

University of California QPLE Suspected Pulmonary Embolism

AUC 2021-09-02

Priority Clinical Area Coverage

This AUC reasonably addresses the entire clinical scope of the "Suspected pulmonary embolism" Priority Clinical Area (PCA) and is considered relevant to that PCA.

Condition and Scores

Appropriate - preferred (4)

Appropriate (3)

Radiology consultation recommended (2)

Inappropriate (1)

No AUC applicable (0)

	D-dimer	CTPA	VQ	LEUS	MRA w/	OCEBM Evidence Grade*	References
Not preg, High Risk, eGFR >30	0	4	3	3	3	A	5-11
Not preg, High Risk, GFR ≤30	0	4	3	3	1	A	5-11
Not preg, Moderate Risk, D-dimer not done	4	1	1	1	1	A	5-11
Not preg, Moderate Risk, D-dimer not done, s/s of DVT	4	1	1	3	1	A	5-11
Not preg, Moderate Risk, D-dimer normal	1	1	1	1	1	A	5-11
Not preg, Moderate Risk, D-dimer positive	0	4	3	3	3	A	5-11
Not preg, Low Risk, PERC+, D-dimer not done	4	1	1	1	1	A	5-11
Not preg, Low Risk, PERC-, D-Dimer normal or not done	1	1	1	1	1	A	5-11
Not preg, Low Risk, PERC-, D-Dimer elevated (unusual situation)	0	0	0	0	0	A	5-11
Not preg, Low Risk, PERC+, D-Dimer +	0	4	3	3	3	A	5-11
Preg, s/s DVT	0	3	3	4	1	B	1-4
Preg, no s/s DVT, High or Moderate Risk, eGFR >30	0	4	3	1	1	B	1-4
Preg, no s/s DVT, High or Moderate Risk, eGFR <30	0	2	2	2	2	B	1-4
Preg, no s/s DVT, Low Risk, D-dimer not done	4	1	1	1	1	B	1-4
Preg, no s/s DVT, no YEARS criteria, D-dimer <1000ng/mL	1	1	1	1	1	B	1-4
Preg, no s/s DVT, no YEARS criteria, D-dimer ≥1000 ng/mL	0	4	3	1	1	B	1-4
Preg, no s/s DVT, low YEARS criteria, D-dimer <500 ng/mL	0	1	1	1	1	B	1-4
Preg, no s/s DVT, low YEARS criteria, D-dimer ≥500 ng/mL	0	4	3	1	1	B	1-4

Risk Definitions

High Risk = Wells > 4 OR Gestalt >40% OR D-Dimer elevated

Moderate Risk = Wells 2-4 OR Gestalt 15-40%

Low Risk = Wells <2 OR Gestalt <15%

*AUC Evidence Grading

The Oxford Centre for Evidence Based Medicine is used for assigning AUC grades. The grades are based on the level of evidence of the references according to the following:

Grade A = Level 1

Grade B = Level 2

Grade C = Level 3 or less

References

On evaluation of the pregnant patient:

1. Duran-Mendicuti, A. and A. Sodickson (2011). "Imaging evaluation of the pregnant patient with suspected pulmonary embolism." *Int J Obstet Anesth* **20**(1): 51-59. Level 3
2. Abele, Jonathan T., and Parveen Sunner. "The Clinical Utility of a Diagnostic Imaging Algorithm Incorporating Low-Dose Perfusion Scans in the Evaluation of Pregnant Patients With Clinically Suspected Pulmonary Embolism." *Clinical Nuclear Medicine*, vol. 38, no. 1, 2013, pp. 29–32., doi:10.1097/rlu.0b013e31827088f6. Level 3
3. "American College of Radiology ACR Appropriateness Criteria® Suspected Pulmonary Embolism ." ACR Appropriateness Criteria, American College of Radiology, 2016, acsearch.acr.org/docs/69404/Narrative/.
4. van der Pol, L.M., et al., Pregnancy-Adapted YEARS Algorithm for Diagnosis of Suspected Pulmonary Embolism. *N Engl J Med*, 2019. 380(12): p. 1139-1149. Level 2

On the use of D-dimer:

5. Hoo, G. W., et al. (2011). "Does a clinical decision rule using D-dimer level improve the yield of pulmonary CT angiography?" *AJR Am J Roentgenol* **196**(5): 1059-1064. Level 3
6. Galipienzo, J., et al., Effectiveness of a diagnostic algorithm combining clinical probability, D-dimer testing, and computed tomography in patients with suspected pulmonary embolism in an emergency department. *Rom J Intern Med*, 2012. 50(3): p. 195-202. Level 3

On Pre-Test Risk Stratification with PERC and Wells:

7. Freund, Yonathan, et al. "Effect of the Pulmonary Embolism Rule-Out Criteria on Subsequent Thromboembolic Events Among Low-Risk Emergency Department Patients." *Jama*, vol. 319, no. 6, 2018, p. 559., doi:10.1001/jama.2017.21904. Level 4
8. Gibson, N.S, et al. "Further Validation and Simplification of the Wells Clinical Decision Rule in Pulmonary Embolism." *Thrombosis and Haemostasis*, vol. 99, no. 01, 2008, pp. 229–234., doi:10.1160/th07-05-0321. Level 3
9. Singh, Balwinder, et al. "Pulmonary Embolism Rule-out Criteria (PERC) in Pulmonary Embolism—Revisited: A Systematic Review and Meta-Analysis." *Emergency Medicine Journal*, vol. 30, no. 9, 2012, pp. 701–706., doi:10.1136/emermed-2012-201730. Level 1

On Gestalt as a Risk Stratification Method:

10. Kline, Jeffrey A., and William B. Stubblefield. "Clinician Gestalt Estimate of Pretest Probability for Acute Coronary Syndrome and Pulmonary Embolism in Patients With Chest Pain and Dyspnea." *Annals of Emergency Medicine*, vol. 63, no. 3, 2014, pp. 275–280., doi:10.1016/j.annemergmed.2013.08.023. Level 2
11. Raja, Ali S., et al. "Effect of Computerized Clinical Decision Support on the Use and Yield of CT Pulmonary Angiography in the Emergency Department." *Radiology*, vol. 262, no. 2, 2012, pp. 468–474., doi:10.1148/radiol.11110951. Level 3

Contact Peter.Vigil@ucsf.edu to submit comments and request changes to AUC.