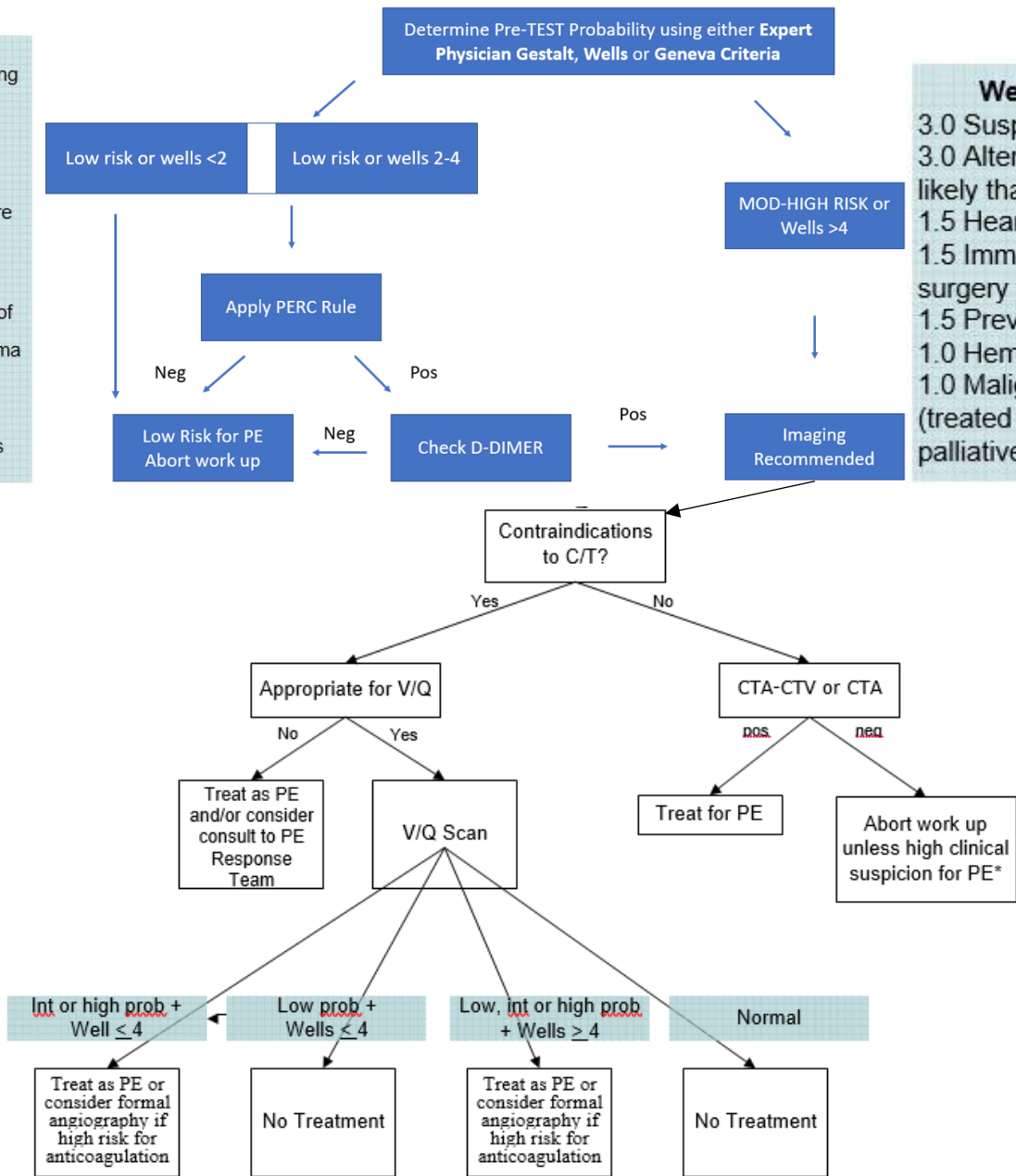


# Clinical Guideline for Work Up of Pulmonary Embolism (PE)

**PERC RULE**  
 Further diagnostic testing is not needed if:  
 1. Physician has a low clinical gestalt for pulmonary embolism ( $\leq 15\%$ )  
 2. All of the following are present:  
 a. Age  $\leq 50$   
 b. HR  $\leq 100$   
 c. O<sub>2</sub> sat  $\geq 94\%$   
 d. No Prior history of DVT/PE  
 e. No Recent Trauma or Surgery  
 f. No Hemoptysis  
 g. No Exogenous Estrogen  
 h. No Clinical Signs suggesting DVT

**Well's Score**  
 3.0 Suspected DVT  
 3.0 Alternative Dx less likely than PE  
 1.5 Heart rate  $\geq 100$   
 1.5 Immobilization or surgery  $\leq 4$  wks  
 1.5 Previous DVT/PE  
 1.0 Hemoptysis  
 1.0 Malignancy (treated last 6 mos., or palliative)



\*If patient has a high pretest probability and poor quality or no lower extremity imaging for deep venous thrombosis, consider obtaining lower extremity doppler. If negative, discharge patient and consider repeat lower extremity doppler within 7 days

*This guideline was ratified by the emergency department faculty at Maine Medical Center in July 2020. It reflects our expert opinion and is not necessarily applicable to all institutions. It is intended to be a reference for clinicians caring for patients and is not intended to replace providers' clinical judgement.*

Produced by Casey Z. MacVane, MD, MPH; Samir Haydar, DO; Michael Baumann, MD

## Guideline Evidence

Guideline Topic: Diagnosis of Pulmonary Embolism

Author: Casey Z. MacVane, MD, MPH

Date of Creation: 2/5/10 Sugg Update: 2/5/2011

Search Criteria: Pulmonary Embolism

Diagnosis of Pulmonary Embolism (PE)

Databases: Ovid, Pub Med

Key Guidelines (Dates) \_\_\_\_\_

#	Recommendation	Source	Classification	Level of Evidence
1	PERC Rule can be used in addition to clinical gestalt to determine whether a patient needs to be considered for the diagnosis of pulmonary embolism (PE).	J Thromb Haemost 2004; 2: 1247-55.	Derivation study with validation in prospective cohort study.	II a
2	Wells' score should be used to determine whether a patient has a high or low probability of having a PE.	Thrombosis & Haemostasis 2000; 83:416-420. JAMA 2006;295:172-9.	Logression model with prospective validation	II a
3	A patient with a Well's score of $\leq 4$ , should have a d-dimer sent prior to ordering any imaging.	Thrombosis & Haemostasis 2000; 83:416-420. JAMA 2006;295:172-9.	Logression model with prospective validation	II a
4	A patient with a Well's score of $> 4$ , should have imaging performed as the first step in their work-up.	Thrombosis & Haemostasis 2000; 83:416-420. JAMA 2006;295:172-9.	Logression model with prospective validation	II a
5	Patients with a d-dimer $<500$ do not need further work-up for PE.	Ann Intern Med. 2006; 144: 200-206.	Meta-analysis of prospective trials.	II a
6	Patients with a d-dimer $>500$ , need imaging to further evaluate for PE.	NEJM 2006; 354: 2317-27.	Prospective, multicenter trial	II a
7	Patients without contraindications to a CT-A should have this +/- a CT-V performed to evaluate for PE	NEJM 2006; 354: 2317-27.	Prospective, multicenter trial	II a
8	A work-up for PE can be aborted in patients with a negative CT unless a high clinical suspicion exists. In this case further testing or treatment with observation is recommended.	NEJM 2006; 354: 2317-27.	Prospective, multicenter trial	II a
9	Patients with contraindications to CT and V/Q scans should be treated empirically or angiography should be considered.			
10	In patients with a normal V/Q scan, the diagnosis of PE can be excluded.	JAMA 1990;263:2753-9	Prospective, multicenter trial	II a
11	In patients with a low probability V/Q scan and a Wells score $\leq 4$ , the diagnosis of PE can be excluded*.	JAMA 1990;263:2753-9	Prospective, multicenter trial	II a
12	Patients with a low, intermediate or high probability V/Q scan and a Wells score $>4$ , should be treated for PE*.	JAMA 1990;263:2753-9	Prospective, multicenter trial	II a
13	Patients with an intermediate or high probability V/Q scan and a Wells score $\leq 4$ should be treated for PE*.	JAMA 1990;263:2753-9	Prospective, multicenter trial	II a
	*Original PLOPED study used original Wells score of low, intermed and high probability but in keeping with this algorithm we will use the Modified Wells score.			

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