Hypertension and shortness of breath
A 57-year-old female with a history of hypertension comes to the physician because of shortness of breath. She says that she has been experiencing progressively worsening dyspnea while climbing the stairs in her house. She denies both chest pain and dyspnea at rest. She appears comfortable at rest. She is on aspirin and metoprolol.

Physical examination shows a regular heart rate and rhythm with absence of murmurs or rubs but does have an S4. Blood pressure is 150/80 mm Hg and pulse 55 beats a minute. Pulmonary exam reveals rales at the bases. She has lower extremity edema. Echocardiogram shows increased LV filling pressures with a normal ejection fraction.

What is the next best step?
Woman has trouble breathing, chest pain
A 55-year-old woman with a history of oxygen-dependent chronic obstructive pulmonary disease comes to the emergency department with worsening shortness of breath and chest pain. The chest pain is described as mostly right-sided and constant but worse with deep inspiration. The pain and shortness of breath awoke her from sleep in the middle of the night and she called emergency medical services to bring her to the emergency department.

Her temperature is 37 °C (98.6 °F), blood pressure 170/70 mm Hg, pulse 133 beats a minute, and respirations 28 per minute. Oxygen saturation is 83% on 6 L of oxygen by nasal cannula. She is in moderate respiratory distress and is using accessory muscles to breathe.

Her heart rate is tachycardic and regular. The lungs have decreased breath sounds on the right side more than on the left. There are scattered wheezes on the left. The remainder of her physical examination is normal. What is the most appropriate next step in management?

What’s causing shortness of breath?
A 62-year-old truck driver arrives at the emergency department with significant shortness of breath. He denies any significant medical problems. He has smoked two packs of cigarettes per day for the last 40 years.

His family history is significant for hypertension and coronary artery disease. His vital signs are temperature 38.4 °C (101.1 °F), blood pressure 128/64 mm Hg, pulse 112 beats a minute, respirations 24 per minute, and oxygen saturation 87 percent on room air. The physical examination is significant for decreased breath sounds, with crackles at the bases bilaterally. What is the most definitive diagnostic study that should be obtained?

Shortness of breath, dry cough
A 40-year-old woman with a nine-year history of scleroderma comes to the physician because of shortness of breath and a dry cough for four months. She has had weakness, dyspnea with minimal exertion, arthralgias, and difficulty with swallowing. Her temperature is 36.8 °C (98.2 °F), blood pressure is 135/75 mm Hg, pulse is 112 a minute, and respirations are 26 a minute.

Bilateral basilar crackles are heard on auscultation. Cardiac examination shows a normal S1 and S2; no murmurs are heard. A chest radiograph shows reticulonodular interstitial markings at the lung bases. Pulmonary function tests show a DLco of 55 percent. What is the next step in diagnosis?

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