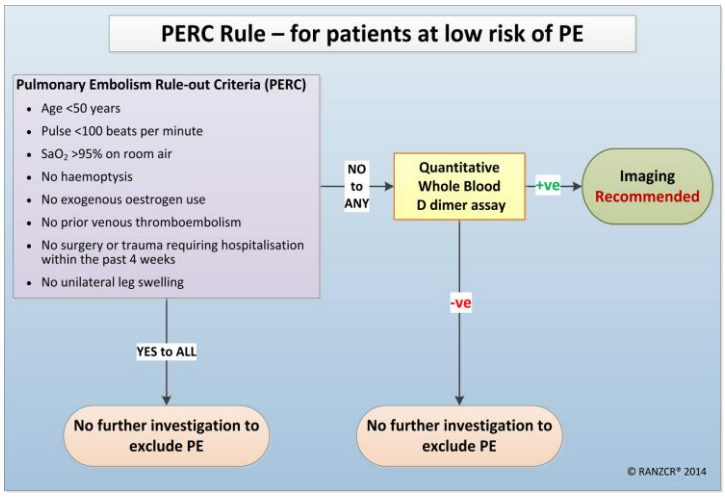
The Pulmonary Embolism Rule-out Criteria (PERC)

Algorithm:



Inclusions:

- Patients presenting to the ED with clinical suspicion of PE (board- certified emergency physician felt a formal evaluation for pulmonary embolism was necessary).

Exclusions:

- No clear exclusion criteria described

Summary Statement:

The Pulmonary Embolism Rule-out Criteria (PERC) score has undergone extensive validation and can be used for adult patients presenting to the emergency department with a sole or primary complaint of shortness of breath and low clinical suspicion of PE. When all 8 predictors that comprise the rule are **positive,** further diagnostic testing for PE is not required since the post-test probability of PE is below the test threshold of 1.8%. In PERC(-) patients, the rule has a sensitivity of 96% (90-99%), specificity of 27% (25-30%), false negative rate of 1.4% (0.5-3.0%) and a LR- of 0.015. In a very low risk PERC(-) population, the rule performs better still; with sensitivity 100% (96-97.5%), specificity of 15% (11-18%) and LR- of 0.067. It has not been validated, and therefore should not be used in patients with high or intermediate probability of PE.

The PERC rule has been externally validated in a number of studies, including a systematic review and meta-analysis. The systematic review and meta-analysis by Singh et al in 2012, concluded that their pooled analysis strongly corroborates the safety of using PERC to avoid D dimer testing, reflected in the results of existing literature suggesting consistently high sensitivity and low but acceptable specificity of the PERC rule. However, an impact analysis by Kline et al (2002) suggests that while just over one fifth of surveyed clinicians are electing to use the rule in eligible patients in clinical practice, only 5% of these document the rule without missing any components. **This underlines the importance of referring to an electronic or hard copy when you use a CDR to remind you of the elements and the inclusion/exclusion criteria.**

Reference:

Kline JA, Mitchell AM, Kabrhel C, Richman PB, Courtney DM. Clinical criteria to prevent unnecessary diagnostic testing in emergency department patients with suspected pulmonary embolism. *J Thromb Haemost*. 2004; 2(8): 1247-55.

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