

**DIAGNOSTIC TESTS**

		Disease State (gold standard test)		Totals
		Present	Absent	
Diagnostic Test	Positive	a	b	
	Negative	c	d	
Totals				

Sensitivity =  $a / a+c$

Specificity =  $d / b+d$

“SpP” IN – When a test has a high **Specificity**, a **Positive** result, rules **IN** the diagnosis

“SnN” OUT – When a test has a high **Sensitivity**, a **Negative** result, rules **OUT** the diagnosis

Likelihood Ratio for positive test =  $LR+ = \text{sensitivity} / (1 - \text{specificity})$

Likelihood Ratio for negative test =  $LR- = (1 - \text{sensitivity}) / \text{specificity}$

LR influences the pre-test probability by a factor.

Pre-Test Probability (prevalence) =  $(a + c) / (a + b + c + d)$

Pre-Test Odds =  $\text{prevalence} / (1 - \text{prevalence})$

Post-Test Odds =  $\text{Pre-Test Odds} \times \text{LR}$

Post-test Probability =  $\text{post-test odds} / (\text{post-test odds} + 1)$

What is a large effect for the LR?

>10 or < 0.1	large effect
5-10 or 0.1-0.2	moderate effect
2-5 or 0.5-0.2	small effect
1-2 or 0.5 to 1	no effect