Evaluation of Patients With Suspected Acute Pulmonary Embolism: Best Practice Advice From the Clinical Guidelines Committee of the American College of Physicians

What is pulmonary embolism?
Pulmonary embolism (PE) happens when blood flow to the lungs is blocked by a blood clot. The blood clot usually forms in the legs and then travels to the lungs and gets stuck there. The blockage can damage part of your lung, making it difficult to breathe and cause low oxygen levels in your blood, and can even lead to death. Symptoms of PE may include shortness of breath, severe and sharp chest pain during breathing, coughing, fast heart rate, or other less obvious symptoms.

What are the benefits and harms of testing for pulmonary embolism?
PE is serious and can be life-threatening if not found and treated right away. PE can be hard to diagnose since signs and symptoms can be very similar to those found in other conditions. There are many tests that can discover and confirm PE. These tests also come with possible harms. Imaging tests, like CT (computed tomography) scans, can expose patients to unnecessary radiation that can potentially cause cancer and harms from contrast dyes, which can damage the kidney. They can also be expensive and include out-of-pocket costs for patients. Imaging may also reveal findings that would not cause symptoms but result in unnecessary worry or treatments. So, whereas tests to check for PE are clearly needed for some patients, they can cause possible harm and are not needed for other patients. The goal of this paper is to help clinicians decide which patients should have testing and which patients are safe without it and might only be harmed by it.

Who developed these guidelines?
The American College of Physicians (ACP) developed advice for evaluation of patients with suspected PE. This advice is for clinicians treating adult patients in the outpatient setting or in the hospital.

How did the ACP develop these recommendations?
The authors looked at good research and high-quality clinical guidelines on diagnosis of PE. This information was used to develop advice for patients and clinicians.

What does ACP recommend patients and physicians do?
ACP recommends the following advice to evaluate patients with possible PE.

- Clinicians should use specific criteria to estimate the likelihood that a patient has PE before any tests are done. These criteria include medical history and symptoms to determine the likelihood that PE has occurred.
  - For patients with low likelihood of PE, an assessment called the PE Rule-Out Criteria should be used.
    - If criteria suggest a low risk, clinicians should not perform any more testing.
    - If criteria suggest a possibility of PE, a blood test should be ordered. The blood test, called a D-dimer test, helps determine if a blood clot might be present. Clinicians should take a patient’s age into consideration when reviewing blood test (D-dimer) results. If the blood test does not show that a blood clot might be present, no additional testing is needed. If the blood test shows an increased risk for blood clots, imaging tests, such as a CT scan, should be ordered.
  - For patients with medium likelihood of PE, a blood test (D-dimer) should be ordered first and not imaging tests.
    - If the blood test shows no risk, no additional testing is needed.
    - If the blood test shows an increased risk for blood clots, imaging tests, such as a CT scan, should be ordered.
  - For patients with high likelihood of PE, imaging tests should be ordered. A D-dimer test is not needed.