Ultrasound in Undergraduate Medical Education

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No disclosures
Purpose

• Discuss status and scope of ultrasound programs in undergraduate medical education (UME)
• How we as radiologists may contribute
Journey of re-invention

- Love of teaching and ultrasound
- Had the idea to use imaging to teach anatomy in medical school
- Specifically using ultrasound to teach clinical skills in the first 2 years
- Found that radiology is beginning to be used in undergraduate medical education (UME) AND ultrasound programs are even more developed
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Move from CWRU and Rainbow, Babies and Children’s hospital
To sunny Florida to teach radiology to medical students
Continued to explore ultrasound in UME
Ultrasound in clinical practice

• Widespread
• Point of care ultrasound (POCUS) now used in most medical specialties
• Due to advances in technology
• Due to progressive miniaturization of machines and lower price points
• Ultrasound has been referred to as the “Sonoscope” or the stethoscope of the 21st century
Ultrasound education

- Spread far beyond radiology training programs
- Flagship UME programs: U of South Carolina, OSU, UC Irvine
- Largely championed and taught by Emergency Medicine physicians
- SUSME- Society of Ultrasound in Medical Education
- National ultrasound conferences with live scanning sessions sponsored by and attended by clinicians
Rationale for ultrasound education in UME

- Hands on ultrasound training is useful to teach “living anatomy” - both classic anatomy and physical diagnosis
- Preparation for further training in GME
- Ultrasound knowledge is increasingly required for clinical specialty board exams
- Clinical fellowship programs in ultrasound are developing
Difficulties establishing ultrasound programs

- Partially: Due to medical school curriculum crowded
- Time in the curriculum
- Mainly: Not required by the LCME (Liaison Committee on Medical Education)
- Funding for equipment
- Faculty and funding for faculty

Prediction: “Sonoscope” will replace the stethoscope as technology advances and therefore sonography will need to be included in UME
Ultrasound programs in UME

• Highly variable in development
• Ideally begin “hands on” ultrasound training in the first 2 years of medical school
• Used to enhance anatomy instruction
• Used to enhance physical exam instruction
• Required/elective
• Largest programs involve ½ the student body and extend into the 3rd and 4th years
Medical school education

- Remember: Purpose is to teach fundamental physiologic knowledge
- Ultrasound education must also be elementary and physiologically based
- Emergency medicine physicians have wide scope of clinical skills
- FAST exam - pinnacle of UME ultrasound programs
  Focused Assessment by Sonography for Trauma
  part of the ATLS (Advanced Trauma Life Support) protocol
FAST exam

- to identify fluid (hemorrhage) in blunt trauma patients
- Replaced peritoneal lavage
- subxiphoid view to assess for pericardial fluid
- right and left upper quadrants to assess for pleural effusions and free intraabdominal fluid
- pelvis views to assess for free fluid
Very interesting

Very wise for clinical practice

A bit scary
• Where are the Radiologists?

• Do we as Radiologists have a role in UME ultrasound programs?
UME Ultrasound Faculty

• Currently largely emergency medicine physicians, senior medical students and sometimes other subspecialties
• Instruction is physiologically based and hands on

• Radiologists are anatomically based, technical support with more detailed images and have a wider scope of imaging knowledge

• Radiologists and clinicians have complimentary skills
• Together we could provide students an excellent foundation in ultrasound
Role of radiology

• Thus far radiology has been out of the loop
• Turf battle
• Because machines are now portable and relatively inexpensive, radiology is no longer in control
• Contribute and continue to participate
• Involvement in teaching ultrasound skills to medical students will enhance Radiology’s relationship with other specialties, build respect and communication which will also improve patient care.
Conclusion

- Ultrasound has become widely used in clinical practice and increasingly taught in undergraduate medical education
- Currently taught from a clinical physiologic approach
- Radiologists have an opportunity to contribute to the ultrasound education of future physicians and improve collegiality between specialties
References


Thank you for your attention