

Suspected Pulmonary Embolism

Use of Computed Tomography Angiogram (CTA) in the Emergent Evaluation of Suspected Pulmonary Embolism

This guideline is the result of a multidisciplinary conference in which relevant evidence-based approaches to the emergent evaluation of suspected pulmonary embolism (PE) were discussed.

The consensus reached by conference attendees from the Departments of Emergency Medicine and Radiology is described below:

It is recommended that patients with suspected PE (for example, sudden onset dyspnea, sudden worsening of existing dyspnea, pleuritic chest pain without another cause) be evaluated by Wells' Modified Criteria.

Well's Criteria:

Clinical signs and symptoms of DVT (minimum of swelling and pain on palpation)	3.0
Alternate diagnosis is less likely than PE	3.0
HR > 100	3.0
Immobilization or surgery in the last 4 weeks	1.5
Hemoptysis	1.0
Malignancy (treatment in the last 6 months or palliative care)	1.0

Modified

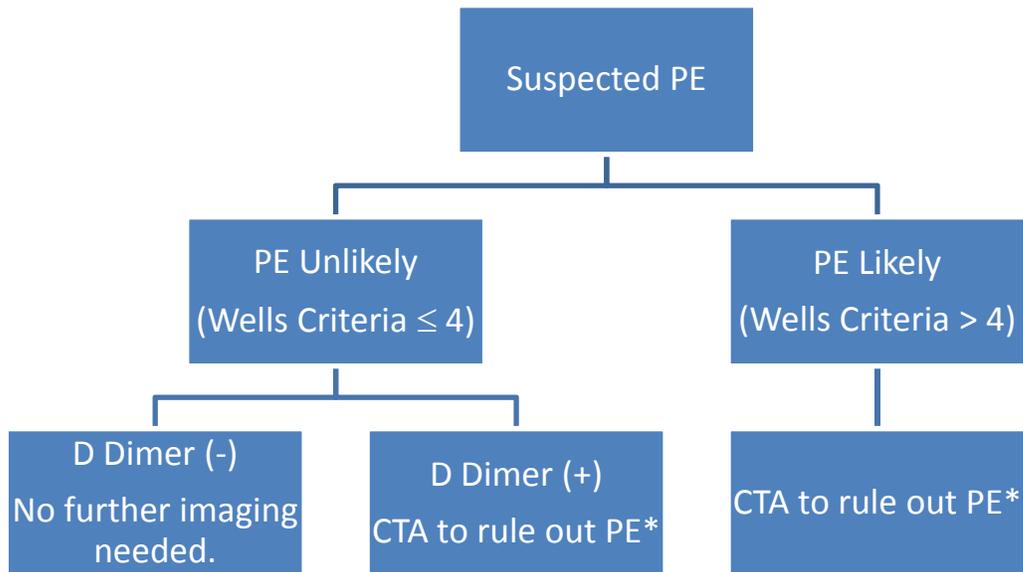
≤ 4.0 = PE unlikely = 5.1-7.8 % VTE in 3 month follow up

> 4.0 = PE likely = 39.1-40.7% VTE in 3 month follow up

Patients with a pretest probability, '**PE Likely**' do not need a D-dimer for evaluation. These patients require imaging to rule out PE.

Patients with a pretest probability, '**PE Unlikely**' should have a D-dimer. Patients with a negative D-dimer have a 1.7-2.2% risk of PE in 3 months. These patients may be dispositioned without further imaging. If a patient has a '**PE Unlikely**' pretest probability but a positive D-dimer, further imaging is required (See attached flow chart).

CTA and the Emergent Evaluation of Suspected Pulmonary Embolism



*Consider performing a lower extremity Doppler ultra sound when available if patient *also* has symptoms of DVT. A (+) ultrasound for DVT can be considered presumptive evidence of PE in this setting.

** The circulating half-life of the D-dimer is < 8 hours. Thus, false negative results for D-dimer may occur with delayed clinical presentation.

Results of D-dimer may be:

False Positive	Advanced age; Pregnancy; Trauma; Post-operatively; Inflammatory states; Cancer
False Negative	Symptom onset \geq 4 days (<i>Ann Emerg Med</i> 2002;40:133)