**Probability – Diagnostic Test for Pulmonary Embolism**

P. Cronin and A.M. Kelly (2011). “Influence of Population Prevalences on Numbers of False Positives: An Overlooked Entity,” *Academic Radiology*, Vol. 18, #9, pp. 1087-1093.

Authors considered 3 prevalence rates (proportion of population with disease) of Pulmonary Embolism (PE) based on previously conducted studies; as well as 2 configurations of sensitivity (probability of true positive diagnostic test) and specificity (probability of true negative diagnostic test).

Prevalence Rates of PE: i) PIOPED I: P(D+) = 0.33 ii) P(D+) = 0.10 iii) P(D+) = 0.05

Sensitivity (P(T+|D+)) , Specificity (P(T-|D-)): i) Sens, Spec = (.83 , .96) ii) Sens, Spec = (.90 , .95)

**Scenario 1:**

Probability of False Negative Test Result: P(T-|D+) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Probability of False Positive Test Result: P(T+|D-) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Prevalence Rate 1:**

Probability of D+ and T+ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Probability of D- and T+ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Probability of D+ and T- = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Probability of D- and T- = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Prob of T+ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Prob of T- = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Positive Predictive Value: P(D+|T+) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Negative Predictive Value: P(D-|T-) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_