

COMPARISON OF SOME APPROACHES FOR CORRECTING VERIFICATION BIAS

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The accuracy of a new diagnostic test could be measured, when the true status was known or there exists a gold standard test. In most of the studies, the decision to perform the gold standard test is often influenced by the results of the diagnostic test. If all subjects under study are screened using a new diagnostic test and only a subset of these subjects are tested using a gold standard test, the commonly used measures of diagnostic test performance are likely to be biased, such as sensitivity would often be higher than the true values. This bias is called verification bias and once it is revealed it should be corrected. The correction for verification bias can be made with using different approaches which depend on whether missing test results are random or not. Some of these approaches are correction method by Begg & Greenes, lower and upper limit for diagnostic measurements by Zhou, logistic regression method, multiple imputation method, and neural networks. In this study, these approaches will be compared under different conditions based on real and/or simulated data and results will be discussed.