Point-of-Care Ultrasound (POCUS)

Purpose: To provide additional field diagnostic capabilities for specific patient presentations evaluated by Community Paramedics (CPs) or Mobile Intensive Care Unit (MICU) Paramedics.

Prerequisites: Providers utilizing pre-hospital POCUS must undergo MCA-approved education regarding the use of each specific ultrasound procedure as noted below. In addition, the provider must have established credentialing at either the CP or MICU paramedic level.

Approved devices:

1. Specific devices to be approved by MCA Medical Director (example: Butterfly iQ ©)

Specific Ultrasound Procedures:

1. Lung
2. Cardiac
3. Focused Assessment with Sonography in Trauma (FAST)
4. Vascular access (peripheral)
5. Bladder

Indications:

1. Evaluation of dyspnea/respiratory distress (lung, cardiac)
2. Evaluation of hypotension (lung, cardiac, FAST)
3. Evaluation of cardiac activity in cardiac arrest (cardiac)
4. Evaluation of a blunt trauma patient (lung, FAST)
5. Need for vascular access (peripheral) in a patient in whom standard IV access has been unsuccessful or is anticipated to be difficult (vascular access)
6. Evaluation of urinary retention (bladder)

Contraindications/precautions:

1. No absolute contraindications exist.

2. Ultrasound evaluation shall not delay standard pre-hospital care or transport of patients in whom rapid transport is indicated (e.g., patients who meet trauma inclusion criteria, severe respiratory distress, etc.)

PROCEDURE:

Lung Ultrasound

1. Establish standard pre-hospital patient care. Refer to the General Pre-Hospital Care Protocol or General Protocol for CPU Patient Assessments.

2. Obtain views in at least 4 lung zones (1-4) on each side

3. Save a scan for each view

4. Evaluate in each zone for:

    a. Lung sliding

    b. B-lines (>1 per rib space)

5. Communicate findings to receiving facility or online medical direction

6. Document findings in the ePCR

NOTE: Decision to perform pleural decompression should NOT be made based on lung ultrasound evaluation. Refer to the Pleural Decompression Protocol for guidance based on clinical evaluation.

Cardiac Ultrasound

1. Establish standard pre-hospital patient care. Refer to the General Pre-Hospital Care Protocol or General Protocol for CPU Patient Assessments.

2. Obtain the following views (if unable to obtain a specific view, proceed on to the next position; do not delay in order to obtain each view)
    a. Parasternal long axis
    b. Parasternal short axis
    c. Apical 4-chamber
    d. Subxiphoid
    e. IVC

3. Save a scan for each view that is able to be obtained

4. Evaluate for:
    a. Pericardial effusion
    b. General assessment of contractility (present/absent, normal/decreased)
5. Communicate findings to receiving facility or online medical direction

6. Document findings in the ePCR

Focused Assessment with Sonography in Trauma (FAST)

1. Establish standard pre-hospital patient care. Refer to the General Pre-Hospital Care Protocol or General Protocol for CPU Patient Assessments.

2. Obtain the following views (if unable to obtain a specific view, proceed on to the next position; do not delay in order to obtain each view)
   a. Right upper quadrant
   b. Subxiphoid
   c. Left upper quadrant
   d. Suprapubic

3.Save a scan for each view that is able to be obtained

4. Evaluate in each view for:
   a. Free fluid

5. Communicate findings to receiving facility or online medical direction

6. Document findings in the ePCR

Vascular Access (peripheral)

1. Establish standard pre-hospital patient care. Refer to the General Pre-Hospital Care Protocol or General Protocol for CPU Patient Assessments.

2. Attempt to establish access per the Vascular Access & IV Fluid Therapy Protocol.
   a. If the patient is already identified as a patient with difficult access, may proceed directly to ultrasound-guidance

3. If access is unable to be obtained, proceed with ultrasound-guidance

4. Scan in the forearm and antecubital fossa for an adequate vessel; ensure the vessel is a vein

5. Perform peripheral vessel cannulation under ultrasound guidance

6. Save images of the catheter entering or within the vessel

7. Initiate fluids or other therapies per medical direction, the Vascular Access & IV Fluid Therapy Protocol, or other appropriate protocol.

8. Document access in the ePCR

Bladder

1. Establish standard prehospital patient care. Refer to the General Pre-hospital Care Protocol or General Protocol for CPU Patient Assessments.

2. Utilizing the device bladder scanning mode, perform bladder imaging per the device instructions.

3. Document the usage of ultrasound and estimated bladder volume on the ePCR.

4. Save an image of the estimated bladder volume.

5. Refer to appropriate care protocol including Community Paramedicine Urinary Complaints and Urinary Catheter Insertion & Care

a. Consider insertion of a Foley catheter per above protocols if the patient is symptomatic and post-void residual is greater than 300 mL

Quality Assurance:

All scans will be saved to a HIPAA-compliant cloud. 100% of scans will be reviewed by an Emergency Medicine trained physician who is credentialed to perform POCUS in their primary clinical environment. If technology allows, live-streaming quality assurance can be performed at the request of the paramedic on scene.