Procedure	Level	Nonoperative/Preoperative	Intraoperative	Postoperative
Thoracentesis	1: Limited Participaton Demonstrates basic understanding of the disease proces and how the tools operate. Has very basic skills. Framework: What a learner directly out of medical school should know. The attending shows and tell during the procedure.	-understands the pathophysiology and differential diagnosis for the causes for pleural fluid -identify appropriate indications for drainage of pleural fluid -performs a history and physical and lab evaluation independently -aware of SIR guidelines for preprocedural labs and medication holds	-assists with preparation of sterile procedural field and maintains a sterile field -appropriately positions patient based on imaging -able to identify free fluid vs loculated fluid and distinguish these from intraperitoneal fluid; be able to identify the lung -able to identify an appropriate window for access on ultrasound , takes into account the rib/associated vasculature and lung position	-Understands what labs should be sent (gram stain, cell count with differential, culture and sensitivity, cytology, LDH) -Aware of what complications to look out for during the procedure like increased work of breathing, bleeding, chest pain, hypotension -In the setting of complication, not familiar with next steps -able to explain the basic procedure to the patient, but needs prompting to cover the complications and warning signs of serious complications that the patient should seek care for
	2: Direct Supervision Demonstrates an understanding of the steps of the procedure but requires direction to accomplish in a safe manner Framework: The learner can use the tools but may not know exactly how, what or where to do it. The attending actively helps throughout the case to maintain forward progression.	-able to review preoperative imaging (US/CT/MRI) to identify if pleural fluid is accessible (size, location) and determine approach with minimal attending direction -demonstrates an understanding of the indications, contraindications and potential complications -communicates facts of procedure and discusses potential complications or alternatives for straghtforward cases but may need direction for more complicated cases -aware of safe amount of fluid that can be removed, and if it is therapeutic vs diagnostic	-able to prepare a sterile field and position the patient appropriately only needing minimal direction from the attending -familiar with the tools to drain pleural fluid -able to instill local anesthetic into the access track, with minimal attending direction -able to identify appropriate access window, but needs attending direction to ensure appropriate visualization of the needle tip	-able to explain the basic procedure to the patient as well as complications/warning signs of serious complications that the patient should seek care for with minimal guidance -Identifies post-procedural complications and understands next steps, but may need attending direction for management

	3: Indirect Supervision Can do thoracentesis in a large effusion but may need guidance in loculated/complex/small pocket of pleural fluid Framework: The learner can perform straightforward thoracentesis. The attending gives passive help. This passive help may be given with the attending scrubbed in for more complex thoracentesis or during a check-in for more routine thoracentesis.	-independently reviews the imaging and indication for thoracentesis -independently communicates the indications, contraindications, potential complications/alternatives of the procedure with the team and patient/family	-independently gathers all tools, prepares the patient and field -facile with the tools -identifies and accesses an appropriate window for thoracentesis while visualizing the needle throughout the procedure -successfully guides a junior resident in performing a straighforward thoracentesis -may need passive help in performing more difficult thoracentesis (complex, loculated, small window)	-able to explain the basic procedure to the patient as well as potential complications, warning signs of serious complications that the patient should seek care for, independently -able to guide a junior resident in performing postoperative management and manage common complications, but may need attending guidance in more complex situations (complex patient, severe complications, etc)
	4: Practice Ready Can perform easy and complex thoracentesis and manage post thoracentesis complications Framework: The learner can perform all straightforward and complex thoracenteses and can manage post-thoracentesis complications independently The attending is available as needed but is not routinely needed.	-able to discuss the management of pleural fluid with referring teams -identify patients that may not benefit from a thoracentesis or may need additional care (ie: empyema, recurrent pleural effusion in a cancer patient) -understands the differential diagnoses for different fluid characteristics (bloody, chylous, purulent)	-able to drain small effusions in complex cases and easily identifies the needle tip throughout the procedure, independently	-counsels patients on causes of pleural fluid and offers treatment options (ie: tunneled pleural catheter for malignant effusions) -manages post-procedural complications independently while able to identify when additional services may need to get involved (ie: pulmonology or surgery)