

Faculty Development			
Prioritization and interpretation of exam findings			
Patients with symptoms of heart failure have <i>increased left heart filling pressure</i> , which can be due to decompensated <i>systolic or diastolic dysfunction</i> .			
	Exam finding	Predicting elevated left heart filling pressure	Predicting low ejection fraction
Vital signs	Cheyne-Stokes respirations	n/a	✓✓
	Heart rate > 100 at rest	✓✓	✓
Heart exam	Elevated JVP	✓✓	✓✓
	Abnormal abdominojugular test	✓✓✓	Only pertinent to detecting elevated filling pressure
	Displaced apical impulse (supine, lateral to MCL)	✓✓	✓✓✓
	Presence of S3	✓✓	✓✓
Lung exam	Presence of crackles on lung examination	Not predictive of heart failure specifically, as can be present in many other causes of dyspnea; crackles often absent in chronic HF due to compensatory responses. More helpful in patients with known HF and when other causes of dyspnea unlikely.	
Other	Peripheral edema	Not predictive of heart failure specifically	

Examination techniques and teaching points		
Cheyne-Stokes respirations	Cycling between deep inspirations and apneic periods; associated with low ejection fraction and with neurologic disease	
Prioritize heart rate and rhythm	Is there significant bradycardia or tachycardia?	
Prioritize distinguishing S1 from S2	Can be challenging when HR>100.	<ul style="list-style-type: none"> S2 generally loudest at LUSB, RUSB Palpate central pulse while auscultating. Delay in pulse wave reaching distal extremity introduces uncertainty.
JVP assessment	<ul style="list-style-type: none"> Height of venous column changes in response to respirations; decreases with elevating head; increases with pressure on abdomen. EJ assessment is accurate. Both IJ and EJ veins have valves that prevent backward flow away from heart. JVP might appear artificially higher when examined on left side of neck due to potential compression by normal aorta. 	
Pathophysiology of S3	<ul style="list-style-type: none"> Left atrial pressure is elevated and there is increased flow into left ventricle in early diastole; stiff ventricle can contribute. S3 will disappear early in response to diuresis and reduced atrial pressure. 	

JVP = jugular venous pressure; MCL = midclavicular line; HF = heart failure; HR = heart rate; L- or RUSB = left/right upper sternal border; EJ = external jugular vein; IJ = internal jugular vein

<i>This patient presents with progressive shortness of breath. The patient mentions history of a heart attack years ago but does not remember more details. Please examine the patient to evaluate for heart failure.</i>		
	Physical Exam Technique	Areas for Feedback – Did the learner...
General assessment and vital signs	<ul style="list-style-type: none"> General appearance, comfort level Observe patient moving and walking Notice respiratory pattern Vital signs, noting heart rate, any hypotension, noting pulse pressure Note skin exam, any chest wall findings 	<ul style="list-style-type: none"> Ask the patient to change into an exam gown? Check the patient's independence with mobility/ambulation? Notice heart rate, blood pressure, and respiratory pattern?
Inspection of neck veins	<p>Assess Jugular Venous Pressure</p> <ul style="list-style-type: none"> Right side of the neck if possible Distinguish carotid movements (mostly outward) from venous (mostly inward) <p>Perform Abdominojugular Test</p> <ul style="list-style-type: none"> Hold pressure on abdomen for 10 seconds; positive if, with quick release, JVP drops by 4cm water 	<ul style="list-style-type: none"> Adjust the head of the bed until the top of the venous column became visible? Visualize top of venous column prior to test? Maintain pressure on abdomen for 10 seconds and interpret results correctly?
Palpation	<ul style="list-style-type: none"> Patient in supine position Palpate at 5th intercostal space in midclavicular line, then surrounding area 	<ul style="list-style-type: none"> Examine patient in supine position? Comment on location of apical impulse relative to midclavicular line?
Heart auscultation	<ul style="list-style-type: none"> Establish heart rate and rhythm Distinguish S1 from S2 Listen for S3, an early diastolic sound, very low pitched, best heard with bell lightly over apex Listen to systole and diastole at RUSB, LUSB, LLSB, and apex 	<ul style="list-style-type: none"> Comment on regularity of rhythm? Palpate the carotid while auscultating? Comment on S3? Position the patient in left lateral decubitus position if no S3 heard while supine?
Lung examination	<ul style="list-style-type: none"> Note respiratory rate and effort, pattern of muscle use Auscultation with emphasis at lung bases If crackles present, assess whether crackles persist after cough 	<ul style="list-style-type: none"> Comment on respiratory effort? Ask patient to cough if crackles were heard (to distinguish atelectasis or large airway secretions from alveolar fluid or parenchymal disease as cause of crackles)?
Extremities and other	<ul style="list-style-type: none"> Examine peripheral pulses, capillary refill, temperature of extremities Assess for edema in dependent areas (e.g., sacrum for bedbound patient) 	<ul style="list-style-type: none"> Assess perfusion? Focus edema assessment on dependent areas?
	<p>Did the learner have an organized approach to the exam?</p> <p>Did the learner maintain the patient's comfort and wellbeing?</p>	