Baseline (male)

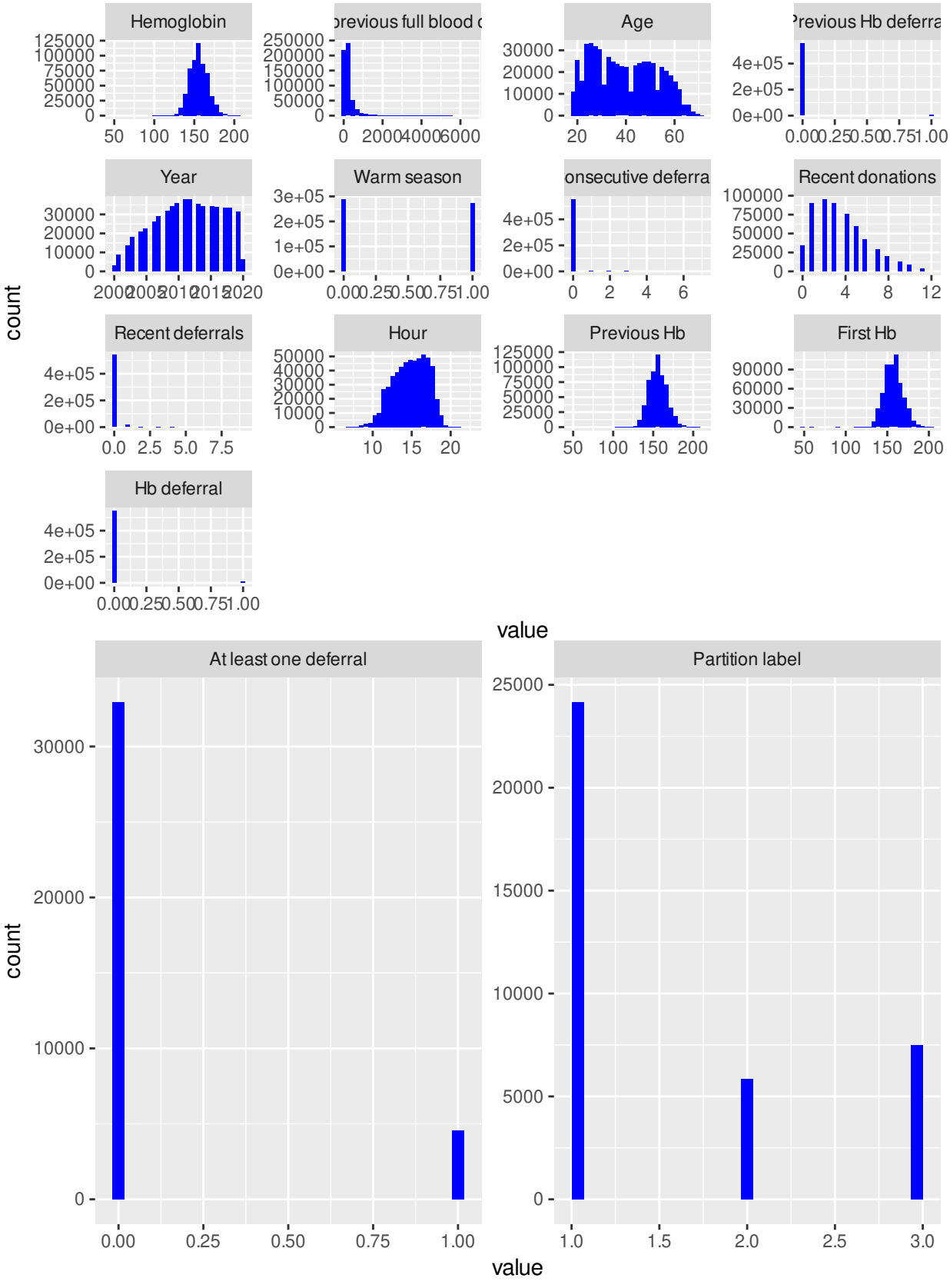
Data description

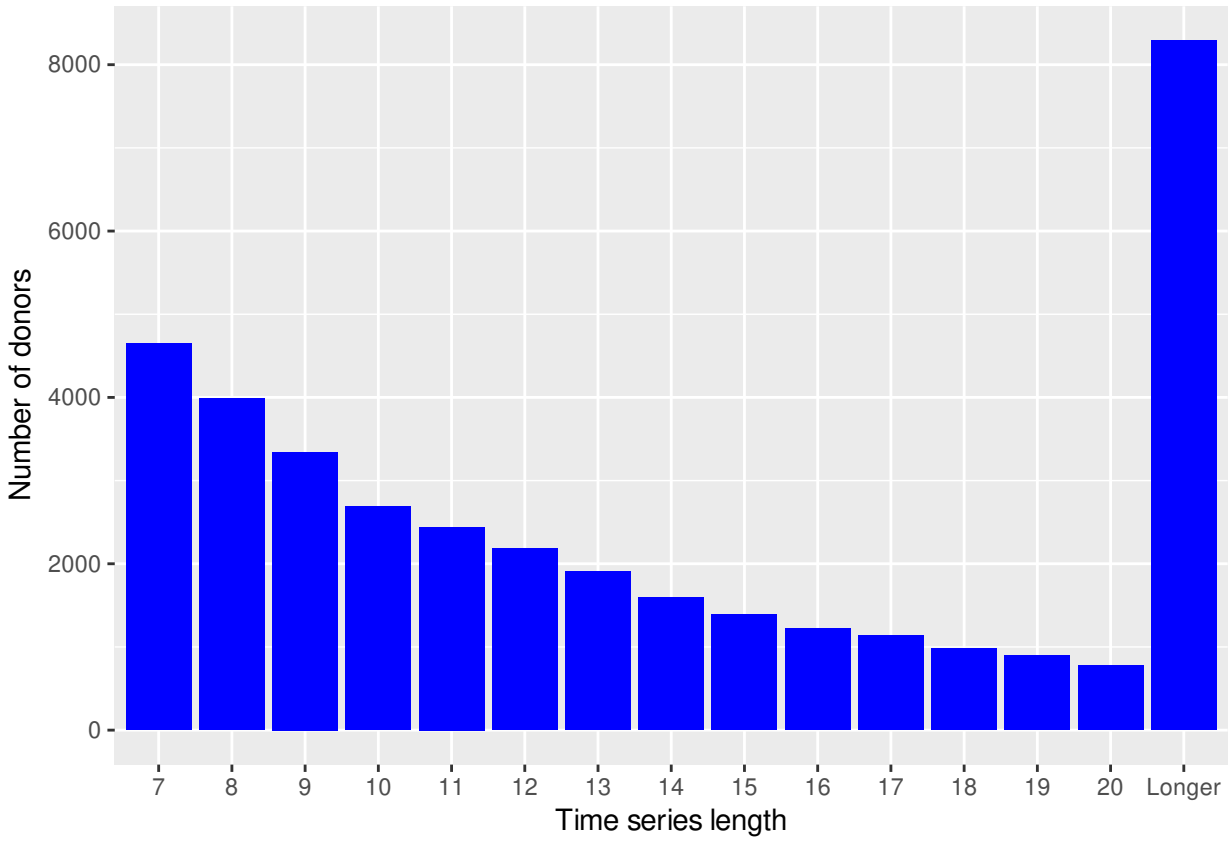
Donation-specific variables

Variable	Pretty	Type	Explanation
donor	Donor ID	Factor	Donor identifier
Hb	Hemoglobin	numeric	Amount of Hemoglobin
days_to_previous_fb	Days to previous full blood donation	numeric (int)	Time (in days) between Hb measurement and previous full blood donation event
age	Age	numeric	Age of donor
previous_Hb_def	Previous Hb deferral	boolean	Indicates whether the donor was deferred from blood donation due to low hemoglobin at previous donation event
year	Year	numeric (int)	Year of donation
warm_season	Warm season	boolean	True if donation was given in April-September
consecutive_deferrals	Consecutive deferrals	numeric (int)	Number of times the donor has been deferred due to low hemoglobin since last succesful whole blood donation
recent_donations	Recent donations	numeric (int)	Number of donations in the last two years
recent_deferrals	Recent deferrals	numeric (int)	Number of deferrals due to low hemoglobin in the last two years
hour	Hour	numeric	Time of day when donation was given as hours (e.g. 13:45 = 13.75)
previous_Hb	Previous Hb	numeric	Hb value at previous measurement (dynamic linear mixed model)
Hb_first	First Hb	numeric	Hb value at first donation of this donor (linear mixed model)
Hb_deferral	Hb deferral	boolean	Deferred based on low hemoglogin
sex	Sex	Factor	Sex of the donor

Donor-specific variables

Summary plots of variables (male)



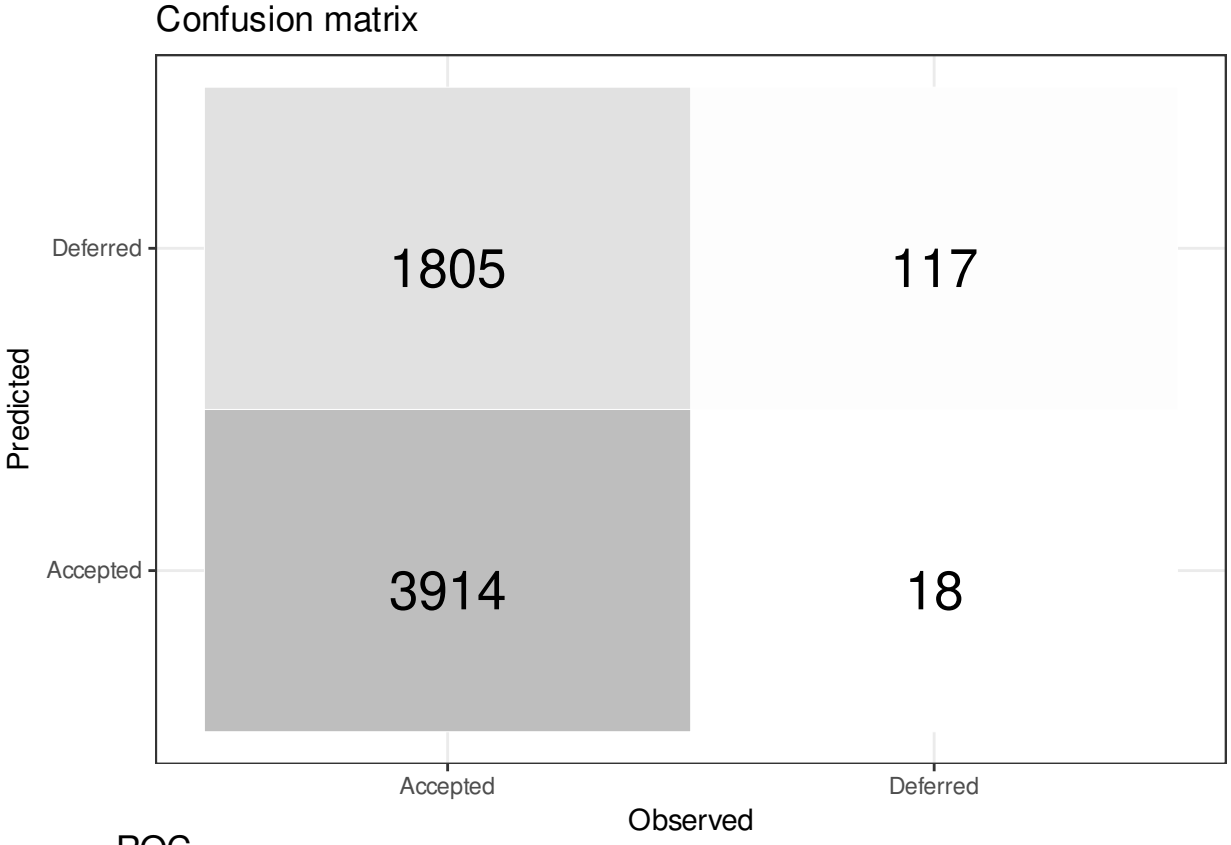


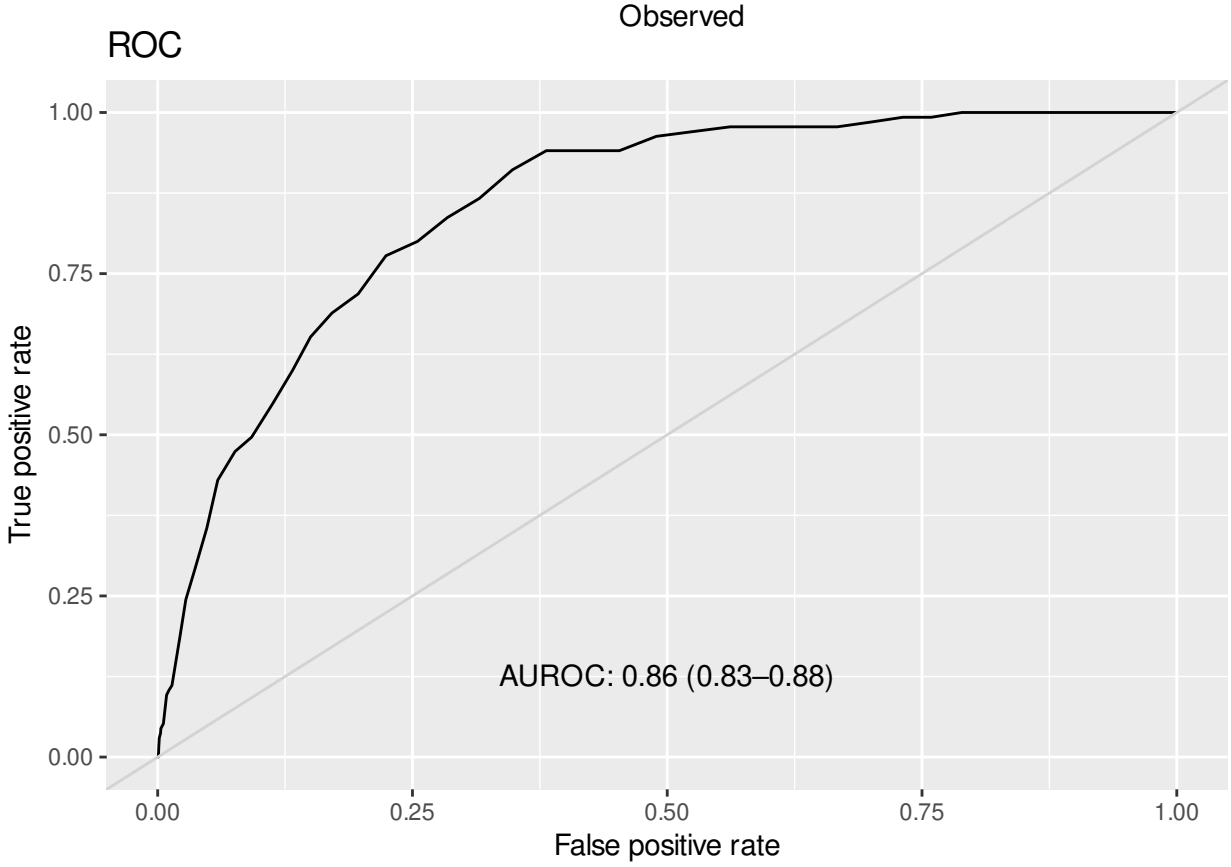
Call: glm(formula = Hb_deferral ~ previous_Hb, family = binomial, data = train)

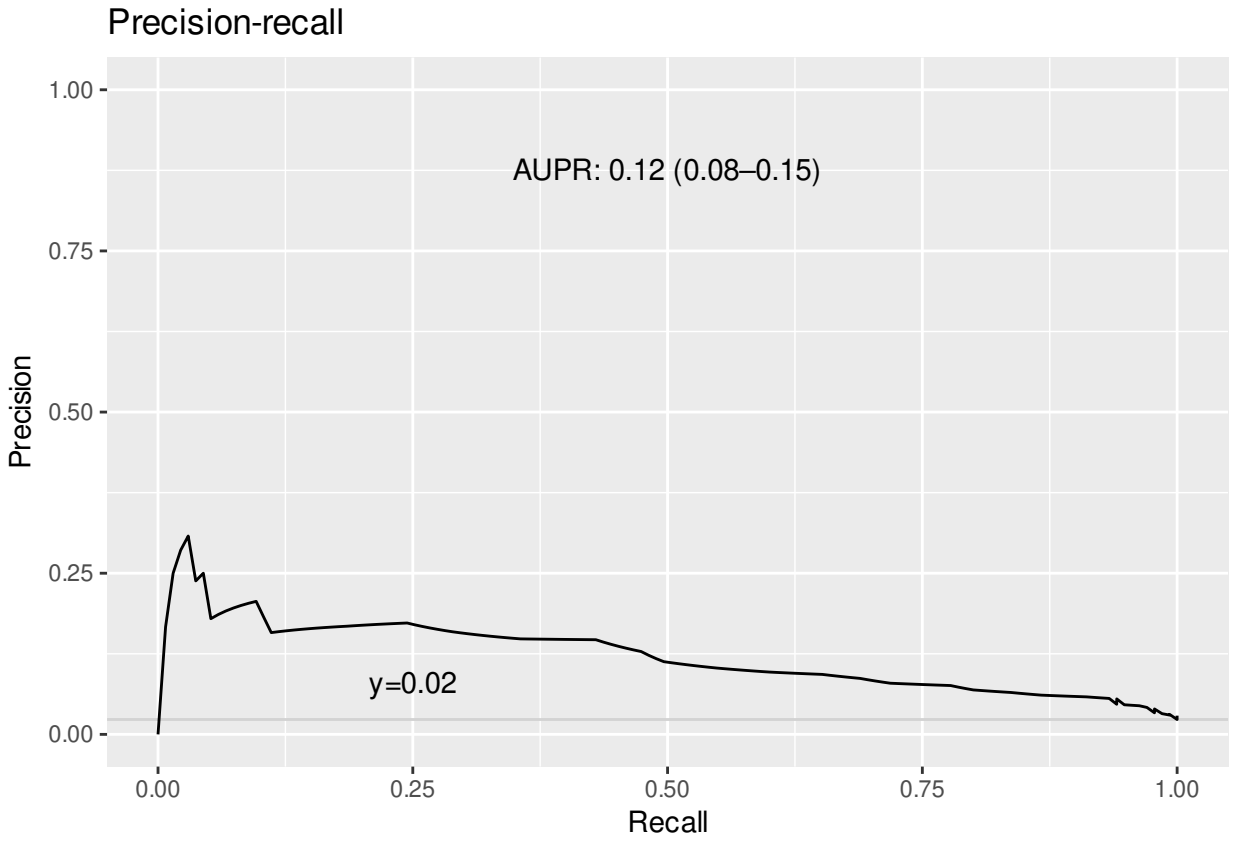
Coefficients: (Intercept) previous_Hb
21.9981 -0.1467

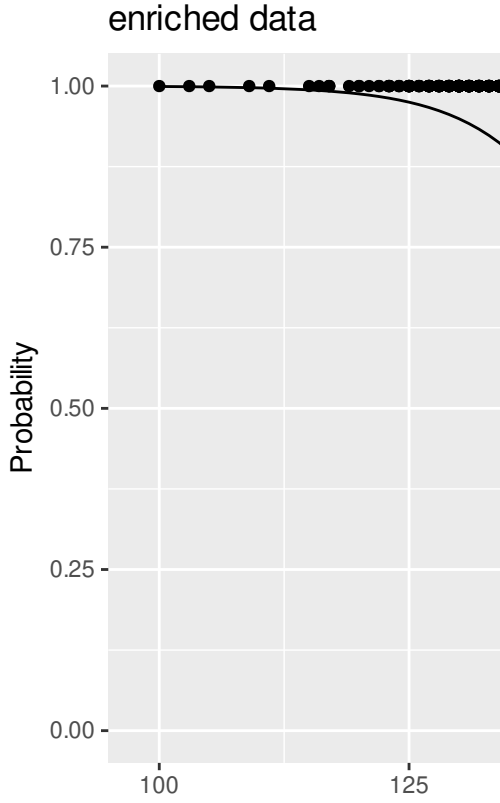
Degrees of Freedom: 5693 Total (i.e. Null); 5692 Residual Null Deviance: 7894 Residual Deviance: 5689 AIC: 5693

Results

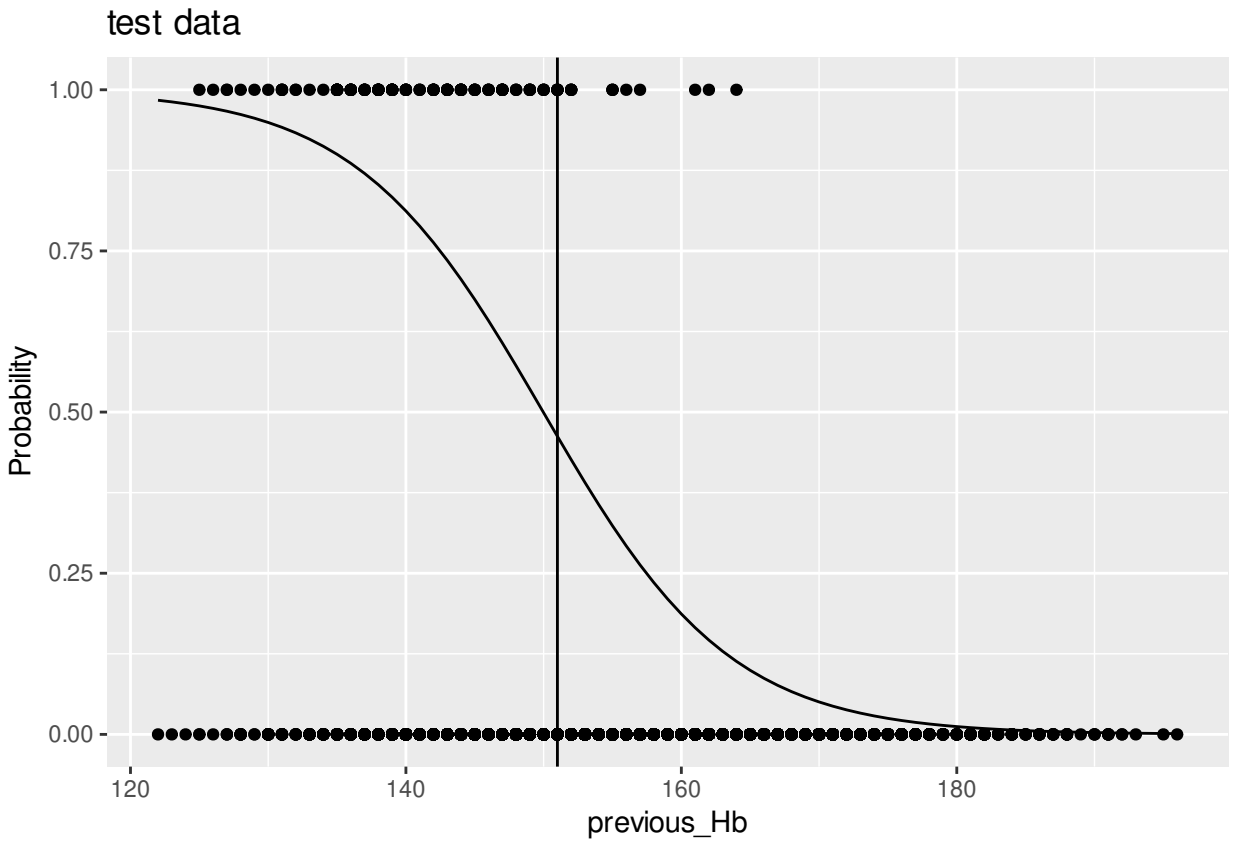

Confusion matrix
Deferred
Accepted
Predicted
1805
117
3914
18
Accepted
Deferred
Observed


ROC
1.00
0.75
0.50
0.25
0.00
True positive rate
AUROC: 0.86 (0.83–0.88)
0.00
0.25
0.50
0.75
1.00
False positive rate





The previous_Hb value 151.00 corresponds approximately to the threshold value 0.46



Summary

Model	Sex	MAE (g / L)	RMSE (g / L)	MAE (mmol / L)	RMSE (mmol / L)	AUROC	AUPR	F1
Baseline	male	NA	NA	NA	NA	0.857	0.121	0.121