



MICHAEL SCHICK DO, MA
AIUM 2018

GLOBAL ULTRASOUND EDUCATION

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DISCLOSURES

- ▶ None

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OBJECTIVES

- ▶ Global Ultrasound Education
 - ▶ Strategies for success in the low resource environment
 - ▶ What Works
 - ▶ What Doesn't

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WHERE I WORK & WHY I WORK






WHAT DOESN'T WORK

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EQUIPMENT IS NOT THE PROBLEM


- ▶ Don't just donate



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DON'T JUST SHOW UP

- ▶ Approach it like any other rigorous educational program
 - ▶ Goals
 - ▶ Objectives
 - ▶ Local expectations



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CURRICULUM PLAN


- ▶ Is your trip part of a larger effort?
 - ▶ Can it be?
- ▶ Think big and think long term
- ▶ Select the core material
- ▶ Select the expanded material
- ▶ Knowledge, skills, behavior.

Day	1	2	3	4	5	1	2	3	4	5	1	2	
AM (IECP-1)	Intro	EFAST	Cardiac	Lung	DVT/ Renal	RUQ	Soft Tissue /MSK	Pelvis 1	Pelvis 2,3	Intro Procedures	Male GU	Assessment	
A&E	Hands On											Assessment	
Rounds	RUSH, SOCL, ABUE					Peds		OB/GYN					Assessment
PM (IECP-2)	Review	RUSH	SOCL	ABUE	RESUS	Peds	Teaching Skills	Procedures	Procedures	Procedures	FASH	Assessment	

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THE CHALLENGE OF THE NEEDS ASSESSMENT

- ▶ Equipment
- ▶ Needs of learners
- ▶ Needs of health system
- ▶ Wifi
- ▶ English mastery



Greetings, I am Dr. Schick.

Greetings, Thank you.

I have questions: 1-10.

Yes, that sounds wonderful.

I have questions: 1-2.

Here are part of the answers you seek.

Let me try to ask different questions 3-4.

I am a bit tired of answering your many questions.


DON'T BE ON YOUR SCHEDULE

Do plan for things to take extra time

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MAKE YOUR MATERIALS - DON'T MAKE ASSUMPTIONS

- ▶ Analogies and examples
- ▶ Medical knowledge
- ▶ Experience with ultrasound
- ▶ Emphasize how to generate and optimize images



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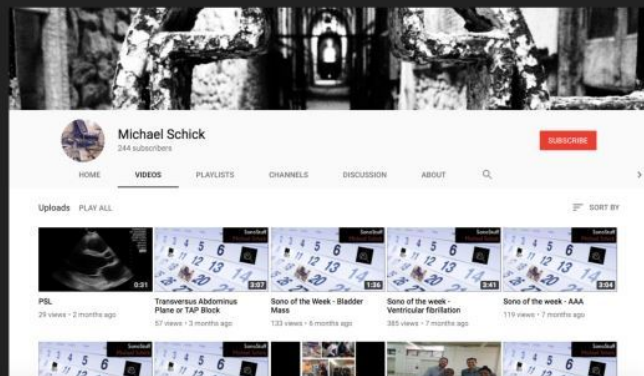
DON'T WASTE TIME

- ▶ Be prepared
- ▶ Don't teach things that they don't need
 - ▶ Aorta
 - ▶ DVT
 - ▶ Pelvic
 - ▶ Procedures
- ▶ Understand the scope of teaching and resources available



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FLIPPING THE CLASSROOM



Amniotic Fluid Volume

- Amniotic fluid cushions, regulates temperature, helps prevent infection, and provides fluid and nutrients to the developing embryo. Late in pregnancy the main source of amniotic fluid is the kidney. A normal volume is a sign of at least one functioning kidney. Fetal swallowing and intramembranous absorption are the main sources of elimination.
- Alterations in amniotic fluid volume correlate with numerous maternal and fetal problems.
- To assess with progressive sensitivity use the largest vertical pocket, or the two-diameter pocket technique, or the amniotic fluid index (AFI) which takes the average vertical measurement of four quadrants.
- The largest vertical pocket normal range is 2-8 cm. Often found between the fetal limbs.
- With two-diameter pocket measuring the largest pocket is measured both vertically and horizontally. 15-50 cm squared is normal.



SHORT AND SWEET
SMALL WORDS
NO MEDICAL JARGON
CASE BASED - WITH LOCAL FLARE

DON'T APPROACH LECTURES THE SAME WAY

Case 1

- 23 year old female presents with progressive right upper quadrant pain for 3 weeks.

Next Steps

- What other information do you want?
- What is the differential diagnosis?
- What tests will you do?

WHAT
WORKS

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ACTIVE ASSESSMENT

- ▶ Knowledge level
- ▶ Learner needs
- ▶ Breaks the shell

Artifacts	Probes	Terms	More Artifacts!	Random
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>

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ACTIVE LEARNING

- ▶ Team based learning
- ▶ Problem based learning
- ▶ Gamification
- ▶ White boards
- ▶ Laser pointers
- ▶ Competition

FAST	GB	KIDNEY	AORTA	FEMALE GU	LUNG	ECHO
<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>



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MAKE IT HANDS ON

- ▶ In your department
- ▶ Hit the wards
- ▶ Standardized patients
- ▶ Simulation





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DELEGATING RESPONSIBILITY

- ▶ Teaching is a great way to learn
- ▶ We all have to teach
- ▶ We should all be working to put ourselves out of a job





MAKE IT LOCALLY FOCUSED

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- ▶ Infectious Disease
- ▶ SHoC: Sonography for Hypotension and Cardiac Arrest
- ▶ FASH: Focused Assessment of Sonography for HIV and extra-pulmonary tuberculosis
- ▶ ABUE: Abdominal Assessment for Undifferentiated distention or pain
- ▶ SOTL: Sonography of Thorax and Lung



Getting my "hands-on experience" with our USG Instructor Dr. Mike.

MAKE IT LEARNER FOCUSED



HAVE EXPECTATIONS

Keep Track

**GEC Observed Structured Clinical Assessment Form
Sonography for Hypotension and Cardiac Arrest (SHoC)**

Trainee: _____ Date: _____
Evaluator: _____ Training Site: _____

Pre-scan	Score						
1. Turned machine on (Y/N)							
2. Positioned machine properly (Y/N)							
3. Positioned patient properly (Y/N)							
4. Entered data into the machine properly (Y/N)							
5. Cleansed hands prior to scan (Y/N)							
6. Cleansed probes prior to scan (Y/N)							
Scanning	PR (0-1)	PD (0-1)	OR (0-1)	AN (0-3)	IN (0-3)	IM (0-4)	Score
Cardiac-PSS							
Cardiac-PSS							
Cardiac-Apical 4							
Cardiac-Subxiphoid							
Thoracic-Pneumothorax							
Thoracic-Pleural fluid							
Thoracic-B lines							
Inferior Vena Cava – long axis							
Aorta-proximal							
Aorta-distal							
Aorta-distal, bifurcation							
FAST-RLQ							
FAST-LUQ							
FAST-Suprapubic/Pelvic for IUP							
LE DVT-Femoral Region							
LE DVT-Popliteal Region							
Post-scan	Score						
1. Made pt comfortable during scan (Y/N)							
2. Documented findings (SO, S-3)							
3. Communicated well with patient (CO, O-3)							
4. Cleaned hands after scan (Y/N)							
5. Cleaned patient after scan (Y/N)							
6. Cleaned probes after scan (Y/N)							

HAVE EXPECTATIONS

ASSESSMENT & COMPETENCY

Knowledge, Skills & Behavior

OSCE Adapted with Permission from PURE

CARDIAC
Echo Troubleshooting

RUQ
RUQ Troubleshooting

Soft Tissue
Soft Tissue Troubleshooting

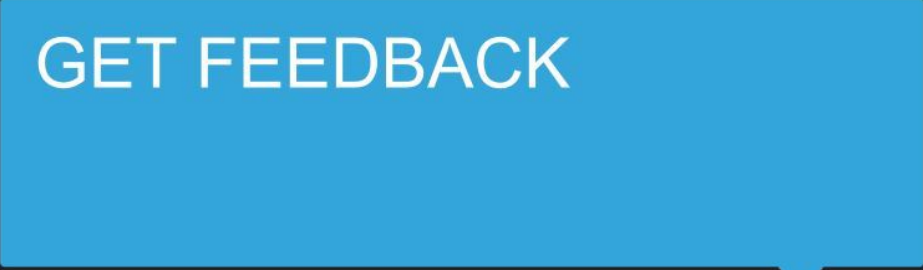
RENAL
Renal Troubleshooting

Credit for Resources to Zachary Soucy DO

CHEAT SHEETS
LECTURES
HELP THE LEARNING CONTINUE

GIVE AWAY
RESOURCES

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And Use It

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WHAT IS THE POST-TRIP PLAN?

- ▶ Continuing medical education
- ▶ Quality assurance and improvement
- ▶ Put someone in charge
- ▶ Competence vs Credentialing
- ▶ Keep logs
- ▶ Keep track of education
- ▶ Create a method for oversight and feedback
- ▶ Remote QA

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INTERNATIONAL EDUCATION FRAMEWORKS

- ▶ International Federation of Emergency Medicine (IFEM)
 - ▶ <https://www.ifem.cc/wp-content/uploads/2016/03/IFEM-Point-of-Care-Ultrasound-Curriculum-Guidelines-2014-1.pdf>
- ▶ Point-of-care Ultrasound in Low Resource Environments (PURE)
 - ▶ <http://www.pureultrasound.org>
- ▶ AIUM
 - ▶ <http://www.aium.org>
- ▶ World Health Organization
 - ▶ http://apps.who.int/iris/bitstream/10665/42093/1/WHO_TRS_875.pdf
- ▶ American College of Emergency Physicians
 - ▶ <https://www.acep.org/Clinical---Practice-Management/Ultrasound/#sm.00001ibx7dwn2vf3puiejxcsi3uki>
- ▶ Global Emergency Care
 - ▶ <https://www.globalemergencycare.org>

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MEANINGFUL CHANGE HAPPENS THROUGH PARTNERSHIP AND RELATIONSHIPS

Moira Bruce



SONOSTUFF.COM



@Ultrasoundstuff



The Center for Ultrasound Excellence



Mike Schick on YouTube



UCDavisEM.com
