EVMS
Eastern Virginia Medical School

Integrating Faculty Into Ultrasound

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Ultrasound in Anatomy and Physiology Education
Third Annual Conference – Hofstra

Teaching. Discovering. Caring™

Disclosures & Contexts

- co-PI GE-Ultrasound Equipment Grant
- co- PI RSNA Education Grant
- IP on the AG site with EVMS and Department
- No financial gain from this involvement
- I have no special talents so I compensate with effort
- My life is only possible with the support of an exceptionally supportive wife, Katherine, and my three children.
- Some have accused me of sharing too much

Objectives

1. EVMS Program
2. The Reasons for Disinterest
3. The Buy-In Should Be Easy
4. Creating Diversity in your Team
5. Champion your Champions
6. Redundancy = Sustainability

Anatomy & Embryology Before US Implementation

- 150 students
- 18 week dissection/lecture based course
- A dissection groups Tues, and B on Thurs for 4 students and 4 hrs each time: total of 30 labs
- Dissections, prosections, plastinates
- AnatomyGuy.com videos for dissection prep.
- 43 Anatomy, 22 Embryo Lectures
- 3 clinical correlation TBL's
- 191 hrs in course = 148 per student

Lab Logistics

- Day 1 Lab 1 = scalpel in hand
- Day 3 US Physics & Knobology
- Day 5 Lab 2 = Ultrasound probe in hand

- In Lab 18 tables – 4 people/dissection table
- Rotated 1 from each table every 40 min
- 6 Small groups at trainer stations with handhelds and portable US machines (3 per machine)
- Worksheets designed to focus students on specific skills or tasks and work as teams
- During lab time to increase 2D vs 3D comparisons and decrease individual down time

4 Year US integration at EVMS

150 students per year (600 in Medical Program)

YR1	1st Term Knobology, MSK, Neck, Thorax, Abdomen, Pelvis, OSCE	2nd Term Cardiac Function, Biliary system, ITP
YR2	3rd Term Retention OSCE, Cardiac Pathology, Biliary Pathology,	4th Term Aortic Screen, Shoulder, Transvaginal US orientation and ITP OSCE
YR3	5th Term Clerkship, Handheld US Obstetrics, Family medicine	6th Term Clerkship Internal Medicine, Surgery, Pediatrics
YR4	3rd Term As available in rotations, US education elective	4th Term As available in rotations, Emergency medicine US elective, STEP month

Meaningful & Repetitive Practice

Knobology		MSK-Knee				Neck	
Intro And Back		Upper Limb			Head And Neck		
1	2	3	4	5	6	7	8
OFF	GPT	GPT	GPT	OPEN	Quiz	OFF	OFF

Thorax		Abdomen		Pelvis		OSCE			
Thorax		Abdomen		Pelvis		Lower Limb		Study	Finals
9	10	11	12	13	14	15	16	17	18
GPT	SP	SP	SP	SP	OPEN	OSCE	OFF	OFF	OFF

GPT = Gel Trainer, SP=Standardized Patient/Soft Cadavers, OPEN= Self Scan

5 Key Reasons for Faculty Disinterest/Disengagement

1. Vision
2. Training gap
3. Time
4. Inertia
5. Fear

Buy In Should Be Easy

1. Constant Pitching
2. Student Interest and Excitement
3. Training When & Where Needed
4. Baby Steps Build New Inertia

Regular Reports for:

- Dean’s office
- Marketing office
- Medical Education Committee
- Departmental letters of thanks
- Feedback to faculty
- Reach out to naysayers

Student Excitement

- Student opportunities/challenges
- US Interest Clubs
- Power users
- Preview weekend
- Community outreach
- Free “Hopes” clinic

Training is an Opportunity for Buy In

- **Train Faculty in house**
  - Develop area of comfort
  - Then expand to new areas
- **Train SP's**
  - Comfort in what is happening
  - Keys to feedback for students
  - Cheat sheet
- **Train Student Power Users**
  - Keep doors open
- **Train Sources of collaboration**

5 Ideas to Engage Your Faculty

1. Value of US vs other imaging they already teach?
2. Address fear of learning US vs applying what they know in a different way
3. Get help from others that have made the transition
4. Revival of anatomy for clinical relevance
5. Is Ultrasound Even an Option in Anatomy ?
6. Think about Noah….Are you ready…for the sound wave….

Diversity In The Team

Obstetrics

Internal Medicine
Critical Care

Anatomy &
Pathology

Emergency
Medicine

Abuhamad Levitov Goodmurphy Knapp

Physiology

Family
Medicine

Human
Factors
Department

Radiology

Simulation
center

Lebanese Russian Canadian American

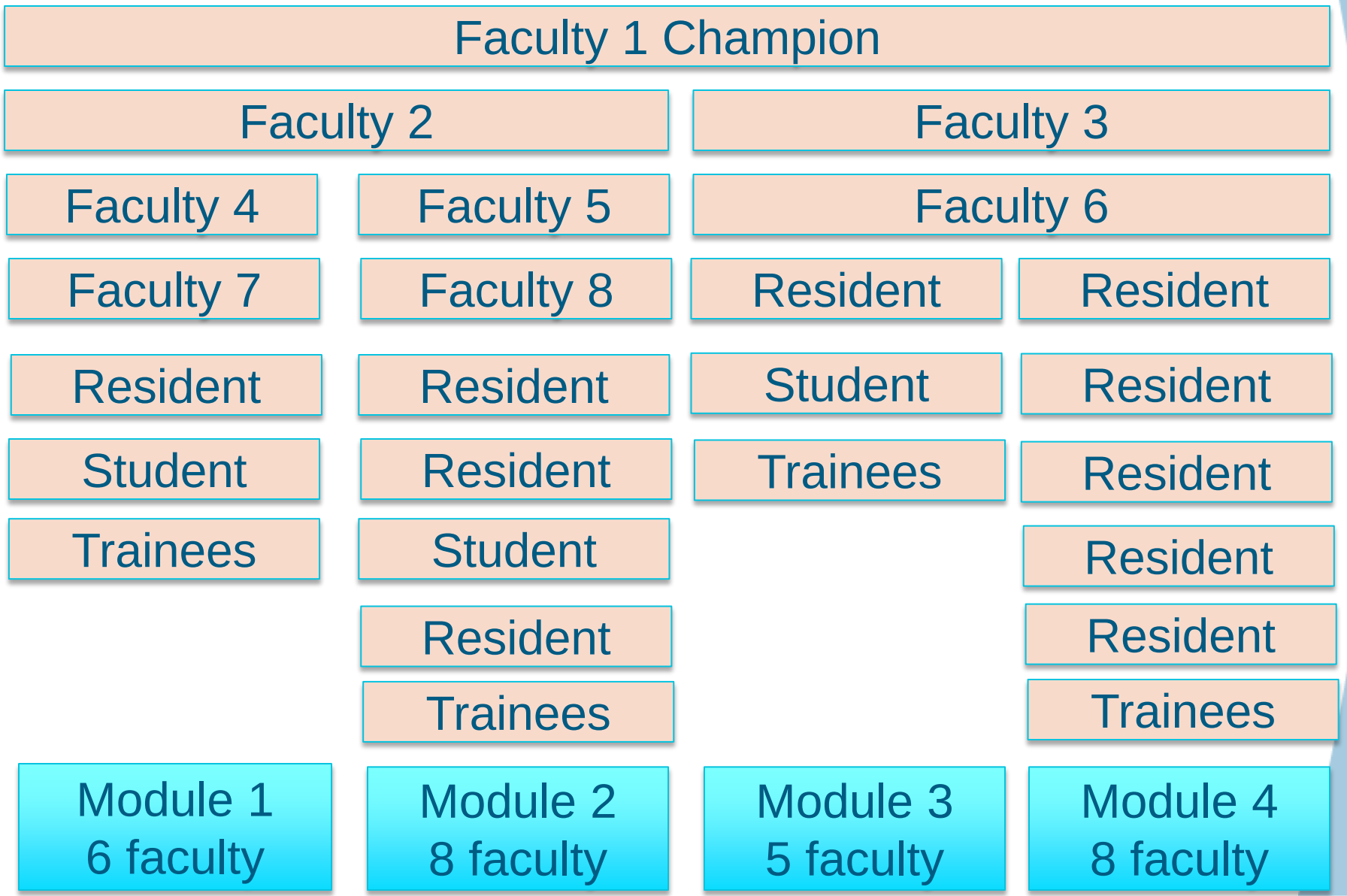
Med students

Pediatrics

Residents

ARDMS faculty
and students

Redundancy = Sustainability



Team Bonding = Sustainability

- Social opportunities
- Training together
- Take advantage of small opportunities

Assessable & Repeatable

- Pretest/mental rotations test
- Formative Questions – worksheets Clickers/BB
- Summative Exams –
- Lab Exams
- OSCE end of term 1
- Retention OSCE exam start of year 2
- Pre Clerkship Review start of year 3

WORKSHEET Week 1

on the Logiq E

Which button is used to:

1. Change the depth of view _____
2. Set the overall gain _____
3. Save an image _____

Circle the button used for changing probes on the tower machines.

Put a square around the button for selecting the cursor.

Put a triangle around the button used to enter patient data and performing physician (student ID)

On the V-scan

What kind of probe does it use? _____

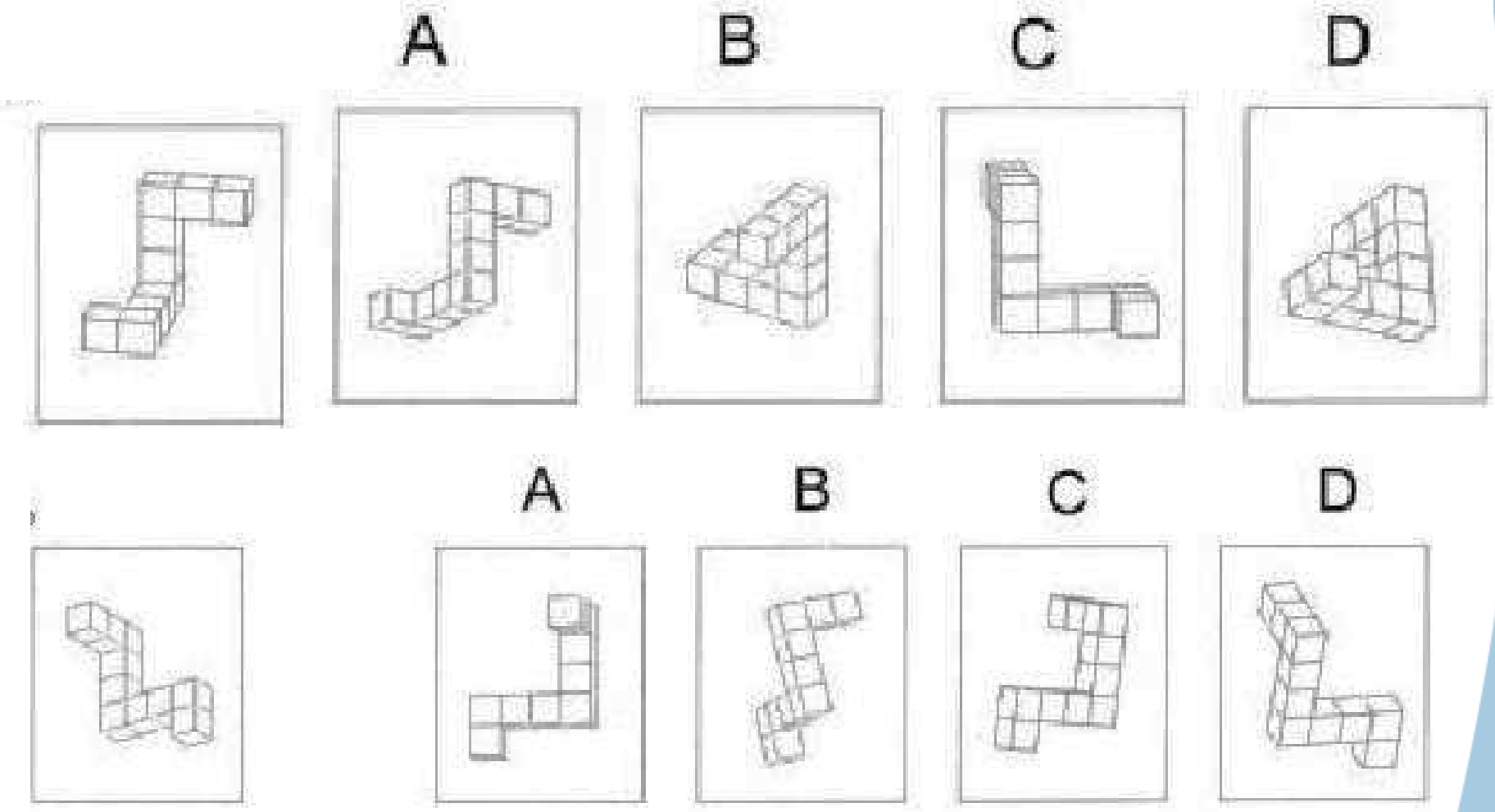
Which number would you use to:

A. Change from cardiac to abdominal scan?_____
B. Increase or decrease gain? _____
C. Save an image? _____
D. Unfreeze a frozen screen?_____

Draw a circle around the area used to change to a deeper depth during a scan?

Draw an arrow in the direction used to decrease gain during a scan.

Pre Test & Mental Rotations Testing



What structure is marked by the letter Z?

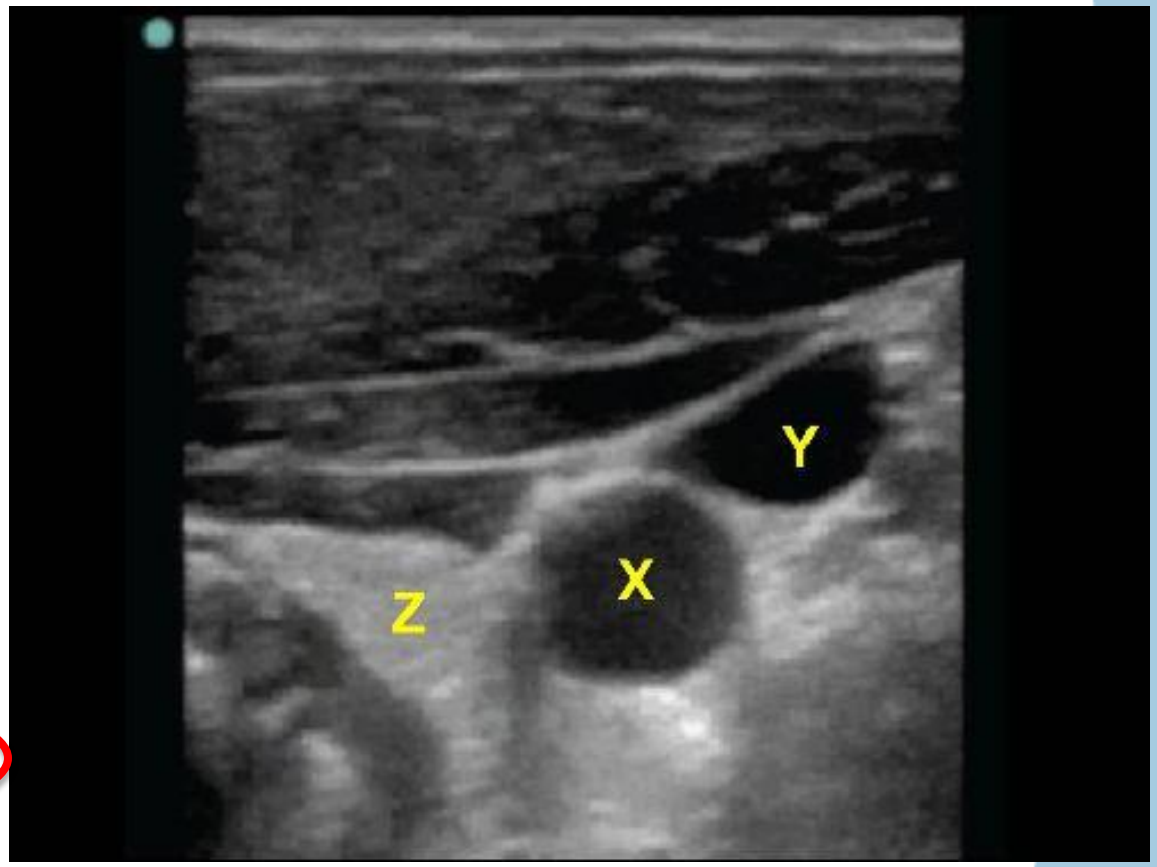
A. Brachial artery

B. Internal jugular v.

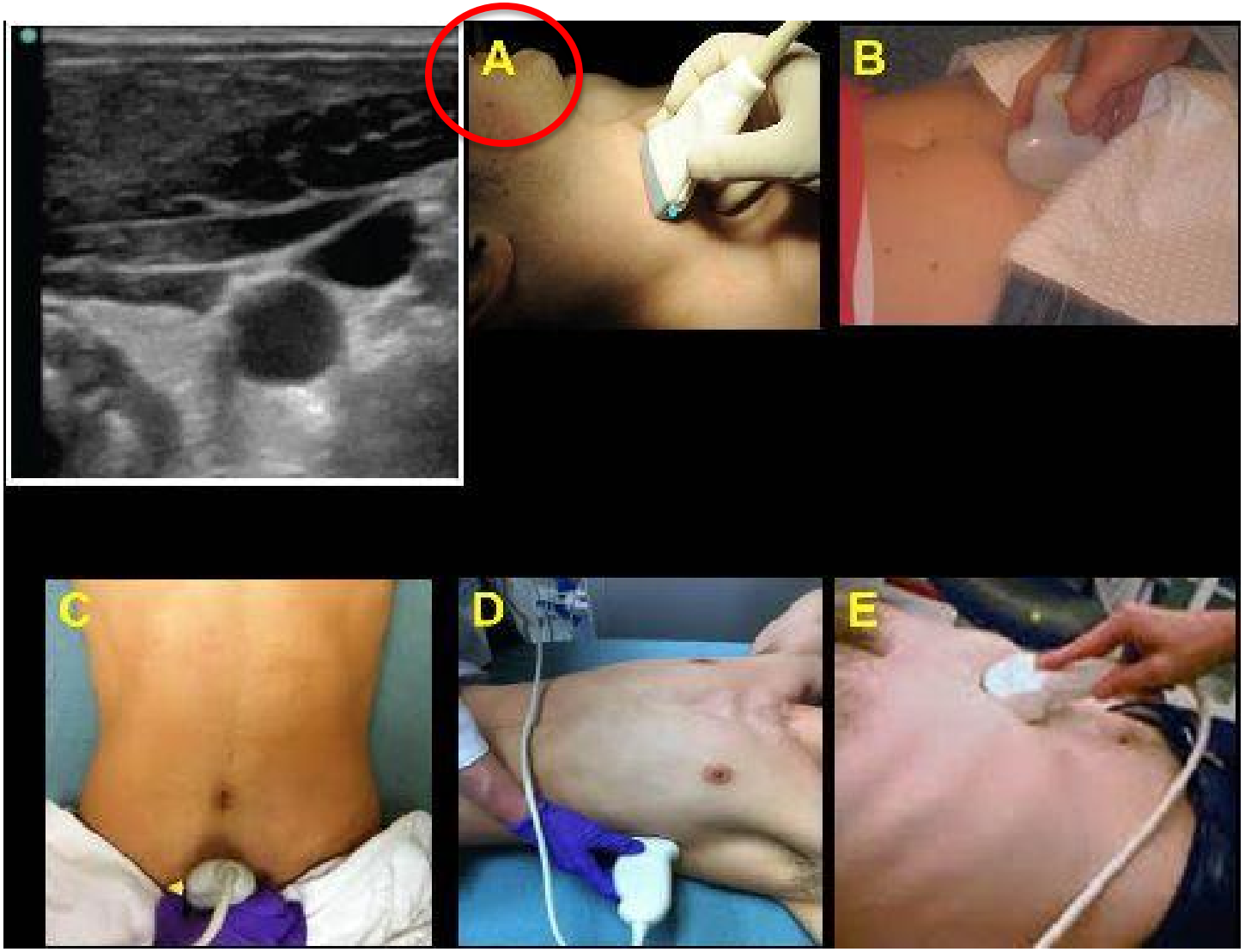
C. Carotid artery

D. Thyroidal vein

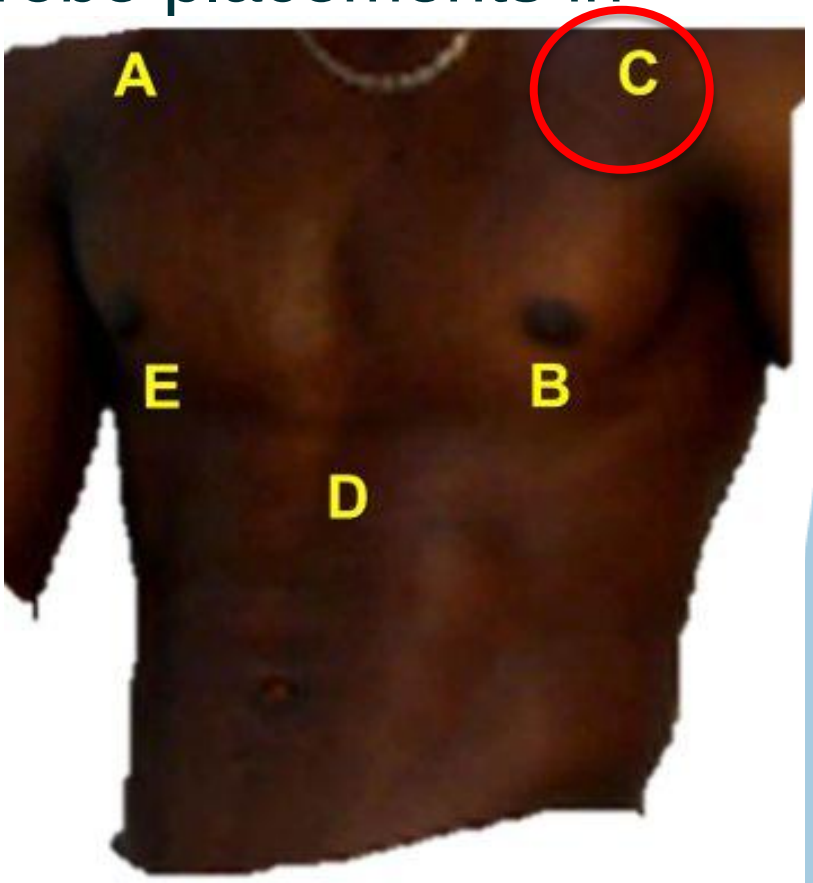
E. Thyroid gland



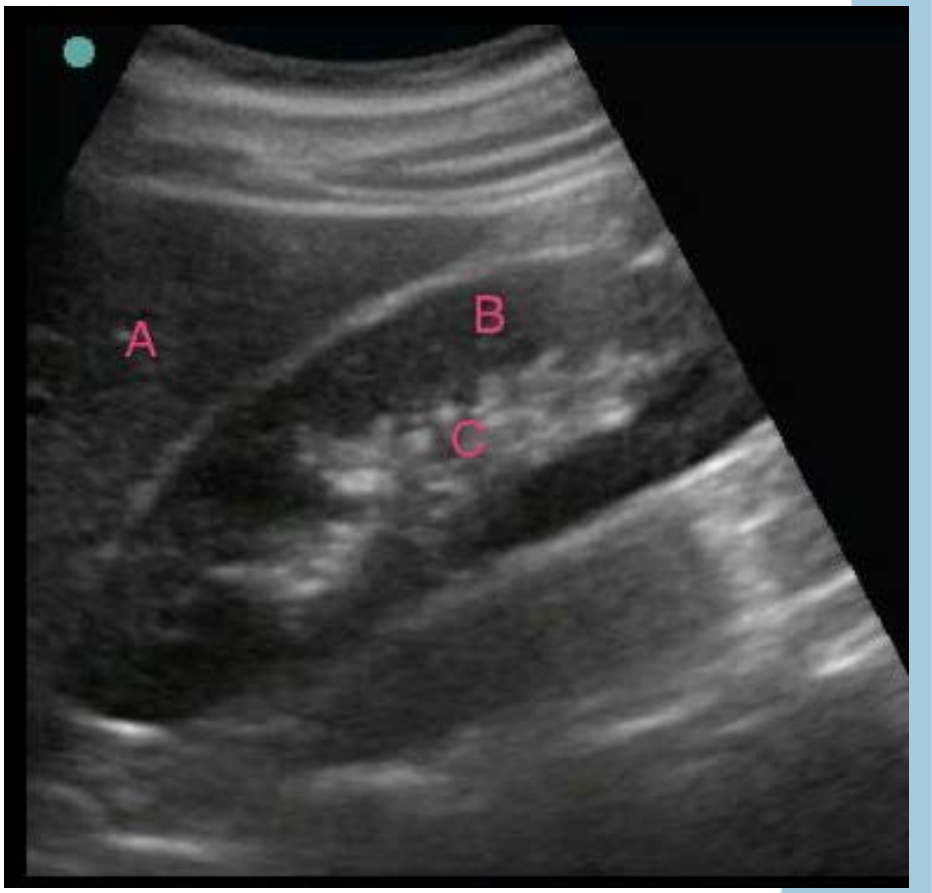
What would be the necessary probe position for acquiring the ultrasound image provided?



During an ultrasound investigation where a parasternal short axis view of the heart was being acquired, which letter would the sonographer direct the probe marker towards assuming they were using standard cardiac presets and conventional probe placements in cardiac investigations?



What would be the best way of adjusting the ultrasound probe to move the object marked by the letter "A" toward the center of the ultrasound screen? Move the probe towards the patient's:



A. Anterior surface

B. Posterior surface

C. Head

D. Feet

E. Midline

Assessment and Curriculum Conundrums

- **Potential problem –**
  - We all want them to love us – so we are not asking really hard questions on OSCE
  - When do we get tough to show who knows what –
  - Separate high performers from lower performers
  - what characteristics, curriculum are best suited for different populations of students?

Anatomy Scanning Labs

Questions?