Internal Medicine Ultrasound Curriculum Outline

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Before Curriculum Implementation

- Bolus Training
- No Image QA outside of the ED
- No formal requirements
- Competency not assessed
- Ultrasound use on wards (outside of procedures) sporadic/undocumented

Core/Basic Curriculum

1. INTRODUCTION TO ULTRASOUND

Applications, Strengths/Limitations, General Principles, Modes, Probes and Artifacts, Key "Home Screens", and Scanning Tips

2. LUNG

Pleural Effusion (PLEF)

Pneumothorax (PTX)

"Interstitial Syndrome"/"B-Lines"

3. HEART

Cardiac Motion (vs Standstill)

Pericardial Effusion and Size

Systolic Fxn/Gross Assessment of Contractility

Chamber Size/Proportions/LVH

Basic Valvular Disease (MR/AI/AS)

4. IVC

CVP Estimate/Intravascular Volume Assessment

IVC Size, Respiratory Variation

5. KIDNEY/BLADDER

Hydronephrosis

Renal Size/Echogenicity

Bladder Volume/Post-void Residual

Ascites (pelvic)

6. VASCULAR

Proximal Lower Extremity DVT

Core/Basic Curriculum

7. LIVER/GALLBLADDER/SPLEEN

Liver Size/Hepatomegaly

GB tenderness/Gallstones

Spleen size/Splenomegaly

Ascites (RUQ/LUQ)

8. AORTA/PERIPHERAL ARTERIES

AAA

Peripheral pulse identification

Doppler review

9. MSK/NERVES/SOFT TISSUE

Abscess vs Cellulitis

Foreign Body Localization

Rib Fracture/Long Bone Fracture

Joint Effusions (Knees, Elbows)

Edema vs Adipose

10. PROTOCOLS FOR SICK PATIENTS

FAST exam , RUSH protocol, POCUS in Codes

11. INTEGRATED HEART/LUNG/IVC

CLUE Protocol, FATE Protocol

12. GUIDED PROCEDURES

CVL

Thoracentesis

Paracentesis

Knee arthrocentesis

PIV

Core/Basic Curriculum: Expected Milestones by Year

- **End of PGY1**
  - "Homescreen" acquisition + basic interpretation
    - PLAX
    - Lung -2nd ICS
    - IVC/Aorta- transverse/long
    - RUQ (PLEF/Ascites)
    - IJ/carotid or femoral vein

- **End of PGY2**
  - 2/4 cardiac views
  - Renal-Hydronephrosis
  - AAA
  - Joint Effusion
  - Procedures (CVL, Thora, Para)

- **End of PGY3**
  - 4/4 cardiac views + valves
  - DVT
  - Gallstones
  - 8-zone Lung Protocol
  - RUSH protocol/Codes

Ultrasound Equipment

- Wards
  - ***Pocket-sized*** Ultrasounds (for each Ward Team)
  - Laptop-sized Ultrasound for Procedures/Detailed Exams
- Outpatient Clinic
  - Laptop-sized Ultrasound
- MICU/SSU/CCU/ED
  - Cart-Based Ultrasounds

Resident Ultrasound Didactic Training (>30 hours)

- **Noon Conference** Didactics (45 min, 1/block)
  - Covers core curriculum
    - May move towards online lectures
- **Morning Report** (5-10 min, 2-4x/block)
  - Multiple Small Feedings
    - Interesting cases
    - Optional topics
    - Repetition of core content
- Supplemental “FOAMed” and “Just-in-time” Resources

Hands-on Training

- Popular POCUS elective (*2-4 weeks)*
  - Weekly Bedside “Gel” Rounds

- Standardized Patients and Simulator Practice
  - *2 hours, 3x/year* ***during ambulatory block***
  - *Milestones (by PGY level) assessed by OSCE each year*

- Procedure Phantom Lab
  - *3 hours, 1x/year*

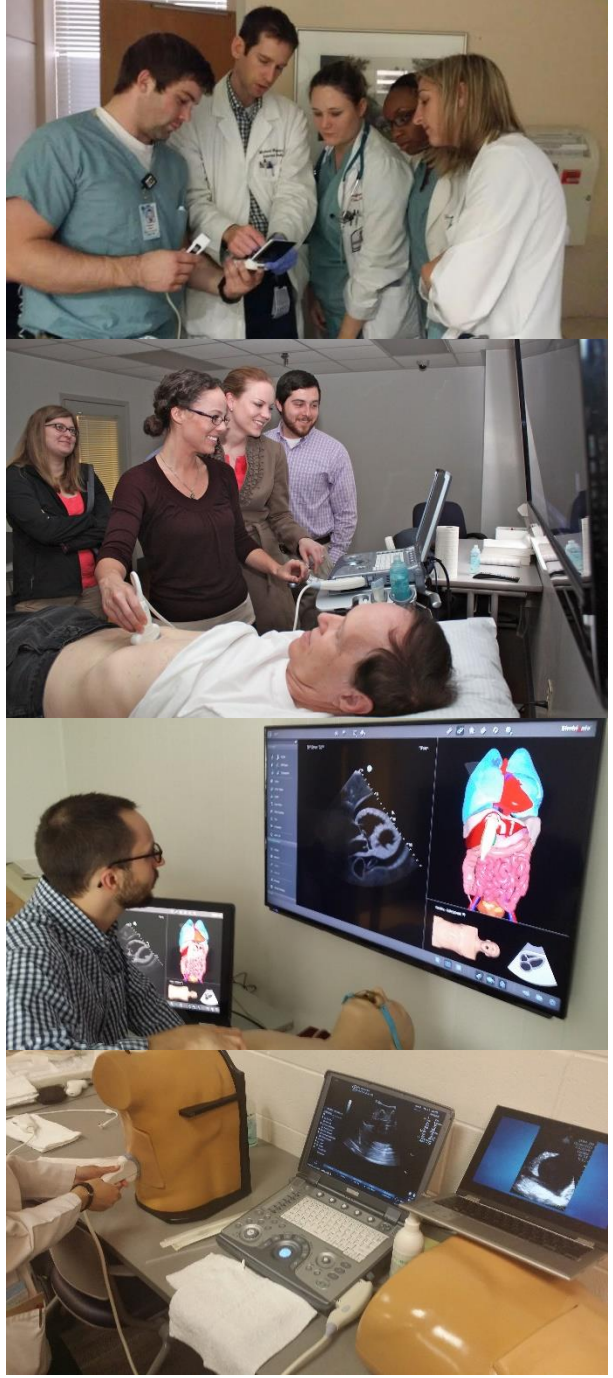

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Image Log/QA

http://goo.gl/forms/

USC IMUS Resident View-able Log Form (AY 16-17 v)

* Required

Your 3-letter Initials (ABC) *
DCG

Date/Time of Exam *
07/01/2016

Ultrasound Used *
Vscan- A (PHR)- X3

Exam Number(for Vscans) or File name (if saved to a flashdrive) *
650

Age *
77

Gender *
- (•) Male
- ( ) Female

Location *
- ( ) ER
- ( ) ICU
- (•) Inpatient IM Ward
- ( ) Outpatient IM Clinic
- ( ) Inpatient Cardiology
- ( ) Elective or Outpatient Specialty
- ( ) Other:

Exam type *
Educational (Findings/Dx Known to Scanner)

Cardiac
- [ ] Normal
- [ ] Pericardial Effusion
- [x] Abnormal LV function
- [x] Abnormal Heart/Chamber Sizes/Proportions
- [ ] Valvular Abnormalities
- [ ] Indeterminate
- [ ] Other:

Pulmonary
- [ ] Normal
- [ ] Loss of Sliding

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Imaging Requirements

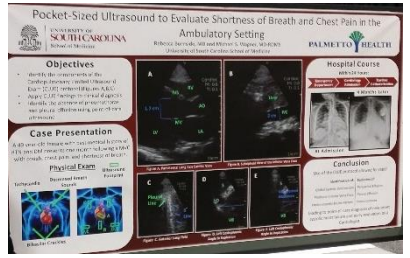
- All scans *should be* SAVED and LOGGED

- Need 25 scans in an application to be *eligible* for sign-off.
  - Once >150 total ultrasound scans logged/signed off, can request an assessment for any application when ready (even if <25 scans).

- Sign-off includes adequate:
  - Images obtained/number of views/correctly interpreted
  - Score (80% or higher) on knowledge assessment
  - Performance on bedside OSCE

- **Challenges**
  - Low Utilization of Equipment
    - Solutions: Increased training, *pocket-sized devices*
  - Faculty Training
    - Solutions: Scanning vs non-scanning track
  - Logging
    - Solutions: Smartphone use, Team Competition

- **Successes**
  - Increased Participation in Research
  - Numerous “Ultrasound for the Win” Cases



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