Appendix 1. Performance of Logistic Regression Models: Preterm Delivery Within 7 Days Predicted With Cervical Length and Fetal Fibronectin Results

The performance of the 3 prediction models including cervical length as a predictor was compared in terms of overall fit, discrimination, calibration and reclassification. Overall fit of the models was expressed with Nagelkerke $R^2$, Brier and scaled Brier score. Improvement in fit by adding fibronectintest results was tested with the $X^2$ test. The ability of the models to discriminate between women who delivered within 7 days and those who delivered at least 7 days after testing was expressed as the area under the receiver operating characteristics curve (AUC) and as discrimination slopes. Agreement between predicted and observed proportions of women with spontaneous preterm delivery within 7 days after enrollment, also known as calibration, was visualized in a calibration plot and miscalibration was tested for significance with the Hosmer-Lemeshow test statistic (1).

Improvement in reclassification between the model based on cervical length only and the model including fibronectin results was expressed as Net Reclassification Improvement (NRI) and integrated discrimination improvement (IDI). One needs to define a decision threshold, indicating high and low risk, before calculating the NRI. The NRI is the sum of the difference in proportion of individuals with the outcome moving up (above the 5% risk) minus the proportion of those moving down (beneath the 5% risk), and the proportion of individuals without the outcome moving down minus the proportion in those moving up. The IDI integrates the NRI over all possible cut-offs, and is the equivalent to difference in discrimination slopes (1).

Reference List


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