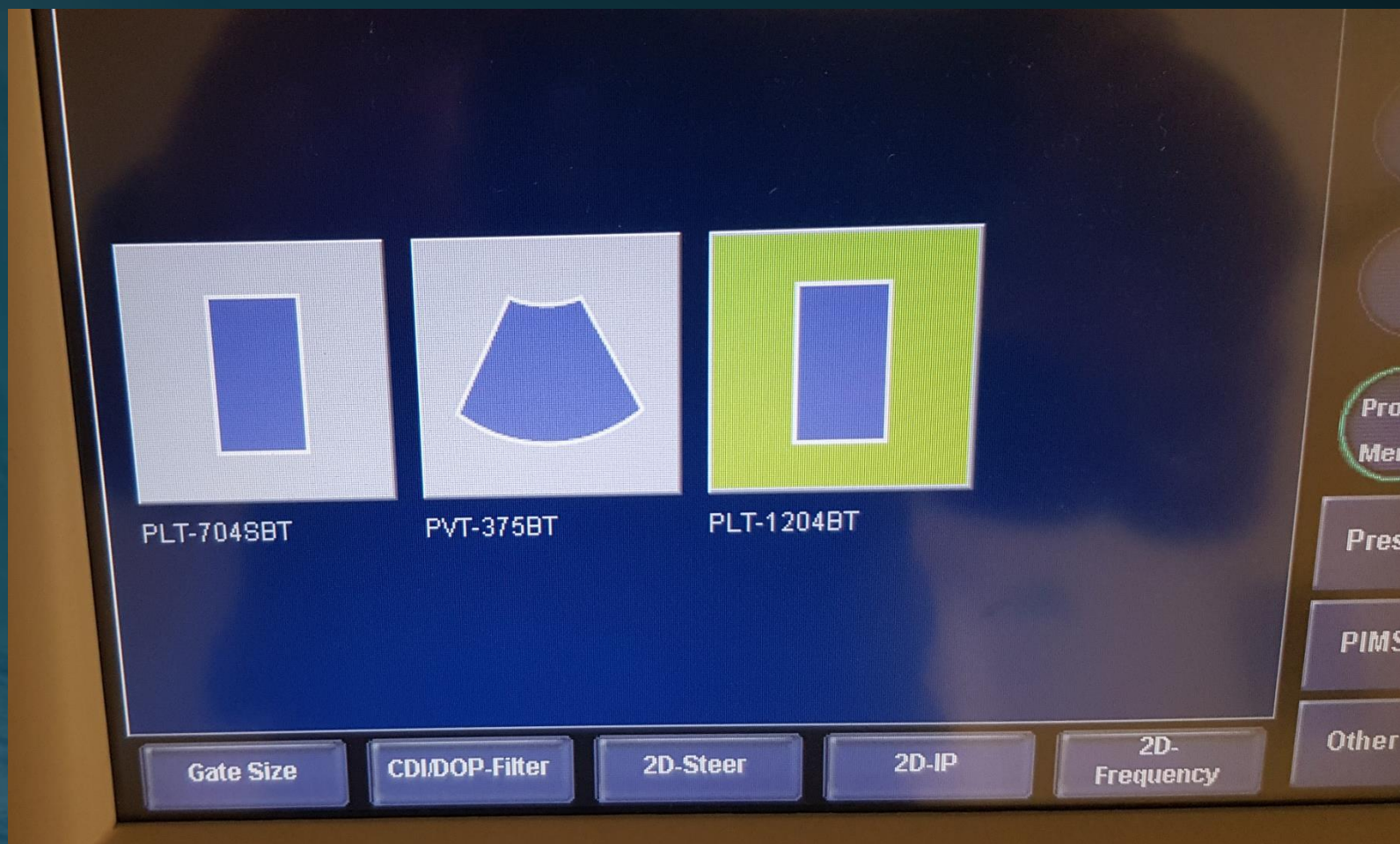
Scan preparation

- Patient
- Probe
- Preset
- Depth
- Focus
- Gain

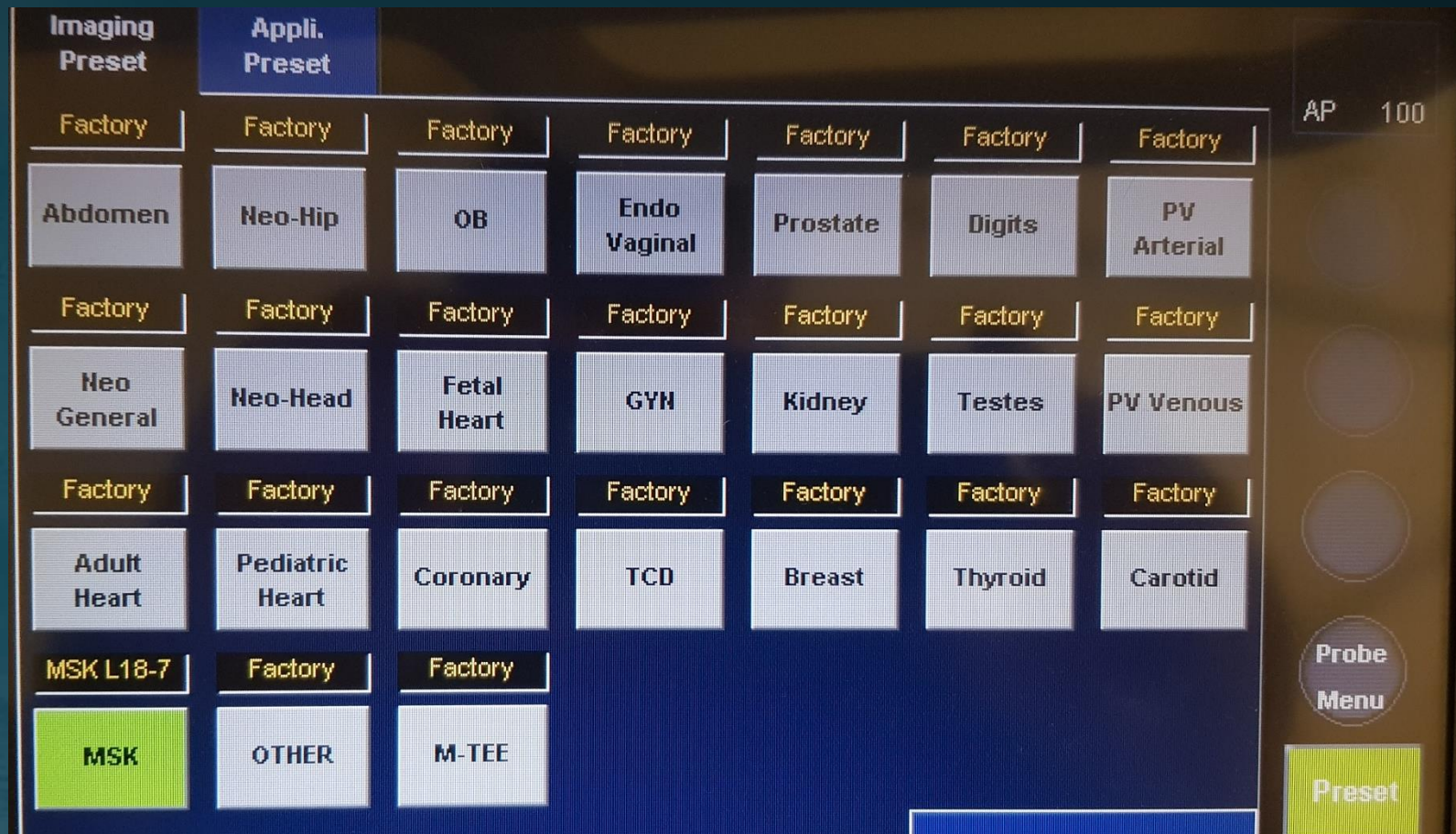
Patient

Patient Information		Study Information	
ID		Exam Type	MSK
Last name		Additional Info	
First name		Accession No.	
	MI	Operator	
Date of Birth (dd/MM/yyyy)	/ /	Physician	
	years	Ref. Physician	REFPHYSICIAN
Sex	☐ Male ☐ Female ☒ Unknown	Department	DEPARTMENT
Height	cm	☐ In Patient ☐ Out Patient	
Weight	kg		
BSA	OCCIDENTAL		
	m2		
Insurance			
Comment			
		Detail	Clear All

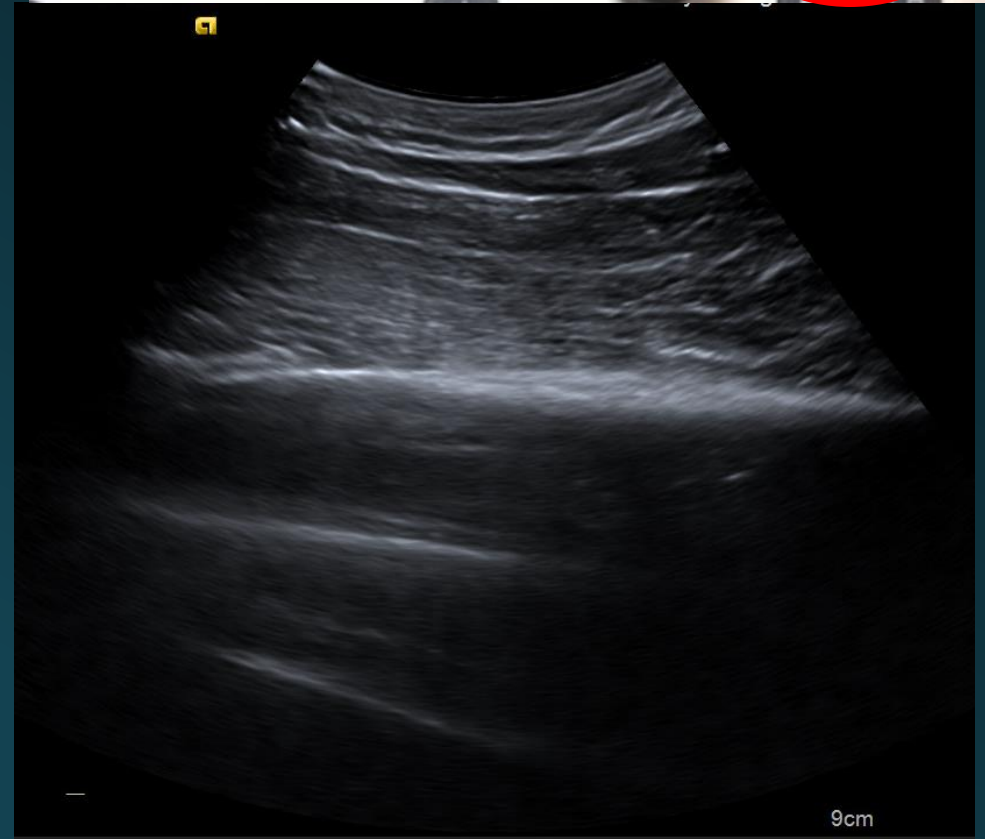
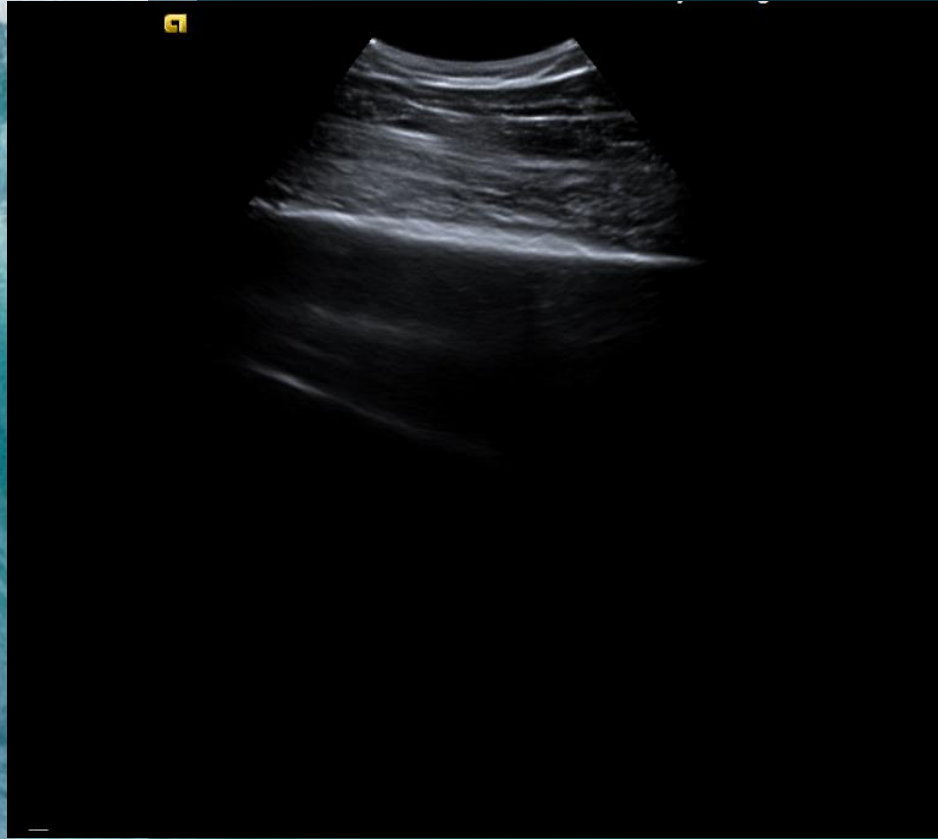
Probe



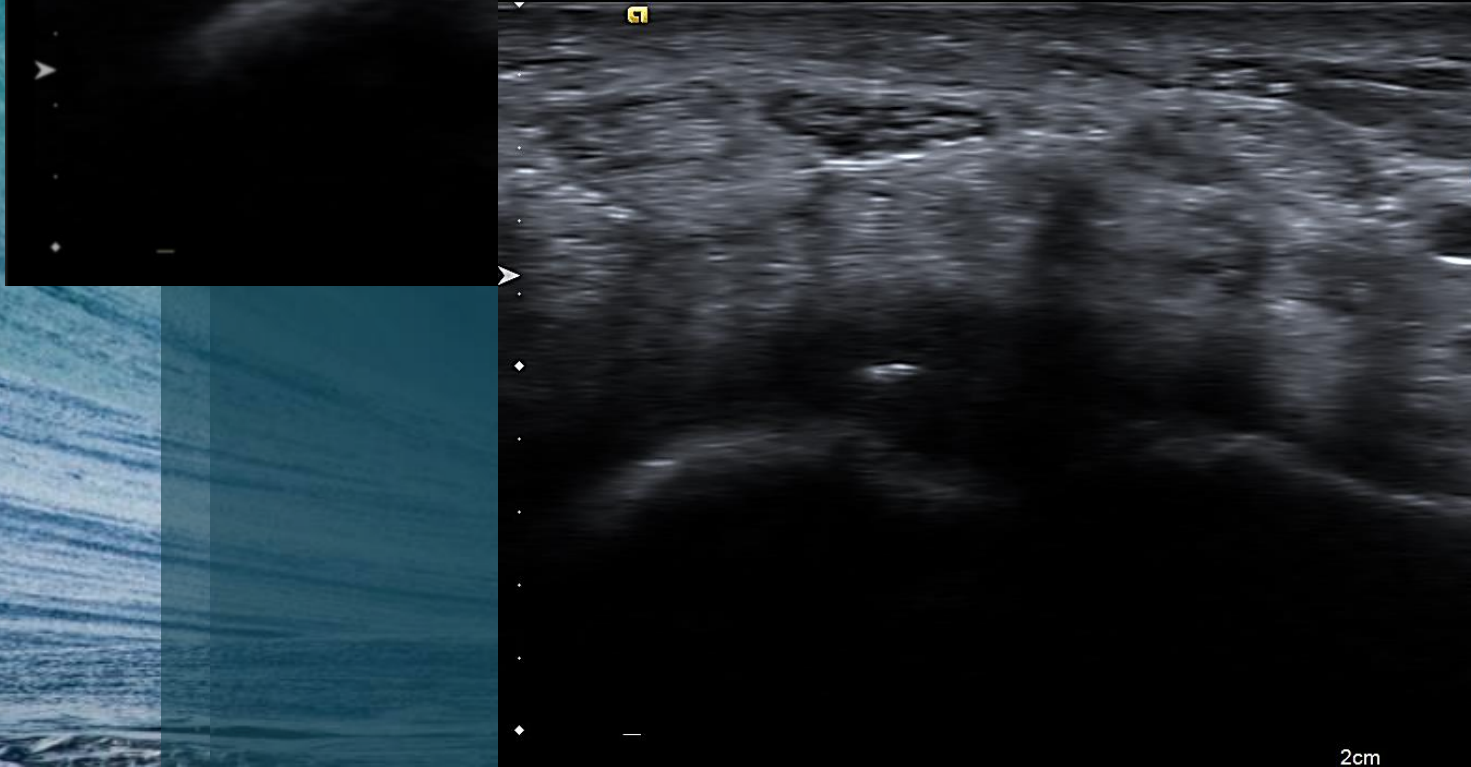
Preset



Depth



Focus



Gain

