A Newsletter for the Members of the North Dakota Chapter - Fall 2021
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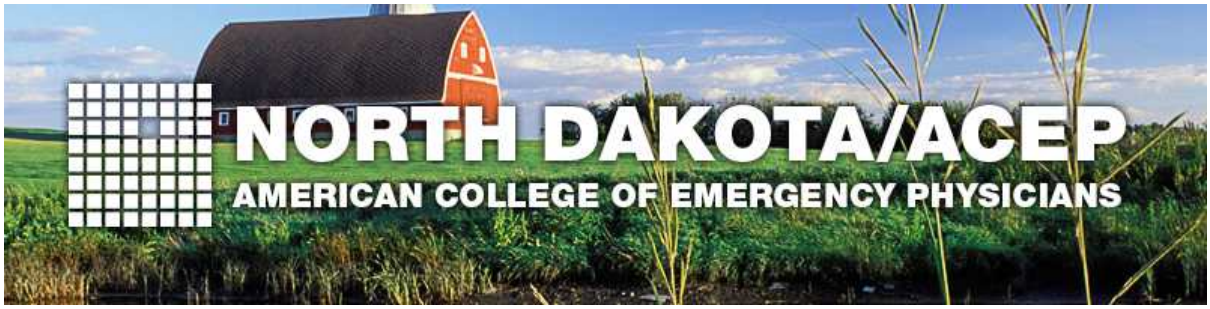


In this Edition

President's Message

Dear Colleagues,

2021 is almost over and life goes on even after COVID. Thanks for all you do for your patients in North Dakota. I hope you enjoy this edition of our Fall 2021 Newsletter.

Update: University of North Dakota Department of Emergency Medicine

Wilderness Medicine Instructors Needed
UND DEM is hosting an Advanced Wilderness Life Support (AWLS) course on April 29-May 1, 2022, at one of North Dakota's State Parks. UND DEM Faculty are encouraged to participate as instructors and will be eligible for:

- Over 20 hours of category 1 CME
- AWLS Certification
- Wilderness Medical Society Fellowship credit

The course will be led by Dr. Justin Reisenauer and is a combination of lecture and workshop. Please contact Kassie Lutz to add your name to the list of potential faculties so that we can divide up the course material and give you time to prepare.

Emergency Medicine Journal Club
NDACEP members recently voted to support our monthly Journal Club which occurs on Thursdays at noon. The Journal Club links medical students, residents,

and faculty from around the state to discuss a recent article pertaining to emergency medicine. Use this link to access the 2021-2022 schedule, a list of topics, links to the articles, and an invitation to join the zoom video call.

Point of Care Ultrasound Elective
Dr. David Collins has been named UND DEM Ultrasound Director and is developing UND's first elective medical student rotation in point of care ultrasound. We will be using Butterfly IQ devices and performing QA of student images remotely. Please share your thoughts with us on how your institution can help facilitate student access to patients for the purpose of practicing point of care ultrasound. If you have experience with POC US and are willing to mentor students at your institution, please reach out to Kassie Lutz.

Point-of-Care Ultrasound for COVID-19

Devon Pekas, MSBS, MS3
Jon Solberg, MD, FACEP, FAWM, DiMM

Over the course of the COVID-19 pandemic, clinicians around the world have sought an imaging modality that is cheap, quick, and accurate to provide pertinent clinical information regarding the diagnosis and management of COVID-19. While reverse transcription-polymerase chain reaction (RT-PCR) is the gold standard for diagnosing COVID-19, computed tomography (CT) and chest X-ray (CXR) are primarily used to identify its physiological manifestations. With that said, point-of-care ultrasound (PoCUS) may be changing the game with its own unique benefit profile. Proper training in the applicability, execution, and interpretation of ultrasound in COVID-19 patients will allow PoCUS to provide clinicians with critical information immediately at the bedside.

Now that portable ultrasounds are available, clinicians can obtain affordable and immediately accessible scans. Portable ultrasounds minimize transmission, if simple disinfection protocols are followed **(Table #1)**, since patients can be scanned in their own room with no additional movement or staff (radiology) needed. PoCUS also provides this visualization without any radiation. PoCUS does, of course, have its own drawbacks/limitations with limited utility with inexperienced clinicians, patients with elevated body habitus, and patients with compromised status. From a more practical standpoint, it has been proposed to approach COVID-19 patients with the classic airway, breathing, and circulation (ABCs) mnemonic repurposed for PoCUS.

Airway refers to confirming endotracheal intubation placement while ruling out esophageal intubation. Normally, proper intubation is confirmed by visualizing passage through the vocal cords, end-tidal CO2, and/or lung auscultation. If these are not able to be performed, or not performed correctly, optimal care will suffer. PoCUS confirmation is a quick and reliable tool which can be utilized on its own or adjunctly. To perform PoCUS confirmation, place the transducer horizontally between the cricoid cartilage and sternal notch. If endotracheal intubation is present, a hyperechoic shadow known as the "comet sign" will be present as the tube and trachea show up together. If esophageal intubation is present, a "double trachea" appearance will be present as the tube and the trachea will present separately.

Breathing refers to scanning for lung pathology. Ultrasound has a sensitivity and specificity for COVID-19 pneumonia of 90.2% and 88.8%, respectively, when compared to CXR, CT, and clinical exam. This may be due to COVID-19 having the tendency to affect the posterior basal lung zones, peripheral zones which ultrasound can readily visualize, unlike central lung regions. COVID-19 has characteristic lung ultrasound findings:

1. B-lines
    a. Seen as vertical lines starting at the pleural line
    b. Correlate well with the progression and resolution of COVID-19
2. Pleural line thickening
    a. Seen as a thickened hyperechoic pleural line or subpleural consolidations
3. Lung consolidations
    a. Seen as “tissue-like sign,” which is normal lung tissue replaced with liver look-alike tissue as its density increases
    b. Correlates well with COVID-19 progression
    c. Reliability depends on location of consolidation as it must be peripheral to be identified by PoCUS
4. Air bronchogram
    a. Seen as hyperechoic structures within a consolidation that move with the respiratory cycle
5. Pleural effusion
    a. Seen as fluid between the parietal and visceral pleura and can be identified with the “quad sign” or “sinusoid sign”
    b. Rare in COVID-19 when compared to the above characteristics but can guide thoracocentesis when present

Pneumothorax is a life-threatening condition/complication which needs to be diagnosed and treated immediately. For pneumothorax, ultrasound has a higher sensitivity and specificity than CXR. There are four ultrasound signs characterized:

1. Absence of lung sliding. Present lung sliding indicates the lungs are properly aerated.
2. Absence of B-lines.
3. Presence of a lung point. The lung point is the point which differentiates the partially deflated lung and the interpleural space.
4. Absence of lung pulse. A present lung pulse means the visceral and parietal pleura are in close contact and pulse with the cardiac/respiratory cycles.

Circulation refers to a rapid, high-yield cardiac examination utilizing multiple views (subcostal, apical four chamber, parasternal long axis, and parasternal short axis). These allow for a global view of cardiac function including wall motion function, chamber diameter, and valve function. Large pericardial effusions can be identified by the presence of hypoechoic pericardial fluid and right atrial or ventricular diastolic collapse. It can also be used to guide percutaneous pericardiocentesis. Scanning of the peripheral lower extremity veins can diagnose DVT by the visualization of a thrombus and the lack of vein compressibility at the thrombus site. Lastly, PoCUS can investigate the etiology of fluid status abnormalities with inferior vena cava diameter variability throughout the respiratory cycle. It should be noted that cardiac findings should be followed/confirmed with a full echocardiogram performed by proper personnel.

In conclusion, with the proper training and knowledge, PoCUS can be a valuable tool used to diagnosis and manage COVID-19 patients. It is comparable to CT and CXR for COVID-19 pneumonia with additional benefits such as accessibility and portability. When used in a systematic manner, PoCUS can be utilized in COVID-19 patients to investigate airway (intubation), breathing (pathology diagnosis), and circulation (cardiac function, DVT, and fluid status). When your next possible COVID-19 patient walks in the door, consider utilizing point-of-care ultrasound to guide your management.

Table #1	PoCUS Disinfection Checklist
Before Scan	1. Designate certain devices as COVID-19 specific
	2. Cover machine/probe in a protective plastic sheath
	3. Use single-use gel
After Scan	1. Disinfect machine/probe with approved supplies while in PPE
	2. Remove machine/probe from patient's room
	3. Remove PPE and put on new gloves
	4. Disinfect machine/probe with approved supplies while wearing gloves

ABCs Summary

- Airway
  - Confirm proper placement of endotracheal tube with the presence of the "comet sign" and absence of the "double trachea"
- Breathing
  - COVID-19 (Positive: B-lines, pleural line thickening, tissue-like sign, air bronchogram, and/or pleural effusion)
  - Pneumothorax (Positive: lung point; Negative: lung sliding, B-lines, and (lung pulse)
- Circulation
  - Wall motion function, valve function, and pericardial effusion: multiple cardiac views
  - Thromboembolism/DVT: peripheral lower extremity vein scan
  - Fluid status: IVC diameter and variability with respiratory cycle

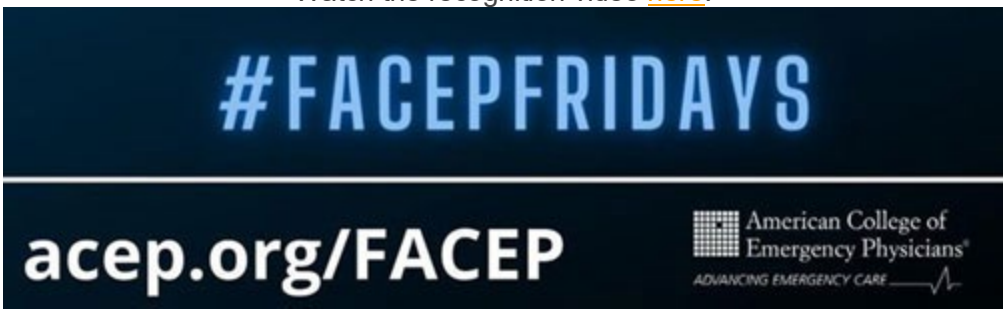
Citations

1. Karp J, Burke K, Daubaras SM, McDermott C. The role of PoCUS in the assessment of COVID-19 patients. J Ultrasound. 2021.
2. Simon R, Petrisor C, Bodolea C, Csipak G, Oancea C, Golea A. A.B.C. approach proposal for POCUS in COVID-19 critically ill patients. Med Ultrason. 2021;23(1):94-102.

Congrats to the new chapter Fellow!

Steve Inglish, MD, FACEP

Watch the recognition video here!



2021 Memorial Resolution

Read the Memorial Resolution submitted this year by the chapter for Dr. Lako-Adamson during the 2021 Council Meeting that was held in Boston.

Welcome New Members!

A special welcome to the new members of the North Dakota Chapter and to those that renewed their membership with the chapter. We are excited to have you.

Christopher Frantz, MD
Jeremy Forrest Brudevold, DO
KC Braaten
Kenya Amanda Kraft
Kevin Torkelson
Stephane R. Blanchard, MD

You may wonder if you should get involved with North Dakota ACEP or EMRA or at the national level? We encourage you to get involved!

If you are unsure about how to get involved, feel free to contact the chapter directly.

FROM NATIONAL ACEP

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Featured News

"We cannot solve the challenges of our time unless we solve them together"
In her address to the ACEP Council on Oct. 24, 2021, ACEP President Dr. Gillian Schmitz outlined her vision and approach as the College's new leader. Watch her speech.

EM Physician Workforce of the Future:

- Emergency Physicians Explore the Future of the Emergency Medicine Workforce (ACEP *Now*, 10/25/21)
- 2021 Survey of the Emergency Medicine Job Market (ACEP *Now*, 10/18/21)
- Get the latest workforce updates at www.acep.org/workforce.
- Visit ACEP's Career Center

Regulatory News:

- Status Update: ACEP Actions to Push Back Against Flawed No Surprises Act Regulation (11/18/21)
- Breaking down the Biden Administration's new vaccine mandates: How do they impact you? (11/11/21)
- Emergency Physicians Call on Biden Administration to Amend Interim Final Rule on Surprise Billing (11/9/21)
- The 2022 Physician Fee Schedule Final Reg: Highlights and Perspective (11/4/21)

EM Physicians Join Forces to Create Award-Winning COVID-19 Field Guide
In this video, ACEP members tell the origin story of the award-winning **COVID-19 Field Guide**, a valuable resource that has been utilized by emergency clinicians in more than 160 countries.

Rescue Team Doctor at the Surfside Condo Collapse Shares Experience
In this ACEP *Now* article, Dr. Benjamin Abo gives a firsthand account of what it was like for the urban search and rescue teams that responded to the Surfside condo collapse. (Plus, get bonus content from Dr. Abo on this month's *ACEP Nowcast*.)

ACEP Member Benefits

A Checklist to Help You Negotiate The Best Employment Contract
Employment contracts are complex and often difficult to navigate. This checklist is designed to help you consider all the right questions when reviewing any employment contract you receive.

Legal and Financial Support Services
For just $15 per year, ACEP members can access Mines & Associates' legal and financial support assistance. This service includes unlimited 30-minute in-person consultation for each individual legal matter, unlimited telephonic 30-minute consultation per financial matter, and 25% discount on select legal and financial services all with MINES network legal and financial professionals.

For more employment contract & job hunt resources, visit ACEP's Career Center

Upcoming ACEP Events and Deadlines

Nov. 29-Dec. 4: EM Basic Research Skills (EMBRS) Workshop
Dec. 4: Last day to submit your videos for the TikDoc Challenge
Dec. 16: Alleviating the Pain: Managing Sickle Cell Patients
Jan. 17-19: Reimbursement & Coding Conference
Jan. 18: Advanced EM Ultrasonography Exam Review Course

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