

Appendix 3. Test indicators of diagnostic accuracy measures

Test indicator	Data analysis	Formula	Reference
Diagnostic odds ratios (DOR)	DOR values range from 0 to infinity, with higher values indicating better discriminatory test performance. A value of 1 means that a test does not discriminate between patients with the disorder and those without it. Values lower than 1 point to improper test interpretation (more negative tests among those with disease).	$DOR = LR+/LR-$	Glas et al. (2003)
Predictive value (PV)	PPV: percentage of patients with a positive test who actually have the disease. NPV: percentage of patients with a negative test who do not have the disease.	$PPV = \text{sensitivity} \times \text{prevalence} / (\text{sensitivity} \times \text{prevalence} + (1 - \text{specificity}) \times (1 - \text{prevalence}))$ $NPV = \text{specificity} \times (1 - \text{prevalence}) / ((1 - \text{sensitivity}) \times \text{prevalence} + \text{specificity} \times (1 - \text{prevalence}))$	Parikh et al. (2008)
Likelihood ratio (LR)	LR+: proportion of positive tests in individuals with disease. Describes how many times more likely positive index test results were in the diseased group compared to the non-diseased group. LR-: proportion of negative tests in individuals with disease. Describes how many times less likely negative index test results were in the diseased group compared to the non-diseased group. LR+ >3 and LR- <0.3: acceptable diagnostic test accuracy (DTA) LR+ >10 and LR- <0.1: excellent DTA.	$LR+ = \text{sensitivity} / (1 - \text{specificity})$ $LR- = (1 - \text{sensitivity}) / \text{specificity}$	Brockmann et al. (2013); Macaskill et al. (2010)
Sensitivity (%)	Probability of a diagnostic test identifying patients who do in fact have the disease. >80% excellent, 70-80% good, 60-69% fair, <60% poor	$\text{Sensitivity} = TP / (TP + FN)$	De Luca Canto et al. (2015); Zhu et al. (2010)
Specificity (%)	Probability of a test diagnosing a particular disease without giving false-positive results. >90% excellent, 80-90% good, 70-79% fair, <70% poor	$\text{Specificity} = TN / (TN + FP)$	De Luca Canto, et al. (2015); Zhu, et al. (2010)
Youden's index	Values close to 1 indicate high accuracy; a value of zero is equivalent to uninformed guessing and indicates that a test has no diagnostic value.	$\text{Youden's index} = \text{sensitivity} + \text{specificity} - 1$	Macaskill, et al. (2010)

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