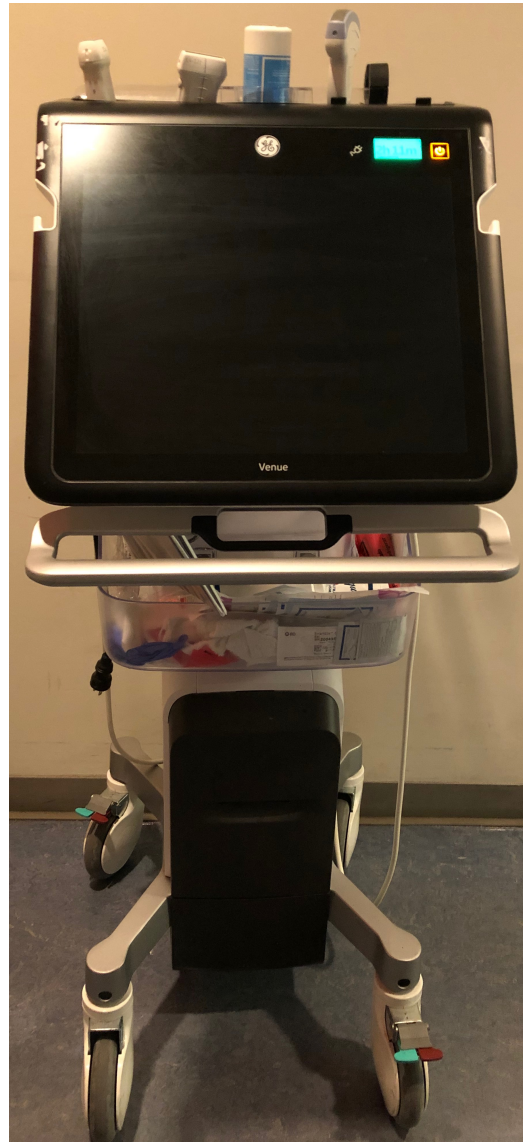


# Introduction to the GE Ultrasound in the Pediatric ED

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**GEL, PROBES, PROBE-  
HOLDERS UP TOP**

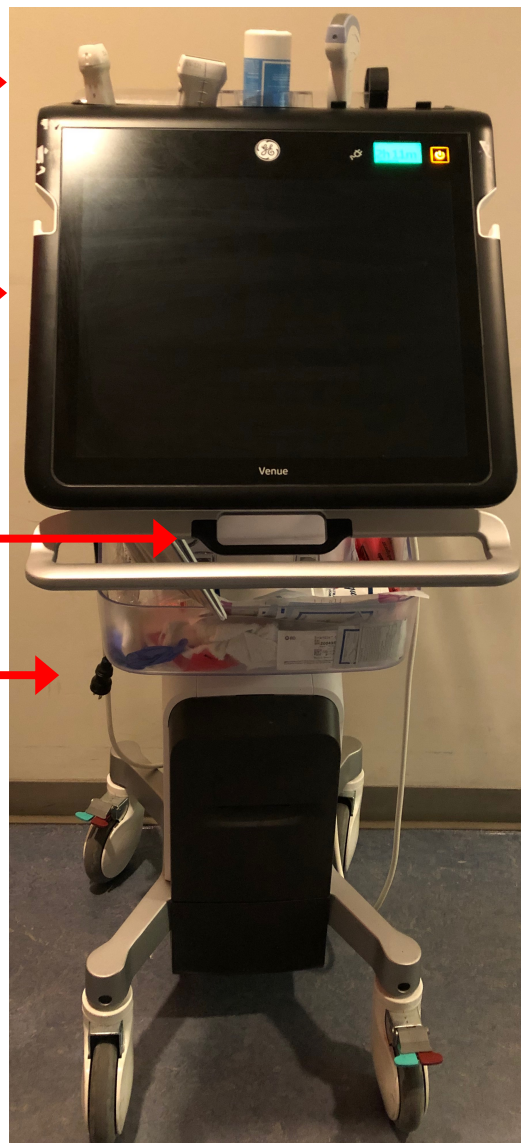
**TOUCH SCREEN**

**BLACK HANDLE TO  
ADJUST HEIGHT**

**CHARGING  
CABLE**

**ON/OFF  
BUTTON**

**BRAKES**



**POSTERIOR SILVER  
HANDLE TO PUSH  
MACHINE**

**IMAGE RECORDS  
BOOK**



**ANTERIOR HANDLE  
TO DIRECT SCREEN  
ANGLE.  
DO NOT PUSH  
MACHINE FROM THIS  
HANDLE.**

# IMAGE RECORDS BOOK & US MACHINE NEW PATIENT RECORD

- **IMAGE RECORDS BOOK:** Include:
  - Patient ID Sticker (or write MRN, Full Name, Date)
  - YOUR name, & name of REVIEWING attending
  - Type of scan, findings
  - Educational scan versus clinical
- **ULTRASOUND MACHINE PATIENT RECORD** (filled out when starting new scan): Include:
  - Patient MRN, Full Name

**CURVILINEAR PROBE**



**LINEAR PROBE**



**PHASED PROBE**



**NO STICKERS ON MACHINE  
PLEASE**



ALWAYS: PLUG IN MACHINE TO CHARGE

PLUG



## ALWAYS: CLEAN PROBES AFTER USE

Use pre-approved sanitizing wipes (such as yellow or green top wipes)

NO bleach: Bleach damages surface





OK to use:



Never these:



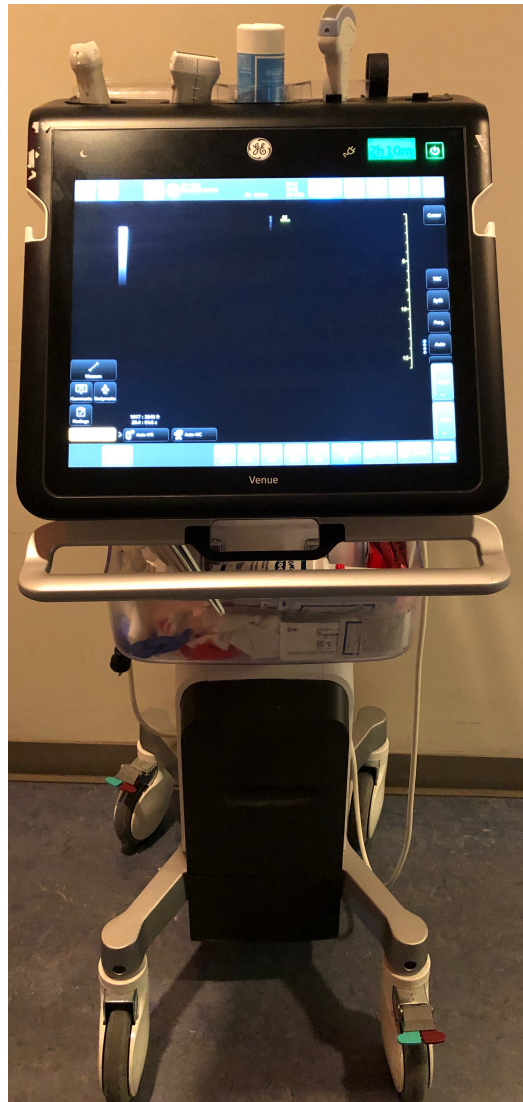
NEVER:

- 1) DROP PROBES: DAMAGES CRYSTAL SURFACES. OR
- 2) DRAG PROBE CABLES





PRESS ON  
to start  
scanning...



ON BUTTON

# CREATE A NEW PATIENT. After US, click END EXAM

Patient Entry:  
Click Patient,  
Fill ID, Last &  
First Name

End Exam

The screenshot shows the patient entry screen of an ultrasound machine. The top bar includes icons for Patient, Scan, Review, and other functions. The main area is divided into a 'Current Patient' section and a 'Local Archive' section. The 'Current Patient' section contains a form with the following fields: Patient ID (with an 'Auto ID' button), Last Name, First Name, Birthdate (with a date picker), Age, Gender (dropdown), Perf. Phys. (dropdown), Attending, and Resident. To the right of the form is a vertical list of anatomical areas: Lung, eFAST, Artery, MSK, Neonatal, Nerve, Small Parts, Vein, Vasc Access, and Upper. At the bottom of the screen is a virtual keyboard with various keys, including a 'Lang' key. A red arrow points to the 'Patient' button in the top left, and another red arrow points to the 'End Exam' button in the bottom left.

# CURVILINEAR PROBE

"C" on probe

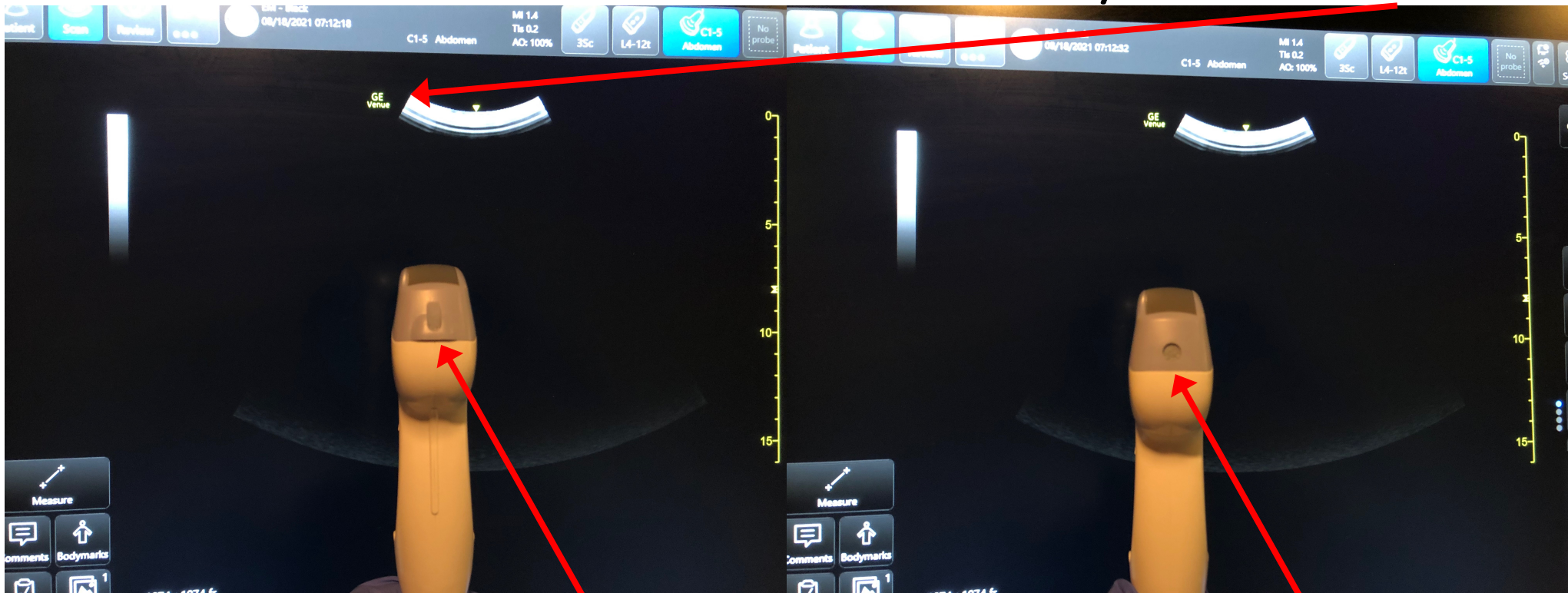
Image Footprint



**LOW FREQUENCY PROBE:** To visualize DEEP structures  
e.g. Kidneys, RUQ, Aorta, Lungs (except pneumothorax)



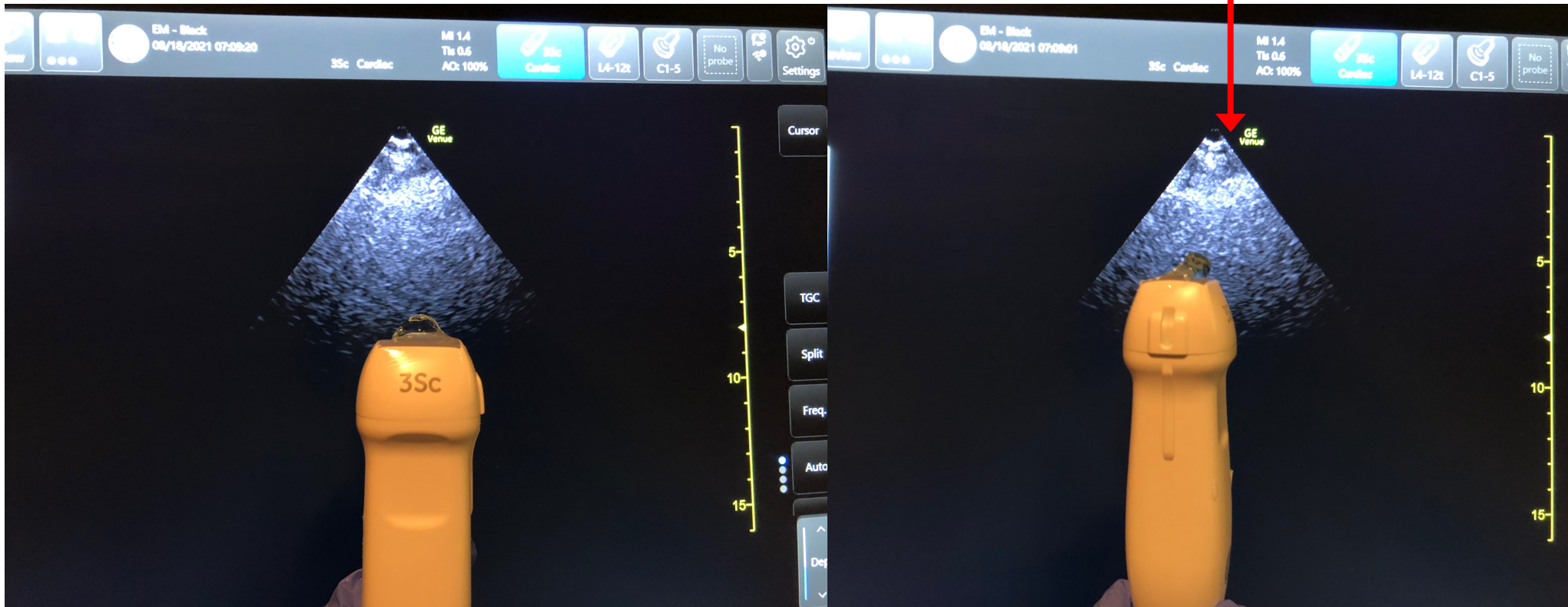
Probe INDICATOR (ridged line) = ORIENTS IMAGE TO PROBE! MATCHES SIDE OF SCREEN W/ YELLOW "GE"



INDICATOR

NO indicator this side

# PHASED ARRAY PROBE



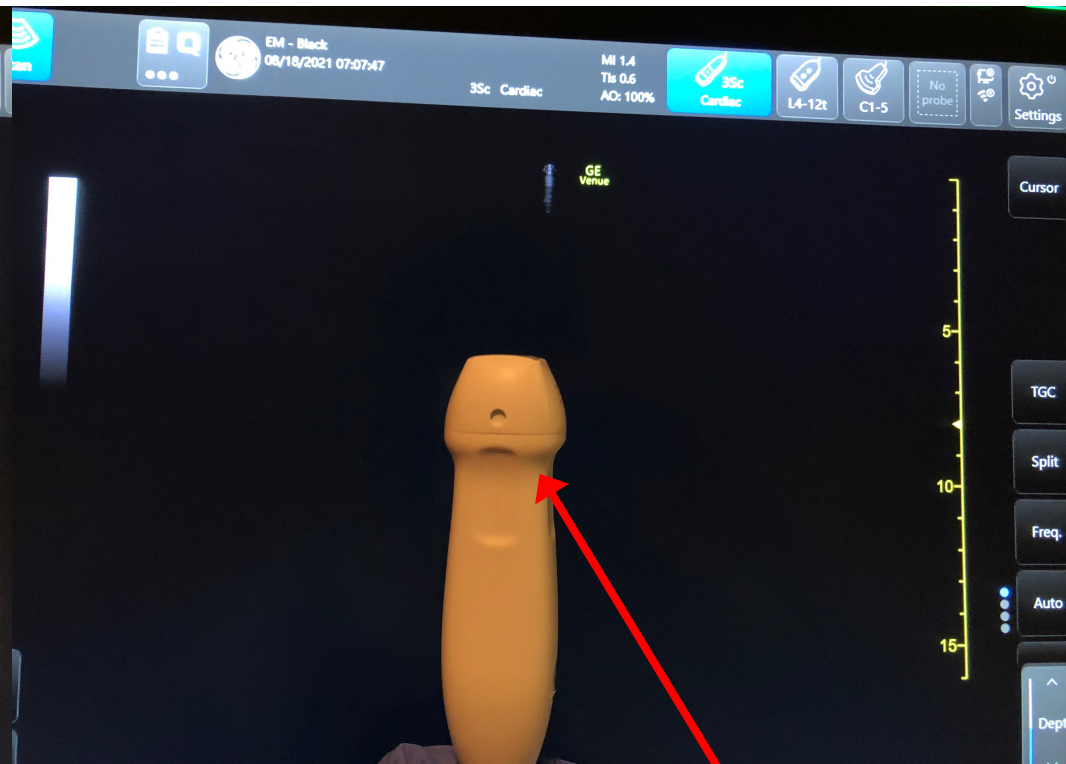
**LOW FREQUENCY PROBE: FOR CARDIAC, & ALSO SOME DEEP structures**  
e.g. Kidneys, RUQ, Aorta, Lungs



Probe INDICATOR (ridged line) = ORIENTS IMAGE



INDICATOR

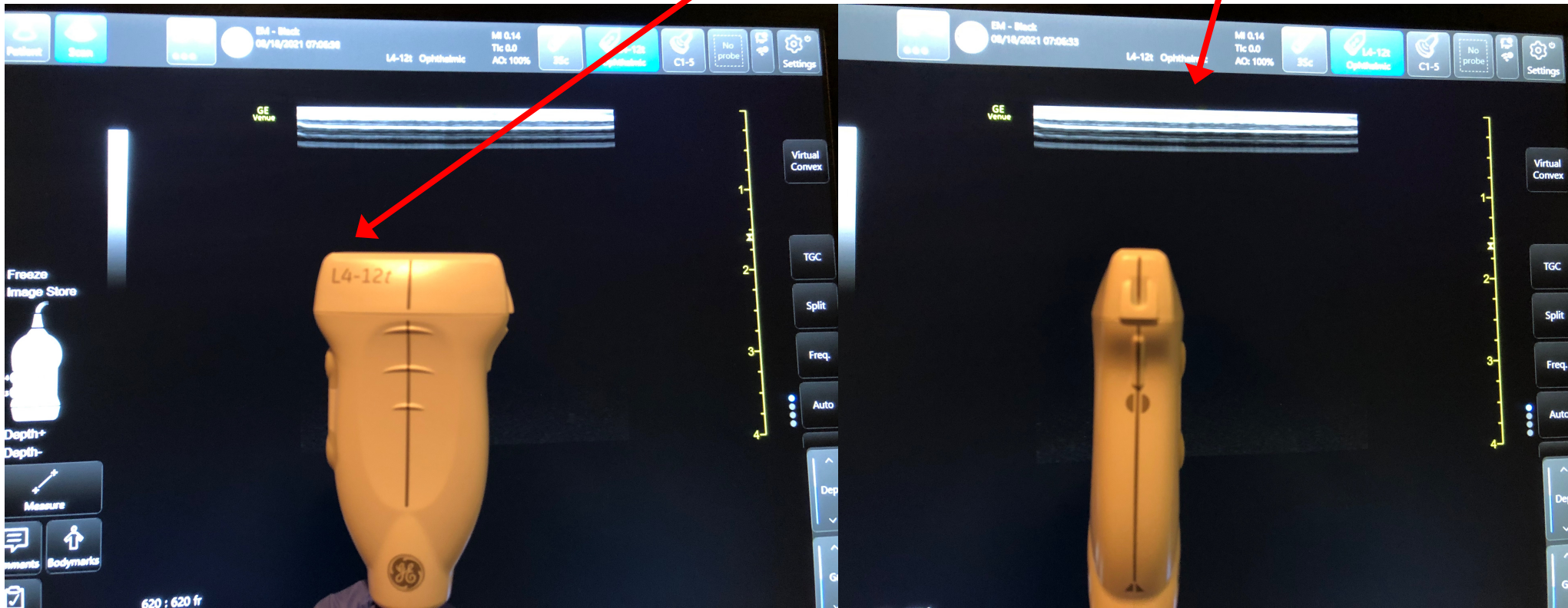


NO indicator this side

# LINEAR PROBE

"L" on probe

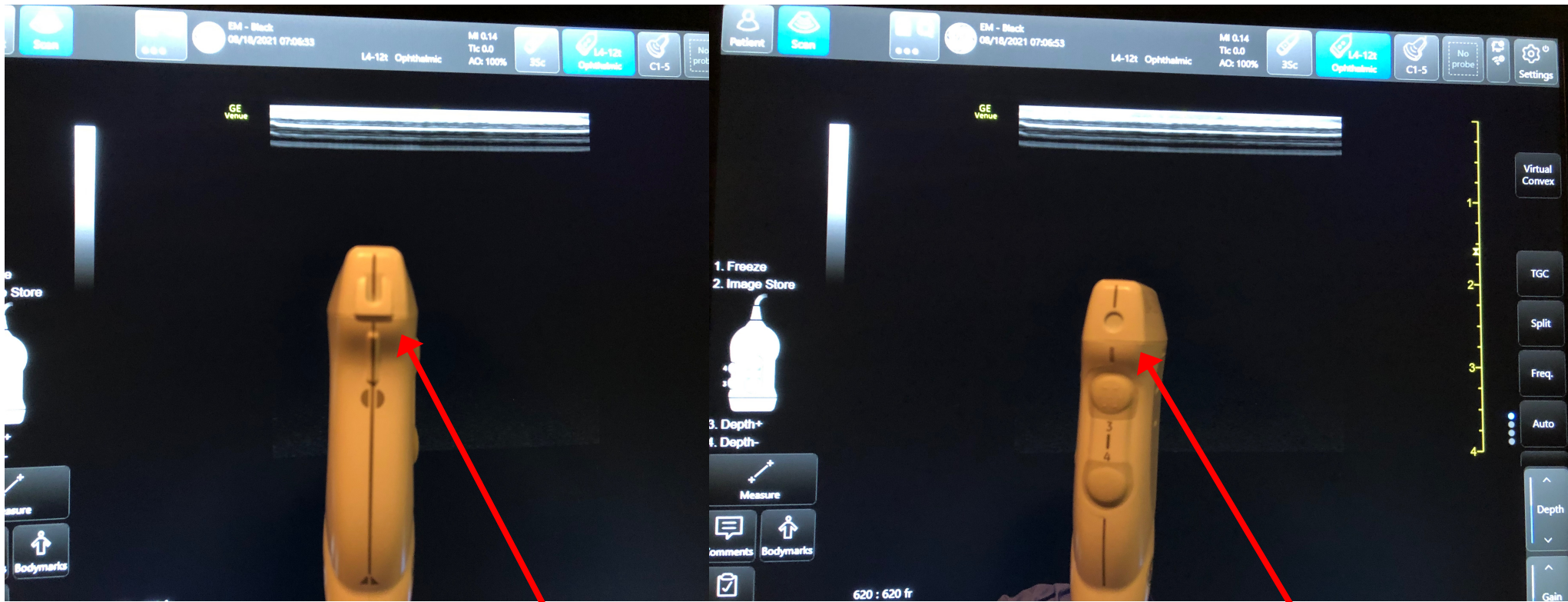
Image Footprint



**HIGH FREQUENCY PROBE: FOR SUPERFICIAL structures:  
e.g. Vascular access, Lung pleura (pneumothorax), soft tissue**



# Probe INDICATOR (ridged line) = ORIENTS IMAGE

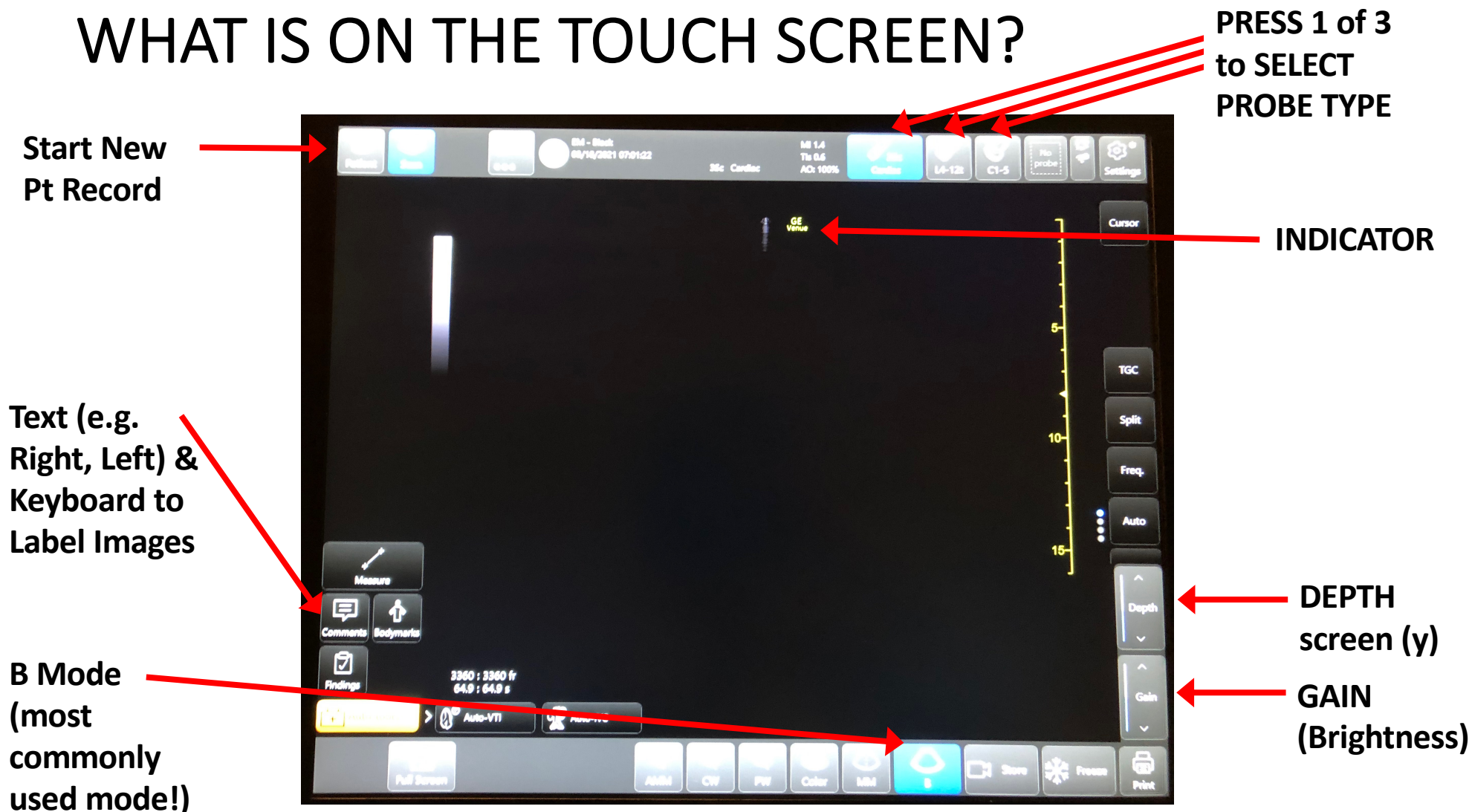


**INDICATOR**

**NO indicator this side**

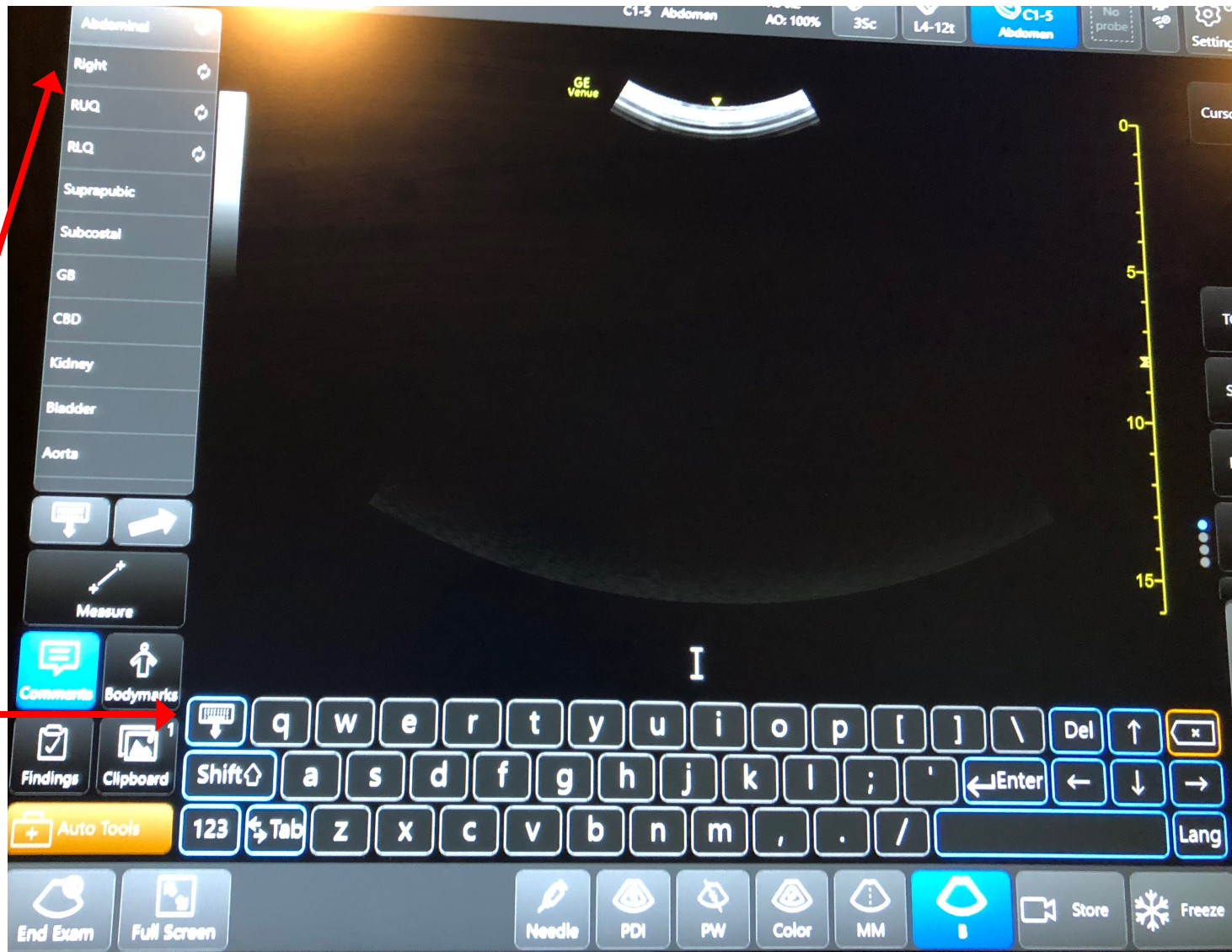


# WHAT IS ON THE TOUCH SCREEN?





- **DEPTH**: PRESS Depth and DRAG DOWN to increase image depth (y axis, cm), DRAG UP to reduce depth
- **GAIN**: PRESS Gain and DRAG DOWN to reduce gain (image brightness), DRAG UP to increase gain
- **ZOOM**: Can touch screen's imaged target area of interest with 2 digits and separate digits (sliding) to zoom (as with tablet computers)



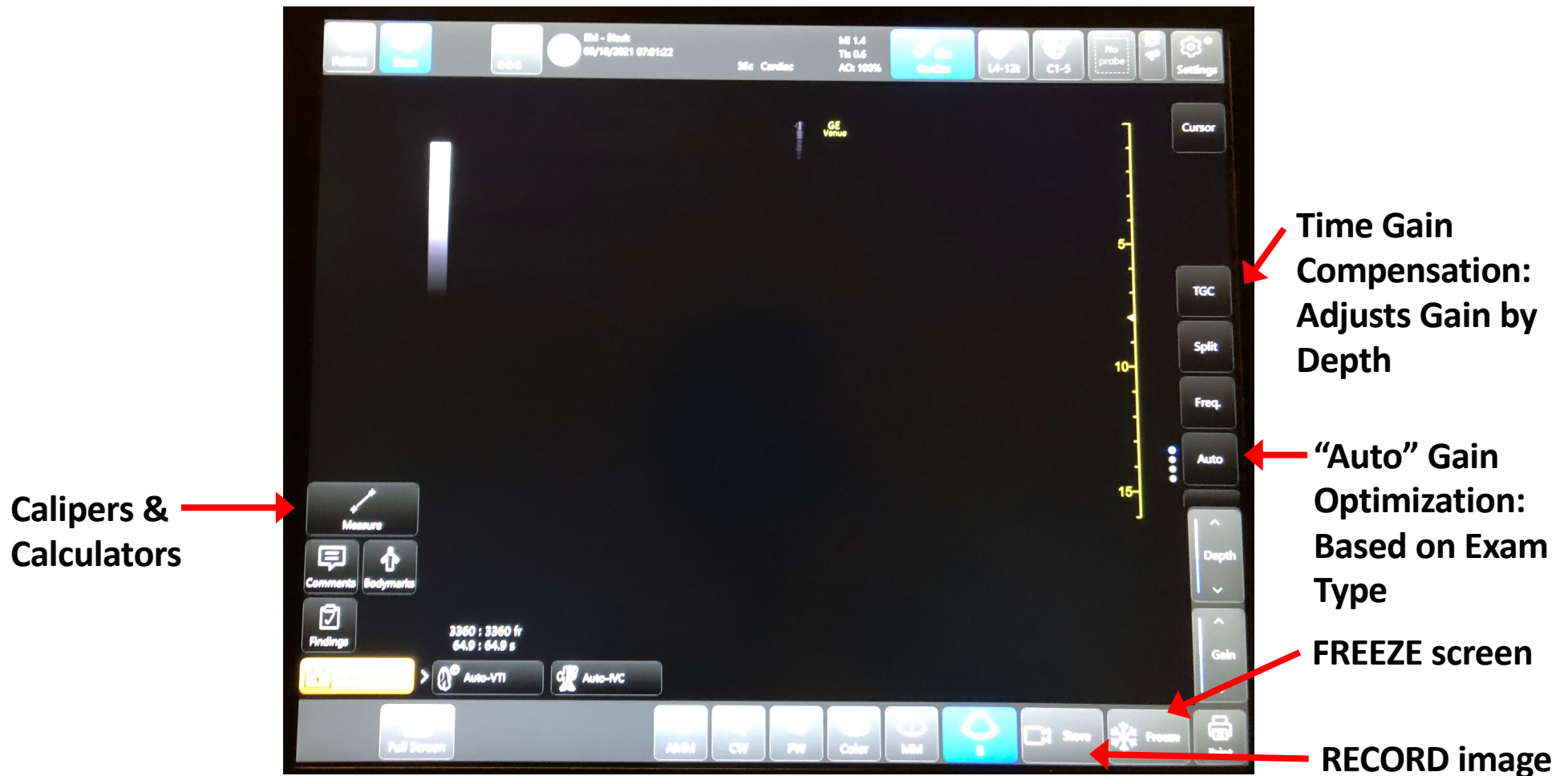
To LABEL  
IMAGE:  
1) Press  
Comments  
2) Type





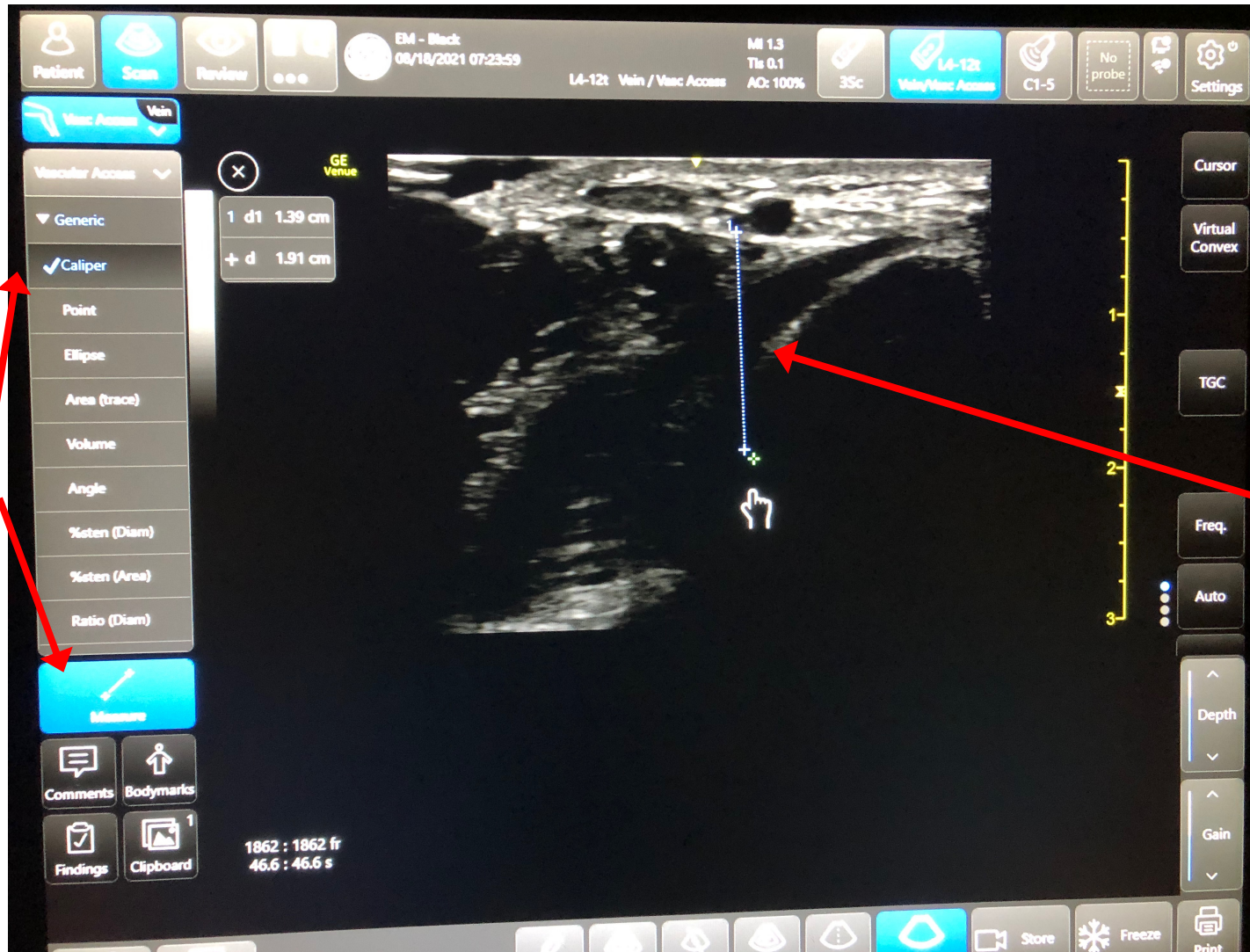
DEPTH (cm)

# WHAT IS ON THE TOUCH SCREEN?





Calipers & Calculators



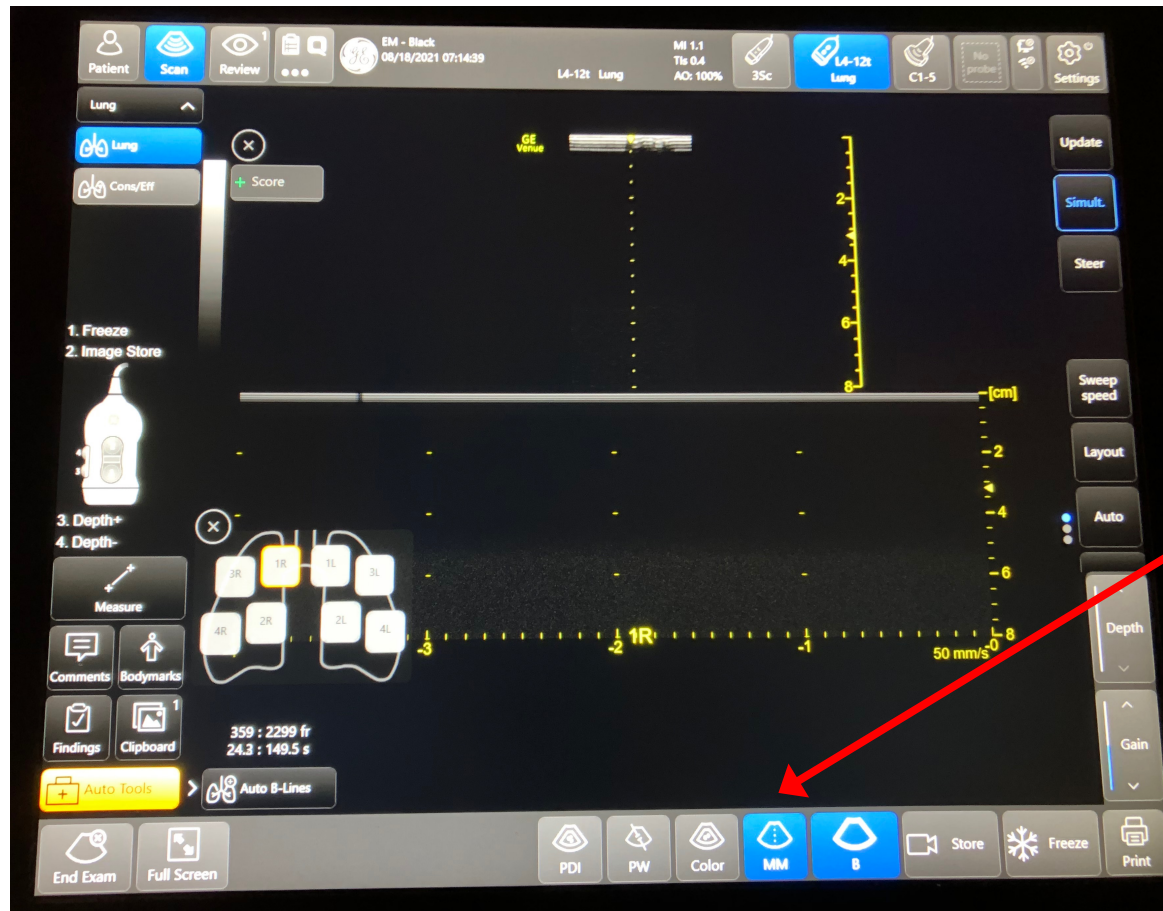
Calipers

Example:

Press HAND to mark site 1, then site 2, to measure

# WHAT IS M MODE? 2nd US Mode:

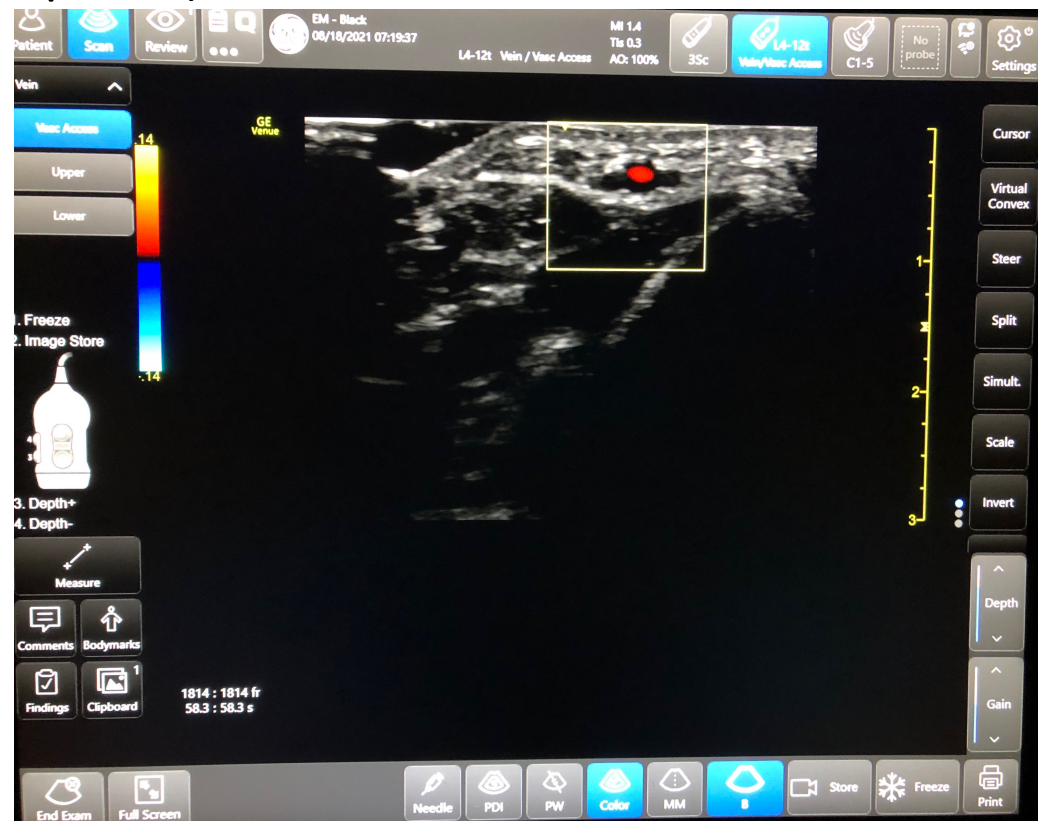
Verifies pneumothorax, performs certain cardiac measurements, measures fetal HR



**PRESS: M Mode  
Button to  
switch to MM**

# WHAT IS COLOR DOPPLER MODE? 3rd US Mode:

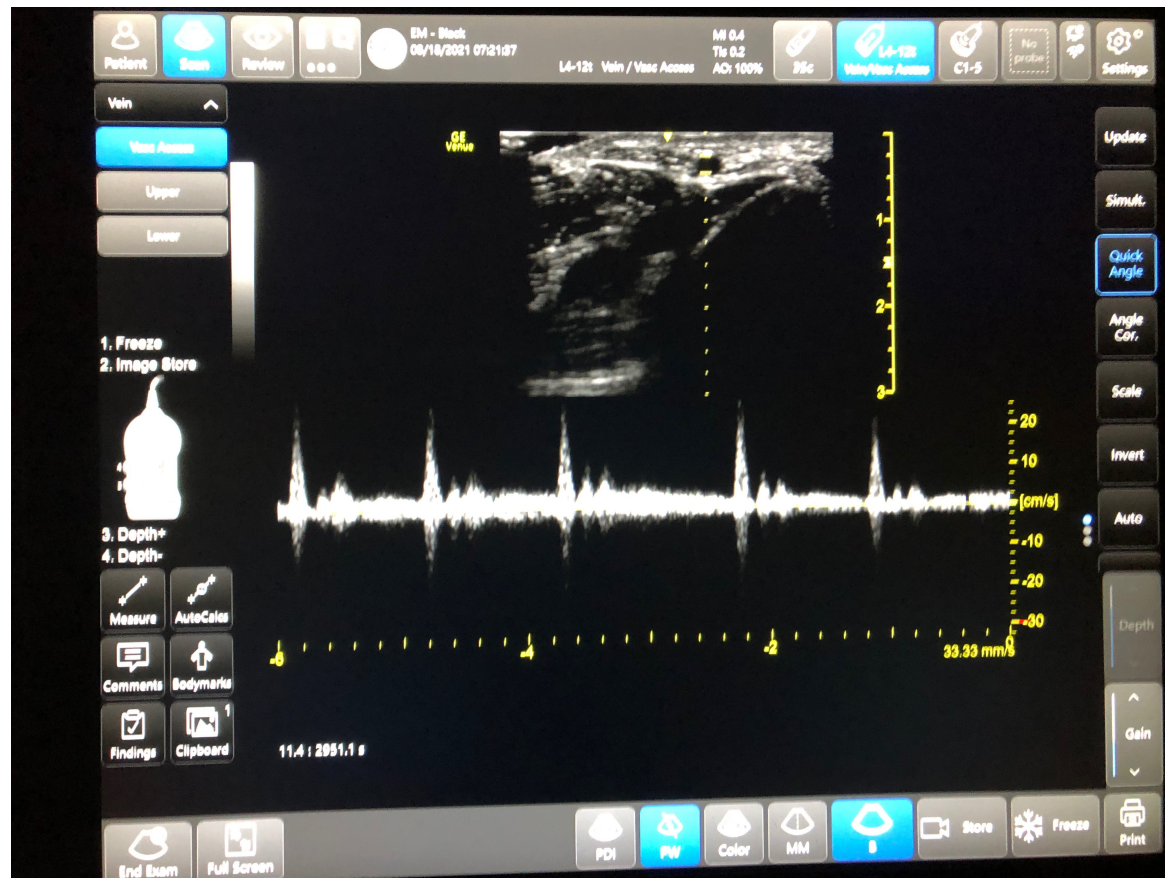
Images vascular flow (blue = flow AWAY from your probe, red = flow TOWARD your probe)



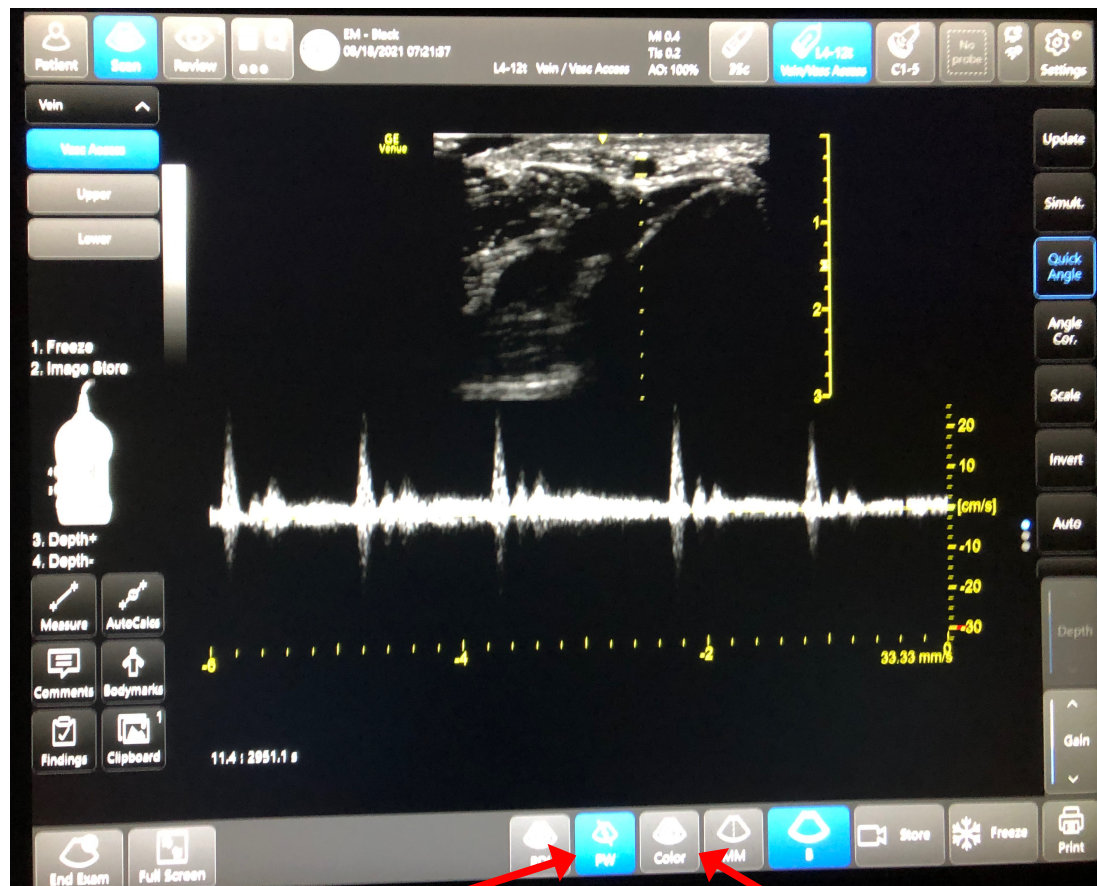


# WHAT IS PULSED WAVE DOPPLER MODE? 4th

## US Mode: DIFFERENTIATE ARTERIAL & VENOUS FLOW



# To Choose Color Doppler v. Pulsed Wave Doppler



PW Doppler

Color Doppler

# How to Review Your Images?

Click: Review  
to review  
images



Then always:  
End Exam

# Trophon Machine

- **Sterilizes probes after exposure to contaminants**
  - Including blood, purulence
- **Place contaminated probes (distal end) in red biohazard bag, with patient sticker on bag**
  - Detach from machine (detach plug from back of machine)
  - Hang probe on contaminated rack next to Trophon machine
  - Inform ED Tech of probe in need of sterilization



**Clean  
Probes**

**Contaminated  
Probes**

**Trophon Machine**

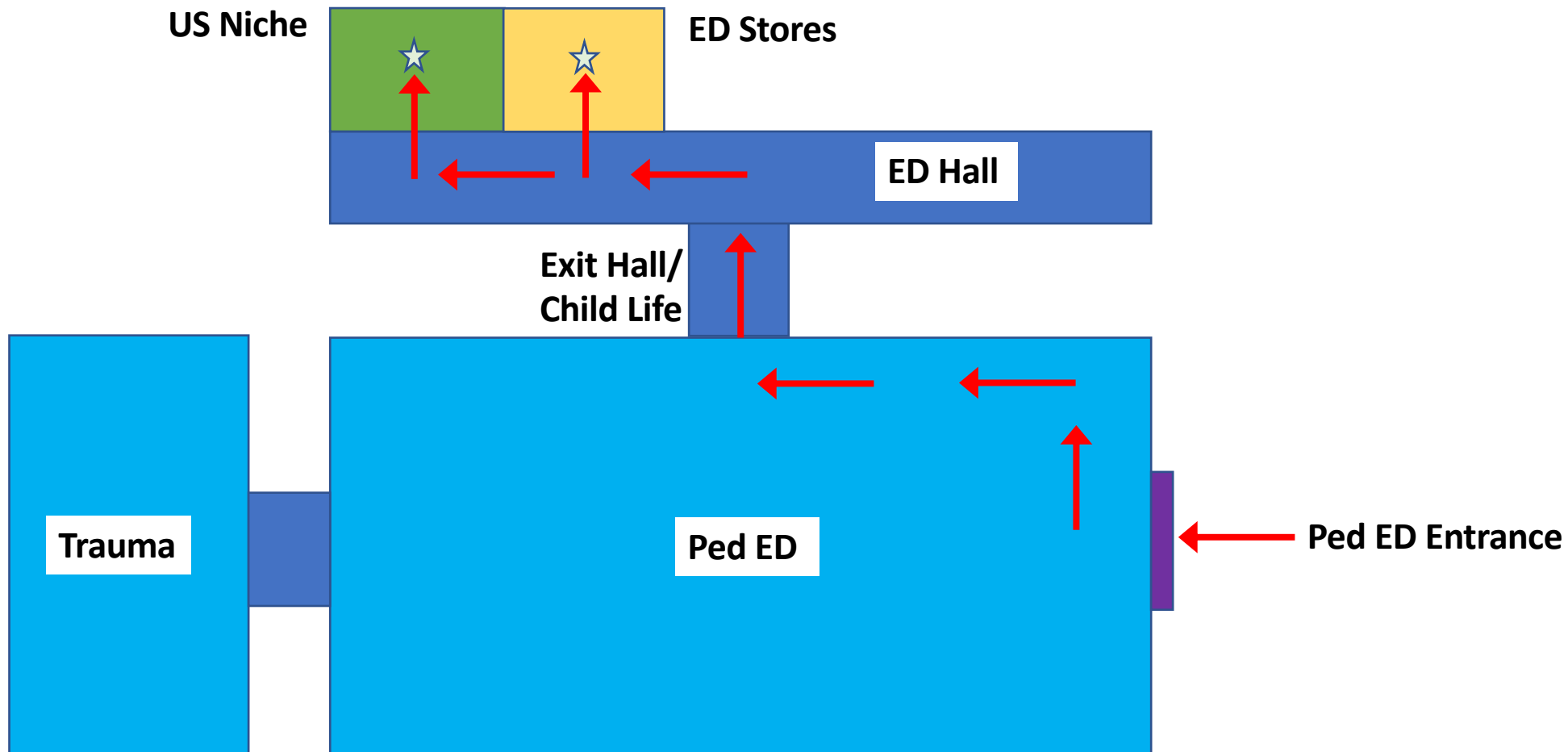


# Location of US Machines & Materials?

- **US Niche:** Holds US Machines, Trophon machine, Basic materials
  - Located in ED Hallway, between North & South Pods
  - Curtained area
- **ED Stores (Swipe in):** Holds general ED supplies, including US gel, sterile probe covers, Sidekick wipes
  - Located in ED Hallway, next to US Niche (to right of US Niche)
  - See attached map

# US Niche







## Remember:

- **Select US Mode, Probe, & Exam Type Based on Imaging Planned**
- **ALWAYS** plug machine in to charge
- **ALWAYS** clean probes after each use
- **NEVER DROP OR DRAG THE PROBES.** The crystal surface is delicate, as is the probe cable

# QUESTIONS?

- Email:
  - Carolina Vega, MD, Emergency Ultrasound Fellow, PEM Physician
  - [carolina.vega@umassmemorial.org](mailto:carolina.vega@umassmemorial.org)