Medical Literature: How to Use an Article about a Diagnostic Test EBM Working Group

Relevance?

Can results apply to my patients?
Is it common?
If true, will it require me to change my practice?

Are the results valid?

Was there an independent, blind comparison with a reference standard?
Did the patient sample include an appropriate spectrum of patients to whom the test will be applied?
Was the reference standard applied regardless of the diagnostic test result?
Were the tests' methods described clearly enough to permit replication?

What are the results?

What are the likelihood ratios for the test results?
References: JAMA 1994; 271:389-391 & JAMA 1994; 271:703-707

Understanding likelihood ratios.

The likelihood ratios for a test result compares the likelihood of that result in patients with disease to the likelihood of that result in patients without disease.

	D+	D-	
T+	a	b	LR+=(a/a+c)/(b/b+d)
T-	c	d	LR-=(c/a+c)/(d/b+d)

Positive Predictive Value = proportion of people with positive test who have the disease - = a/a+b
Negative Predictive Value = proportion of people with negative test who don't have the disease = d/c+d

How much do LRs change disease likelihood?
LRs>10 or <0.1 cause large changes in likelihood.
LRs 5-10 or 0.1-0.2 cause moderate changes.
LRs 2-5 or 0.2-0.5 cause small changes.
LRs <2 or >0.5 cause tiny changes.
LRs of 1.0 cause no change at all.

Finding articles about a diagnostic test.

Best single terms:	Term	Term
	Sens.	Spec.
Sensitivity (tw)		
<1990	43%	98%
1990 on	57%	97%
Diagnosis & (px)		
<1990	91%	62%
1990 on	80%	77%

(see ACP J Club 1994 Sept-Oct; A10-A12)