GLOBAL EMERGENCY MEDICAL REGISTRY

Intravenous Access Femoral Cannulation for Extracorporeal Membrane Oxygenation (ECMO) Skill Documentation Form

Candidate (Print): _____ Date: _____

Examiner (Instructor or Licensed Provider): _____

Examiner Signature: _____

Pass _____ Fail _____

Task	Correct	Incorrect
Pre-Cannulation Checklist:		
Ensure all necessary personnel are present, including an ECMO device operator, adequate assistants, and personnel continuing care of the patient.		
ECMO supplies (Gather all components of the ECMO circuit and cannulation kits, including specialized large-bore cannulas, guidewires, and dilators).		
Patient supplies (Prepare sterile drapes, gowns, gloves, face shields, antiseptic solution (e.g., chlorhexidine), and local anesthetic).		
Monitoring equipment (cardiac monitor, SpO2, EtCO2, NIBP, blood pressure transducer, and ultrasound machine with both cardiac and vascular probes ready).		
Patient Preparation:		
Positioning: • Place the patient in a supine position. • Abduct and externally rotate the leg on the side of the cannulation to expose the inguinal area		
Site preparation: Clip (do not shave) hair from the groin and upper thigh, then clean the area with antiseptic and allow it to dry completely.		
Administer local anesthetic along the anticipated needle insertion path if patient is conscious.		
Administer systemic heparin to achieve an activated clotting time (ACT) goal, as specified by agency protocol.		
Femoral Cannulation Procedure:		
Ultrasound-guided access: 1. Use the ultrasound probe with a sterile cover to identify the femoral artery and vein, confirming their patency. 2. For venous cannulation (VA-ECMO), access the femoral vein. Insert the needle 1 cm medial to the artery and 2–4 cm below the inguinal ligament, aiming toward the umbilicus at a 45–60° angle, guide into place utilizing ultrasound. 3. For arterial cannulation (VA-ECMO), access the femoral artery using a micropuncture system. Puncture the vessel using ultrasound guidance, aiming for an anterior wall stick to reduce the risk of bleeding.		
Guidewire and dilator insertion: 1. Once the vessel is accessed and a flash of blood is seen, insert a guidewire through the needle into the vessel lumen. 2. Use ultrasound imaging to confirm the guidewire's placement in the correct vessel and location. 3. The venous wire should be in the right atrium or inferior vena cava, while the arterial wire should be in the aorta.		

4. Create a small skin incision at the wire entry site and serially dilate the tract over the wire to accommodate the size of the cannula.		
Cannula insertion: 1. Advance the ECMO cannula over the guidewire. 2. For venous cannulation, advance the tip to the predetermined position in the inferior vena cava or right atrium. 3. For arterial cannulation, advance it into the common femoral artery. 4. Remove the guidewire and connect the cannula to the primed ECMO circuit. 5. Confirm final cannula position with imaging 6. Secure the cannulas using sutures or fixation devices to prevent displacement.		
Post-cannulation: 1. Initiation: Start the ECMO pump slowly, gradually increasing blood flow over several minutes. 2. Assessment: Monitor the patient's vitals and check for adequate blood flow. Use ultrasound to confirm cannula position and screen for complications like vessel dissection or hematoma. 3. Limb perfusion (VA-ECMO): Assess the ipsilateral limb for signs of ischemia, as the large cannula can obstruct blood flow. A distal reperfusion catheter may be required. 4. Documentation: Record the procedure details, including cannula sizes, positions, insertion lengths, and initial ECMO settings.		

Note: any "incorrect" represents a skill failure

Critical Failure Criteria

	Failure to establish a patent and properly adjusted access within 30-minute time limit
	Failure to take appropriate PPE precautions prior to performing venipuncture
	Contaminates equipment or site without appropriately correcting the situation
	Performs any improper technique resulting in the potential for uncontrolled hemorrhage, catheter shear, or air embolism
	Failure to utilize and interpret ultrasound views properly
	Failure to follow the skill steps as listed.
	Failure to properly dispose of blood-contaminated sharps immediately in proper container at the point of use
	Failure to manage the patient as a competent provider
	Exhibits unacceptable affect with patient or other personnel
	Uses or orders a dangerous or inappropriate intervention

NOTE: You must factually document any "incorrect" or critical failure criteria on back of this form

