

DIAGNOSIS WORKSHEET

Citation:

Are the results of this diagnostic study valid?

Was there an independent, blind comparison with a reference (“gold”) standard of diagnosis?	
Was the diagnostic test evaluated in an appropriate spectrum of patients (like those in whom it would be used in practice)?	
Was the reference standard applied regardless of the diagnostic test result?	
Was the test (or cluster of tests) validated in a second, independent group of patients?	

Are the valid results of this diagnostic study important?

SAMPLE CALCULATIONS

		Target disorder (iron deficiency anemia)		Totals
		Present	Absent	
Diagnostic test result (serum ferritin)	Positive (< 65 mmol/L)	731 a	270 b	1001 a+b
	Negative (≥ 65 mmol/L)	78 c	1500 d	1578 c+d
Totals		809 a+c	1770 b+d	2579 a+b+c+d

Sensitivity = $a/(a+c) = 731/809 = 90\%$

Specificity = $d/(b+d) = 1500/1770 = 85\%$

Likelihood ratio for a positive test result = $LR+ = \text{sens}/(1-\text{spec}) = 90\%/15\% = 6$

Likelihood ratio for a negative test result = $LR- = (1-\text{sens})/\text{spec} = 10\%/85\% = 0.12$

Positive Predictive Value = $a/(a+b) = 731/1001 = 73\%$

Negative Predictive Value = $d/(c+d) = 1500/1578 = 95\%$

Pre-test probability (prevalence) = $(a+c)/(a+b+c+d) = 809/2579 = 32\%$

Pre-test odds = $\text{prevalence}/(1-\text{prevalence}) = 31\%/69\% = 0.45$

Post-test odds = pre-test odds × LR

Post-test probability = post-test odds/(post-test odds +1)

YOUR CALCULATIONS

		Target disorder		Totals
		Present	Absent	
Diagnostic test result	Positive	a	b	a+b
	Negative	c	d	c+d
Totals		a+c	b+d	a+b+c+d

Can you apply this valid, important evidence about a diagnostic test in caring for your patient?

Is the diagnostic test available, affordable, accurate, and precise in your setting?	
Can you generate a clinically sensible estimate of your patient’s pre-test probability (from personal experience, prevalence statistics, practice databases, or primary studies)? <ul style="list-style-type: none"> • Are the study patients similar to your own? • Is it unlikely that the disease possibilities or probabilities have changed since the evidence was gathered? 	
Will the resulting post-test probabilities affect your management and help your patient? <ul style="list-style-type: none"> • Could it move you across a test-treatment threshold? • Would your patient be a willing partner in carrying it out? 	
Would the consequences of the test help your patient?	

Additional notes: