Update in IM Bedside Ultrasound: Are We Being Left Behind?

Keith Barron, MD
Michael Wagner, MD, FACP, RDMS

Bedside Medicine: Slow to Change

Laennec invents stethoscope: 1816

Stethoscope: 1860

Stethoscope: 2019
A True Stethoscope

Where is Ultrasound Heading?
Adoption of Ultrasound Across Specialties

Adoption of Ultrasound into Internal Medicine

- Subspecialty use
- Procedural Guidance
- Point-of-Care Ultrasound
Updates on Procedural Guidance

Ultrasound for Procedural Guidance: Now Standard of Care

- US guidance improves safety and efficiency for most procedures
  - Arterial catheterization
  - Arthrocentesis/joint injection
  - Paracentesis
  - Peripheral vein catheterization
  - Thoracentesis

- Can reduce bleeding, infection, improve success, reduce attempts
• “The use of ultrasound guidance for paracentesis has been associated with higher success rates and lower complication rates.”

• “We recommend that ultrasound should be used to guide thoracentesis to reduce the risk of complications, the most common being pneumothorax.”
• “We recommend that providers should use real-time (dynamic), two-dimensional ultrasound guidance with a high-frequency linear transducer for CVC insertion, regardless of the provider’s level of experience”
Point-of-care ultrasound (POCUS): Beyond Procedures

- At bedside to guide patient management in real-time
- Does NOT replace radiology-performed ultrasound
- Usually binary decisions: “yes” or “no”

Seeing pathology through imaging might improve interest in physical examination among trainees, and permit appropriate downstream testing and possibly superior decision making.

Recent studies have found that clinical management involving the early use of POCUS accurately guides diagnosis, significantly reduces physicians’ diagnostic uncertainty, and also changes management and resource utilization.
POCUS for hospitalists: DVT, pericardial effusion

Reviews previously reported data about lung ultrasound, more accurate than CXR for:

- Pleural Effusions
- Pneumonia
- Pneumothorax
- Pulmonary Edema
• “The results of this study suggest that bedside lung ultrasonography has excellent accuracy for the diagnosis of pneumonia in adults.”

• “The implementation of LUS with the clinical evaluation may improve accuracy of ADHF diagnosis in patients presenting to the ED.”
• “Clinical examination assisted by FoCUS has greater sensitivity, but not greater specificity, than clinical assessment alone for identifying left ventricular dysfunction and aortic or mitral valve disease”

• “Ultrasonography with HHU clearly has the potential to be the fifth pillar of the physical examination and to improve the accuracy of bedside diagnosis”
Handheld Echocardiography
Current State and Future Perspectives

- “One of the real utilities of ultrasound augmented clinical diagnosis is in evaluating patients efficiently and selecting patients for appropriate downstream diagnostic testing including comprehensive echocardiography”

- Even Cardiologists now recognizing value

Table 1. Sensitivity and Specificity of Handheld Echocardiography for Evaluating Cardiac Structures and Function

<table>
<thead>
<tr>
<th>Cardiac Targets</th>
<th>Diagnostic Accuracy (%)</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left ventricular dilation(^{12,16-19})</td>
<td>73–100</td>
<td>64–93</td>
<td></td>
</tr>
<tr>
<td>Left ventricular systolic function(^{13,14,16,20-22})</td>
<td>&gt;90</td>
<td>&gt;90</td>
<td></td>
</tr>
<tr>
<td>Left ventricular hypertrophy(^{24})</td>
<td>70</td>
<td>&gt;90</td>
<td></td>
</tr>
<tr>
<td>Inferior vena cava dilation(^{16,20})</td>
<td>=70</td>
<td>&gt;80</td>
<td></td>
</tr>
<tr>
<td>Left atrial dilation(^{25})</td>
<td>53–75</td>
<td>72–94</td>
<td></td>
</tr>
<tr>
<td>Pericardial effusion(^{16,17,22})</td>
<td>89–91</td>
<td>&gt;96</td>
<td></td>
</tr>
<tr>
<td>Valvular heart disease(^{13,17,22,26,27})</td>
<td>=80</td>
<td>=80</td>
<td></td>
</tr>
<tr>
<td>Right ventricle dilation and function(^{4,20,22})</td>
<td>Variable among studies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Circulation. 2017;136:2178–2188. DOI: 10.1161/CIRCULATIONAHA.117.026622
• “The doctors of tomorrow may still listen with a stethoscope to their patient’s lung, but they will certainly be seeing it with ultrasound.”
P.E.A.R.L.S.
Ultrasound Physical

Standard
Physical

Full Webinar: “ultrasound PEARLS”

RESEARCH
The evolution of an integrated ultrasound curriculum (IUSC) for medical students: 9-year experience


>60 Medical Schools in the US
Starting Off Right

Bedside accuracy

Physical examination

MD 1

MD 2

+ultrasound

0

100

Point-of-care cardiac ultrasound techniques in the physical examination: better at the bedside
Bruce J Kimura
Heart published online March 4, 2017

YOU GET OUT OF IT

WHAT YOU PUT INTO IT.
Barriers/Concerns

- Equipment Portability/Availability
- Equipment Costs
- Billing
- Quality Assurance/Image Archive
- Litigation
- Broad Applications/Scope of Practice
- Time
- Training

Can / do “ultrasound”? 
Privileging in POCUS?

H-230.960 Privileging for Ultrasound Imaging

(1) AMA affirms that ultrasound imaging is within the scope of practice of appropriately trained physicians;

(2) AMA policy on ultrasound acknowledges that broad and diverse use and application of ultrasound imaging technologies exist in medical practice;

(3) AMA policy on ultrasound imaging affirms that privileging of the physician to perform ultrasound imaging procedures in a hospital setting should be a function of hospital medical staffs and should be specifically delineated on the Department’s Delineation of Privileges form; and

(4) AMA policy on ultrasound imaging states that each hospital medical staff should review and approve criteria for granting ultrasound privileges based upon background and training for the use of ultrasound technology and strongly recommends that these criteria are in accordance with recommended training and education standards developed by each physician’s respective specialty. (Res. 802, I-99; Reaffirmed: Sub. Res. 108, A-00)

PRIVILEGING is NOT REQUIRED
Credentialing of Hospitalists in Ultrasound-Guided Bedside Procedures: A Position Statement of the Society of Hospital Medicine

Brian P. Lucas, MD, MS1,2, David M. Tierney, MD, Trevor P. Jensen, MD, MS, Ria Dancel, MD, MS, Joel Cho, MD, Mahmoud El-Barbary, MD, PhD, MSc, Ricardo Franco-Sadud, MD, SHM Point-of-Care-Ultrasound Task Force, Nilam Sorri, MD, MS3,11

Resolution to support point of care ultrasound as an appropriate bedside tool to be used by internists in the care of patients.

(Sponsor: Florida, with supporting state chapters)

WHEREAS, point of care ultrasound (POCUS) is increasingly used by clinicians of many backgrounds (physicians, physician assistants, emergency medical technicians, and nurse practitioners)1 to extend their clinical skills; and

WHEREAS, guidelines for the use of POCUS in the care of patients and/or training have been published by many specialties including emergency medicine2, critical care3, cardiology4, rheumatology5, family medicine6, and pediatrics7; and

WHEREAS, over half of all schools of medicine in the US and medical schools in Canada now expose and educate students in the skills of POCUS, and over one quarter have formal ultrasound curricula2; and

WHEREAS, at least one quarter of US internal medicine GME programs have formal ultrasound curricula training residents to use POCUS to enhance patient care8,9, and the Canadian Internal Medicine Ultrasound Group has published consensus recommendations for residency programs10

WHEREAS, ACP has sponsored courses in ultrasound at its annual national and chapter meetings for a decade and has co-sponsored faculty and physician development workshops across the US; and

WHEREAS, there is no current ACP policy statement on the role of POCUS use in the care of Internal Medicine patients; therefore be it

RESOLVED, that ACP establish policy addressing the appropriate use of point of care ultrasound by internists; and be it further

RESOLVED that the ACP establish point of care ultrasound educational resources for internists that are consistent with ACP policy
Active ACP Initiatives

Point-of-Care Ultrasonography

Filter By:
- Free to Members
- Discounted to Members
- Part of a Package
- Only Show CME Activities

- Free to Members
  - ACP FOCUS: Obtaining Adequate Clinical Images for Interpretation
  - CME/MOC Claimed
  - View Details

- Free to Members
  - Basic Abdominal FOCUS for the General Internist
  - Points of Care Ultrasound
  - View Details

- Free to Members
  - Getting a CLUE - Pearls and Pitfalls
  - Points of Care Ultrasound
  - View Details

- Free to Members
  - IMpocus - A Weekend on the Wards
  - Points of Care Ultrasound
  - View Details
Given the many advantages of POCUS over traditional tools, we anticipate its increasing implementation among hospitalists in the future.
Point of Care Ultrasound for Internal Medicine Residency Training: A Position Statement from the Alliance of Academic Internal Medicine

• “The Alliance recognizes and supports the integration of POCUS . . . POCUS has demonstrated broad utility within internal medicine”
Can I *bill* for POCUS exams?

But **SHOULD** you?
“Mo’ Money Mo’ Problems…”

• Archiving
• Reporting
• Credentialing
• Impact on Other Departments/Local Politics

Won’t *they* come after me?
(I don’t want to be sued!)
Lawsuits (in EM)

Analysis of lawsuits filed against emergency physicians for point-of-care emergency ultrasound examination performance and interpretation over a 20-year period

Michael Blivas MD**, Richard Pawl MD, JD**
*Department of Emergency Medicine, Northside Hospital Forsyth, Cumming, GA 30041, USA
**Department of Emergency Medicine, Medical College of Georgia, Augusta, GA 30912, USA

Received 1 October 2010; revised 2 December 2010; accepted 13 December 2010.

Abstract

Objective: The study aims to define rates of lawsuits filed against emergency physicians (EMPs) over point-of-care emergency ultrasound (US) during the last 20 years.

Methods: We performed a systematic review of the Westlaw legal database for filed lawsuits involving EMPs and US. Westlaw covered all case and federal litigations dating back to 1994. Using an electronic search feature, all cases were searched using emergency and US as key words. The database exhaustively reviews for different versions on US such as sonography, for anyone who is also performing US. A certification examination was noted in an emergency US report, termed related claims. Descriptive statistics were used to evaluate the data.

How do I get “certified”? (privileges, credentials, *training*)

NOT performing US may soon carry MORE liability
Point-of-Care Ultrasound Certificate of Completion

Program Requirements

1. Attend Ultrasoundography: Essentials in Critical Care

   This program is a comprehensive, hands-on experience, designed to prepare clinicians for critical care environments.

   Date: January 26, 2020
   Location: Virtual

2. Complete Online Learning Module: bedside Ultrasound in Critical Care CAE Online

   This module provides an overview of the essential components of bedside ultrasound, including practical applications and case studies.

   Date: Ongoing
   Location: Virtual

3. Attend an Approved 2-Day POCUS Course

   This course is designed to provide hands-on experience in point-of-care ultrasound.

   Date: Various
   Location: Virtual

4. Complete Online Portfolio

   After completion of the above requirements, you will be asked to submit your portfolio. The portfolio must include a minimum of five cases with detailed annotations, including images and clinical correlations.

   Date: Ongoing
   Location: Virtual

5. Pass a Comprehensive Skills and Knowledge Assessment

   This assessment is designed to ensure that you have mastered the necessary skills and knowledge in point-of-care ultrasound.

   Date: Ongoing
   Location: Virtual

www.hospitalmedicine.org
Next Steps  **POCUS Ideas worth spreading**

• Get connected!
  • [www.sonointernist.com](http://www.sonointernist.com)
  • [www.twitter.com](http://www.twitter.com) - #pocus, #IMPOCUS, #FOAMUs

@sonointernist; @IMSonoSC  
#FOAMed, #IMpocus and #ultrasound
In Summary

• POCUS ≠ Traditional Ultrasound
• Pocket-sized devices are well suited to hospitalist workflow
• The potential applications are numerous and broad in scope
  • Start small with simple POCUS physical (e.g. PEARLS, CLUE, FAST)
  • PRACTICE, find mentors or form peer support groups
  • Layer additional applications over time
• Numerous barriers exist to POCUS utilization by hospitalists
• Innovation, collaboration, and hard work will be essential
  • But well worth it!