Palliative Care
Point of Care Ultrasound (PoCUS)

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Independent Practitioner - Core and Expanded (Resuscitation Track), CPoCUS
LEARNING OBJECTIVES

At the end of this session, participants will be able to:

• Discuss basics of (bedside) PoCUS.
• Discuss applications of PoCUS in Palliative Care
• I have no relationships with commercial interests to disclose.

• We have 2 machines made available to us through in-kind sponsorship for the purpose of education. I am not endorsing a specific brand.
Which health discipline do you represent?

- Physician
- Nurse practitioner
- Nurse
- Personal support worker
- Other
What is your main practice setting

- Hospice
- Community (home visits)
- Clinic
- Hospital
- Other
WHAT IS POCUS

- Performed by clinician at the bedside
- Specific indications and applications
- Diagnostic or procedural
<table>
<thead>
<tr>
<th>I have access to a PoCUS device and use it regularly</th>
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<tbody>
<tr>
<td>I know how to do PoCUS, but we need a/more device(s).</td>
</tr>
<tr>
<td>I don’t know how to do pocus and have no device</td>
</tr>
<tr>
<td>“We” have a device, but I don’t know how to use it.</td>
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</tbody>
</table>
WHAT IS ULTRASOUND?
HOW DOES ULTRASOUND WAVES BEHAVE?

• Fluid – Black
• Tissue – Grey
• Bone/Calcium – White with shadow
• Air – Scatter
• Interfaces – “Outline”
ULTRASOUND PROBES

Higher Frequency = Lower Penetration = Better Resolution

https://www.gehealthcare.com/products/ultrasound/ultrasound-transducers
DEVICE SELECTION - OPTIONS

- Chison ECO2, ECO3, ECO5, ECO6, Q5, Q9, Sonobook, Sonotouch 30, Ebit 60
- Clarius C3 Convex, L7 Linear, C7 Microconvex
- Esaote: MyLab Seven, MyLab Six, MyLab Alpha, MyLab Gamma, MyLab One
- Fujifilm: Sonosite IVIZ, SII, Edge II, X-Porte, M-Turbo
- GE Healthcare: Vscan, Venue 50, NextGen LOGIQ, LOGIQ S7, LOGIQ P9
- Mindray DP-30, DP-50
- Phillips: Lumify, Sparq, CX 50
- SeeMore: SiMPli
- Sonoscape A6, S2, S8, X5, E1
DEVICE SELECTION

- Setting & Uses
- Familiarity with device/existing devices
- Cost: new vs. refurbished
- Size/weight (Portability/”Stealability”): laptop, fold-down, handheld/tablet/hand-operated
- Battery life
- Image quality
- Image storage
- Probes, pre-sets
- Warranty & support
CASE #1

56 year-old female
- Metastatic ovarian cancer/abdominal carcinomatosis
- Increasing abdominal distension and discomfort

Paracentesis?
SCENARIO 1A

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Scenario 1A - Paracentesis?

Yes.  No.  I don't know.
ASCITES

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SCENARIO 1B
Scenario 1B - Paracentesis?

<table>
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<tr>
<th>Yes.</th>
<th>No.</th>
<th>I don't know.</th>
</tr>
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</table>

INTRA-ABDOMINAL METASTASES
### Scenario 1C - Paracentesis?

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<tbody>
<tr>
<td><strong>Yes.</strong></td>
<td><strong>No.</strong></td>
<td><strong>I don't know.</strong></td>
</tr>
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</table>
DISTENDED BLADDER

By Mikael Häggström - Own work, CC0, https://commons.wikimedia.org/w/index.php?curid=65548789
CASE #2

79 year old frail elderly
- CHF, recent “cold”
- Increasing SOB and bilateral leg swelling R>L

Dx?
Case 2 - Differential Diagnosis
SCENARIO 2A

SCENARIO 2B

SCENARIO 2C


https://aliemcards.com/cards/dvt-ultrasound/
PERICARDIAL EFFUSION

SCENARIO 2D

CASE #3

90 year-old nursing home patient
- Fell overnight, swollen forearm
SCENARIO 3A

SCENARIO 3B

Case courtesy of Dr Maulik S Patel, Radiopaedia.org, rID: 24248
POCUS – “CORE APPLICATIONS”

Pericardial Effusion    Cardiac Activity
Aortic Aneurysm
Abdominal Free Fluid
Intrauterine Pregnancy
Pleural Effusion        Pneumothorax
POCUS – EXPANDED APPLICATION

Resuscitation track
For certification in: Advanced cardiac views (PSL, PSS, A4C), Advanced Lung, IVC

Diagnostic track
For certification in: Gallbladder, Renal, Bladder, DVT, Ocular

Musculoskeletal track
For certification in: Fracture diagnosis and reduction, Joint assessment, Dislocation reduction, Soft tissue injury, Abscess, Tendon rupture
POCUS – DIAGNOSTIC APPLICATIONS IN PALLIATIVE CARE

- Ascites
- Pleural effusion
- Bladder volume
- Hydronephrosis
- DVT
- Intra-abdominal metastases
POCUS-GUIDED PALLIATIVE INTERVENTIONS

Paracentesis; placement of peritoneal catheters

Thoracentesis

Ultrasound-guided venous catheterization

Nerve blocks +/- neurolysis: truncal blocks (celiac, superior hypogastric, ganglion), peripheral

Botulinum toxin injection: Intra-parotid and submandibular glands for sialorrhea

MSK

• Corticosteroid injection to shoulder for adhesive capsulitis related to terminal upper extremity weakness

• Knee aspiration and corticosteroid injection for OA

• Sacroiliac joint and lumbar epidural steroid injection for low back pain

Percutaneous nephrostomy, suprapubic cystostomy
REFERENCES


