

Linear mixed models (female)

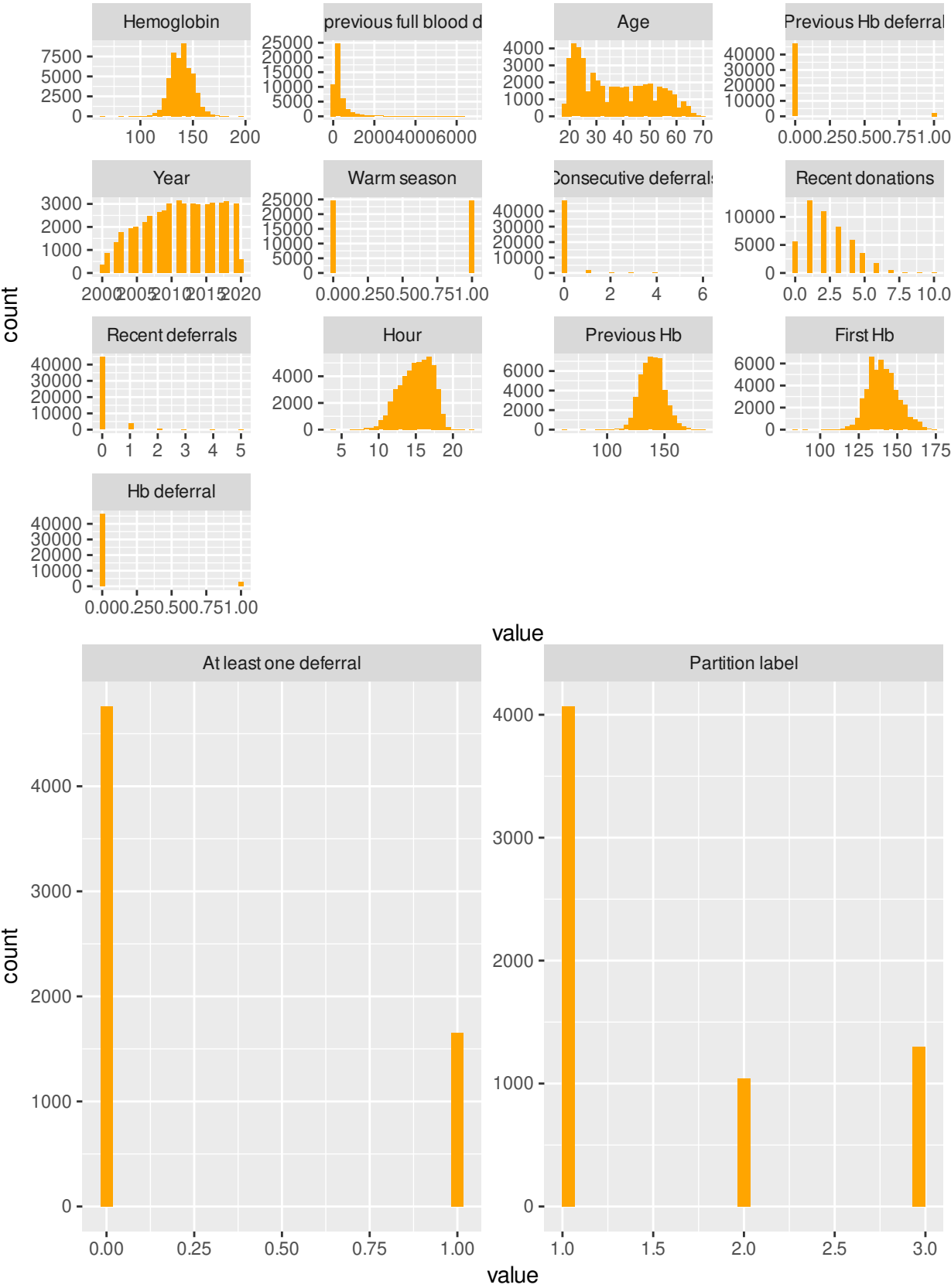
Data description

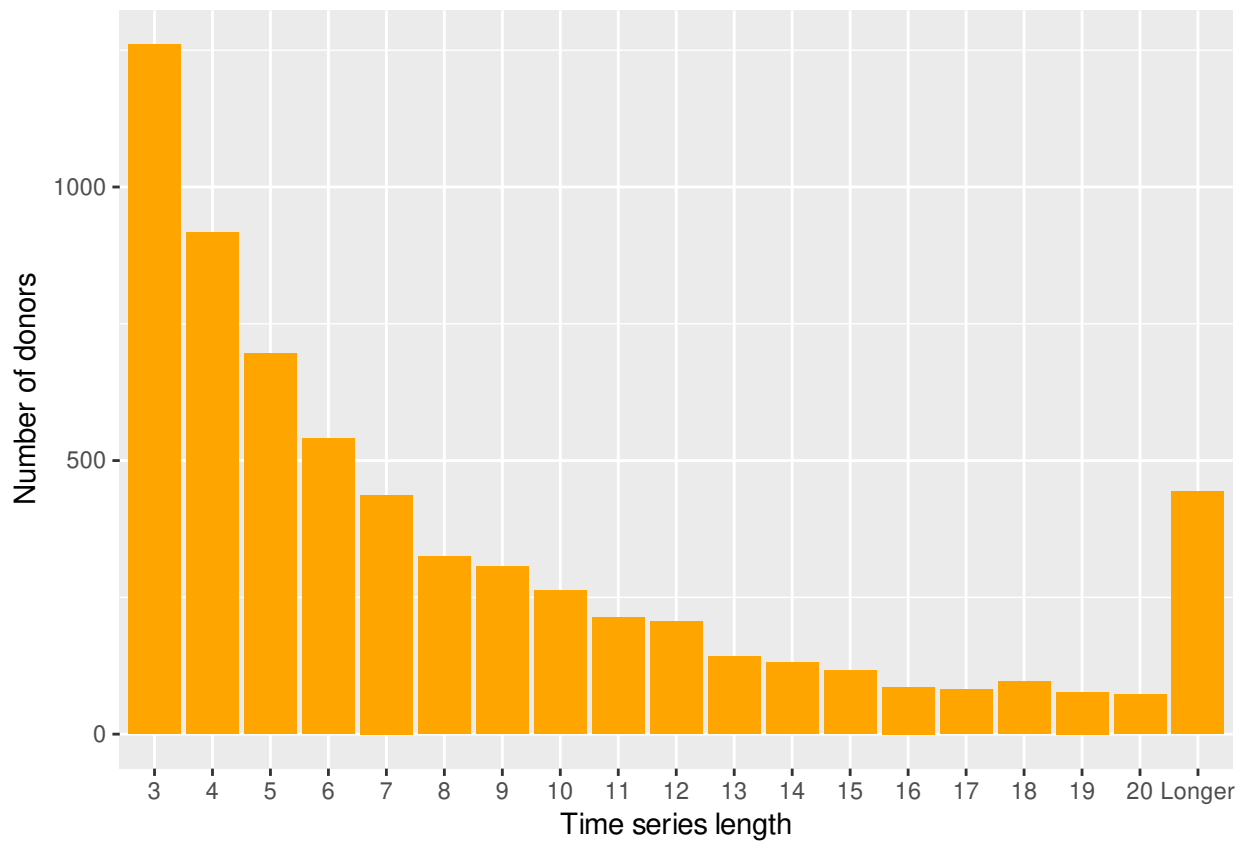
Variables used in prediction

Variable	Pretty	Type	Explanation
donor	Donor ID	Factor	Donor identifier
Hb	Hemoglobin	numeric	Amount of Hemoglobin
days_to_previous_full_blood_donation	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_deferral	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

Variable	Pretty	Type	Explanation
one_deferral	At least one deferral	numeric (int)	At least one deferral

Summary plot of variables (female)

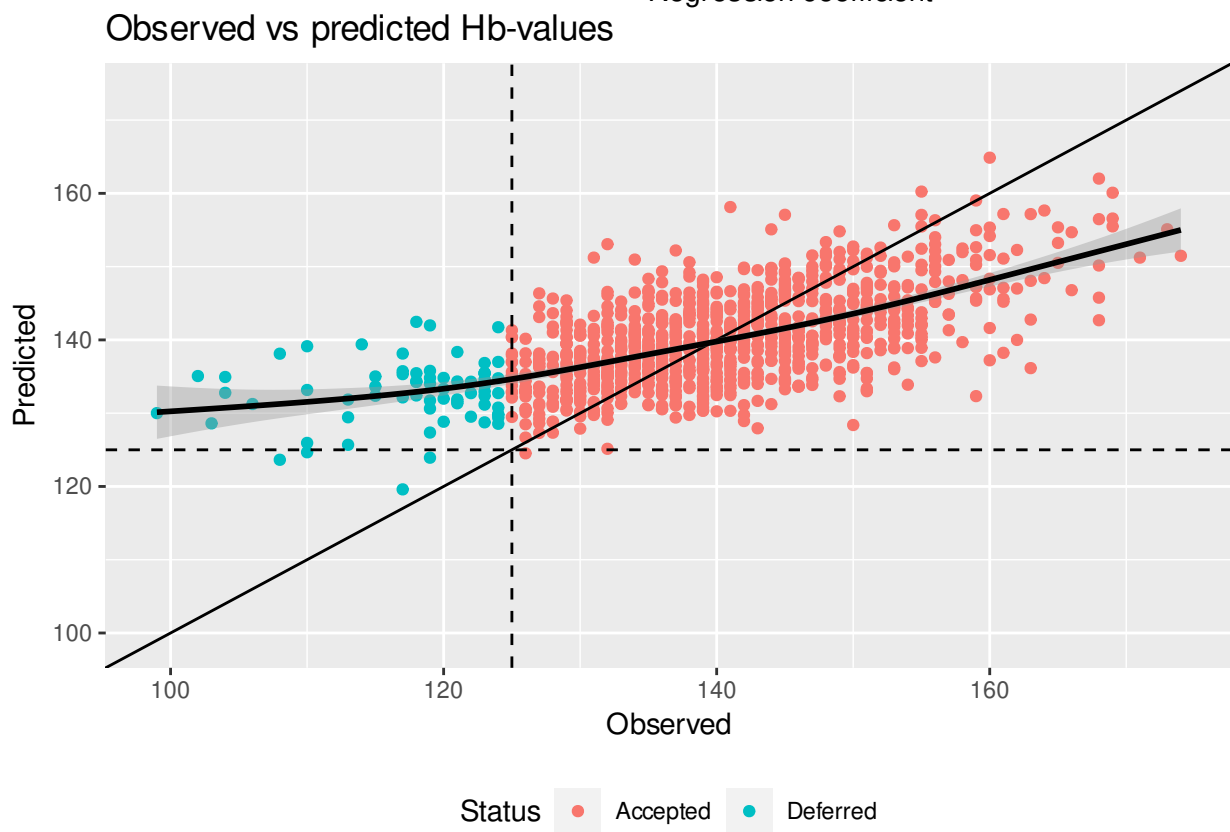
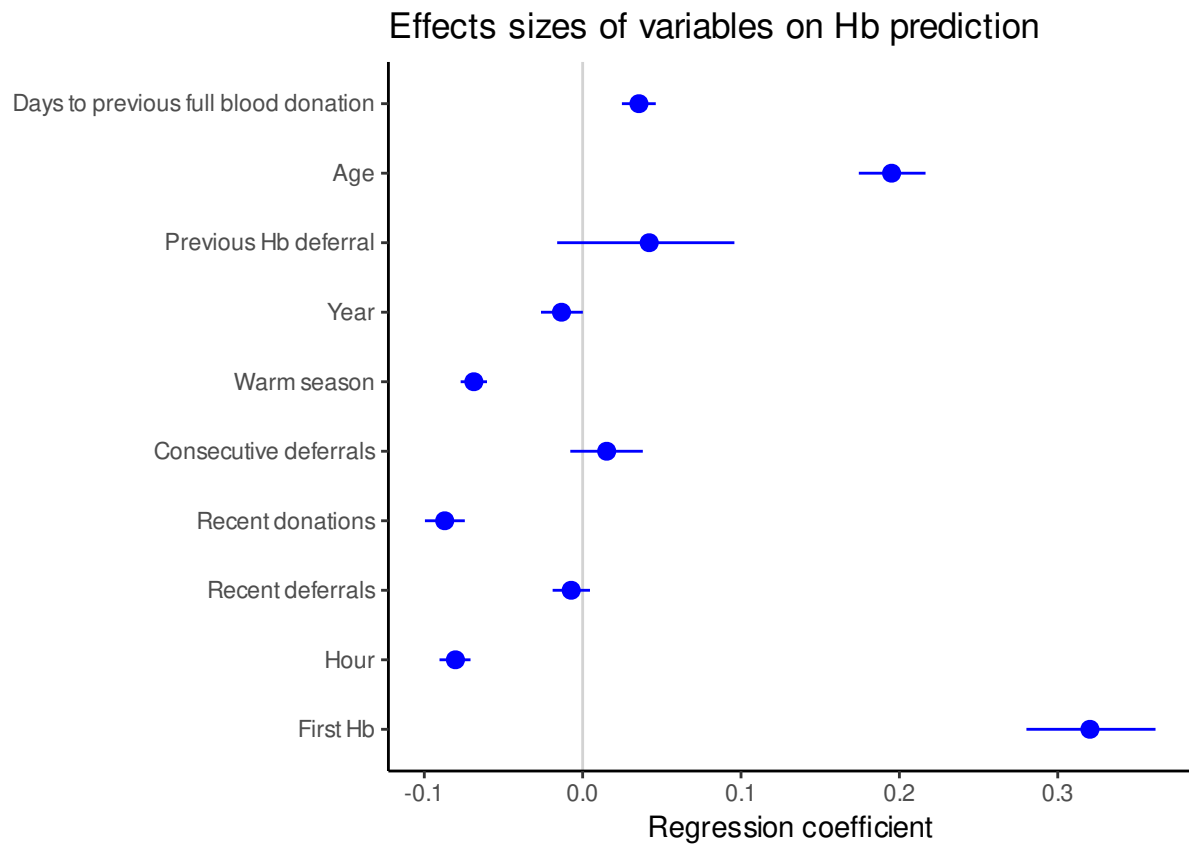


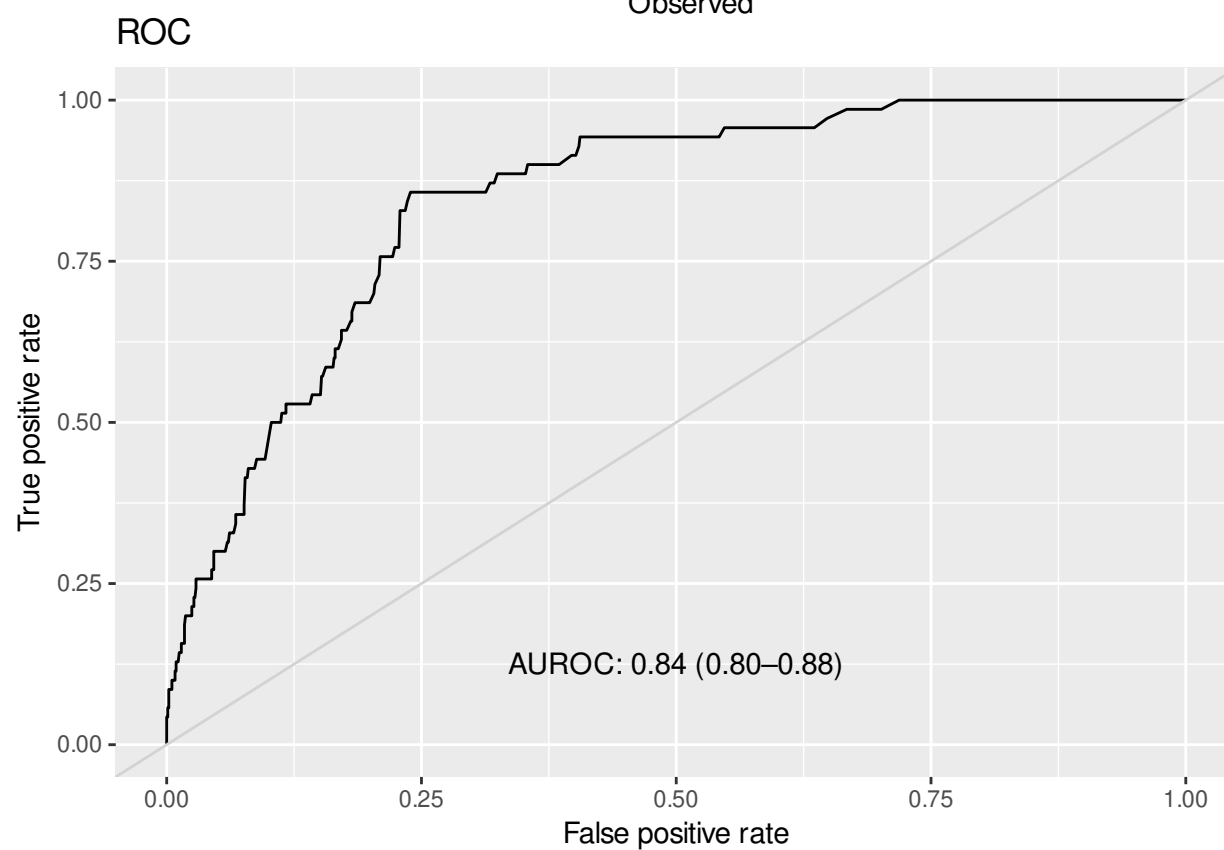
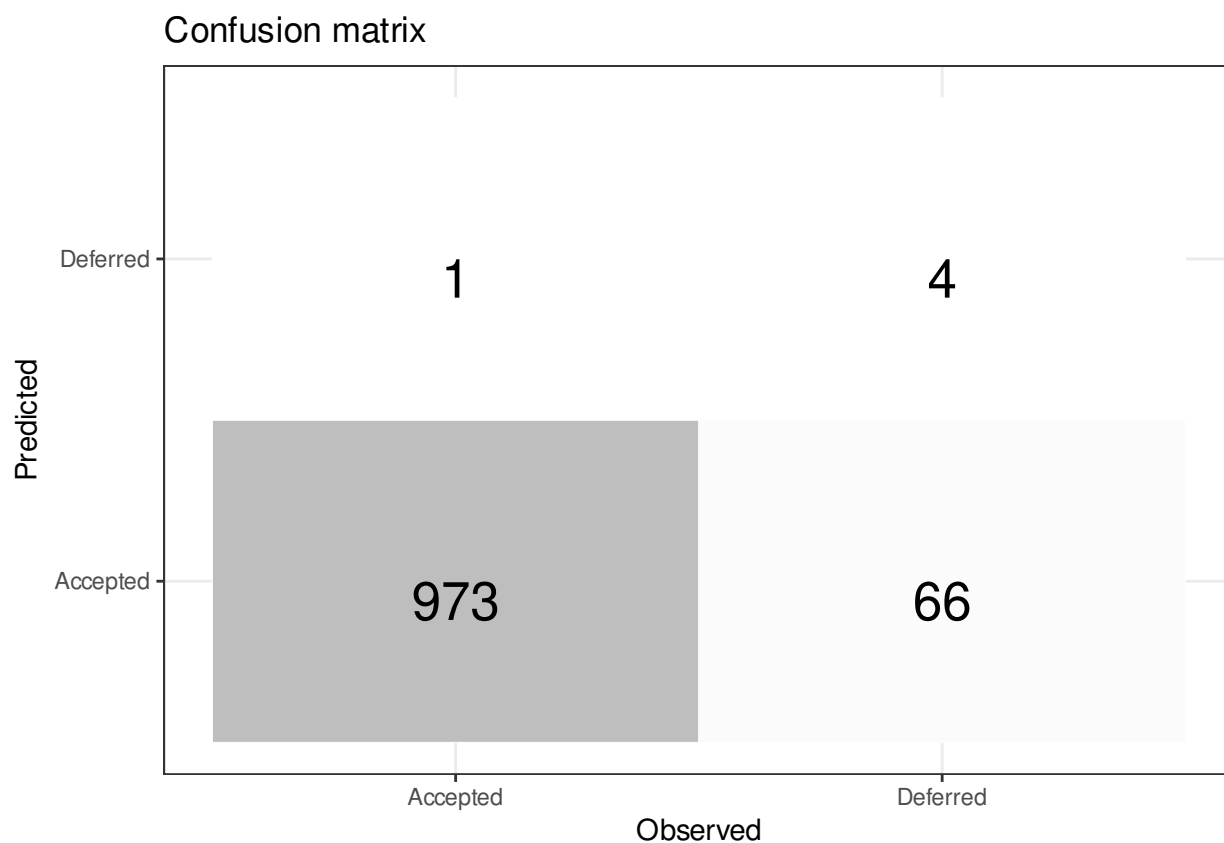


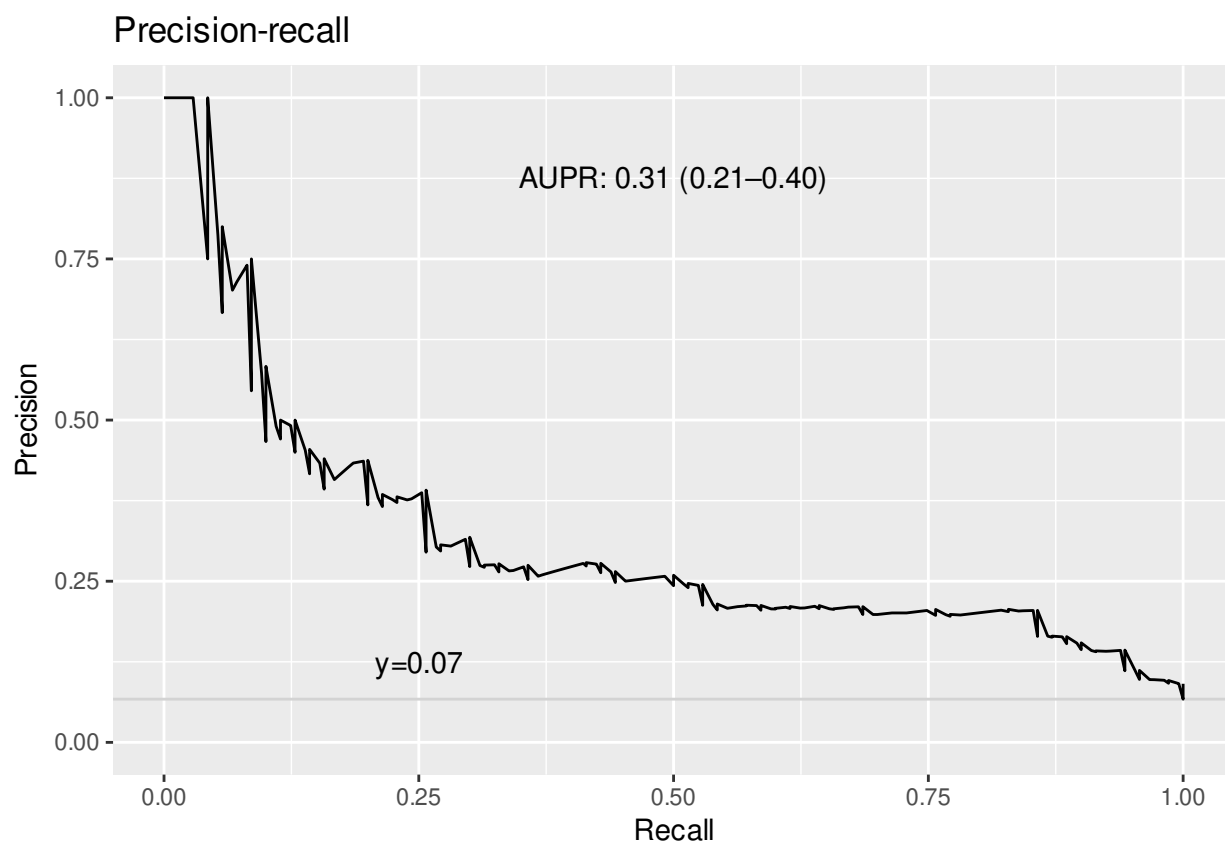
The female set contains 55603 donations from 6411 donors.

Results

Linear mixed model

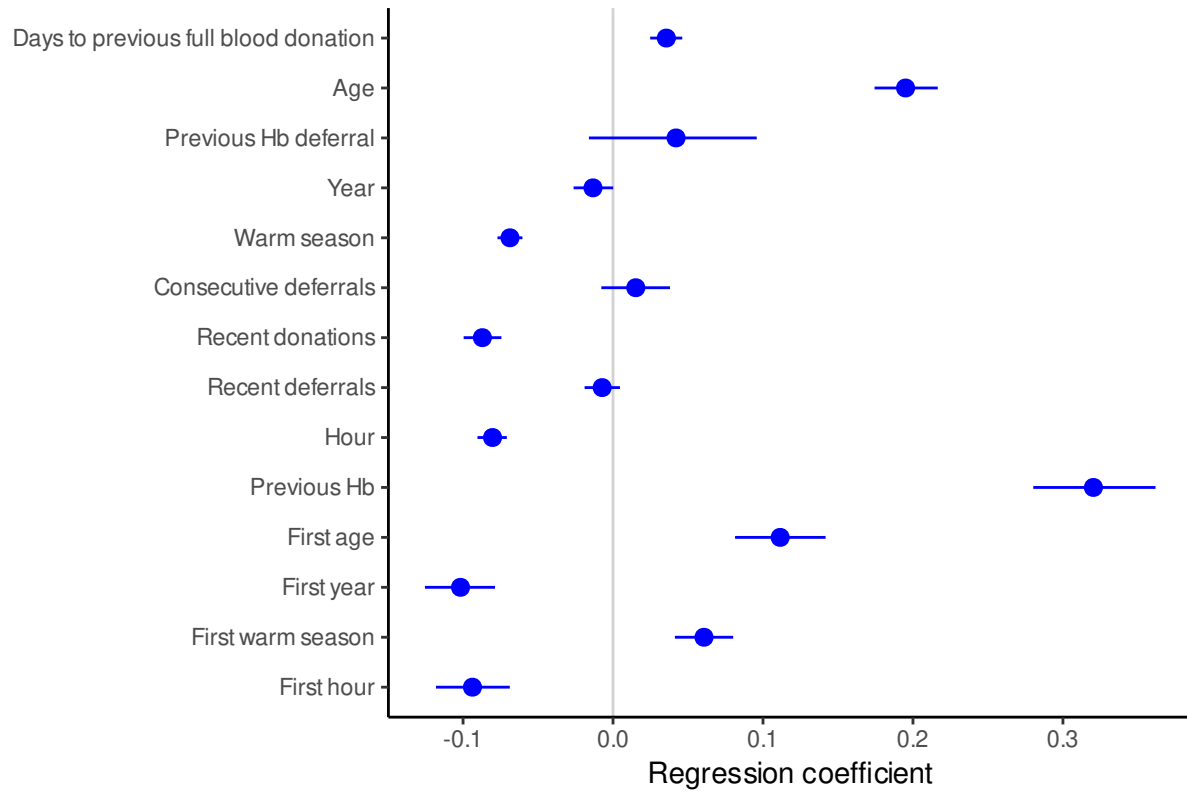




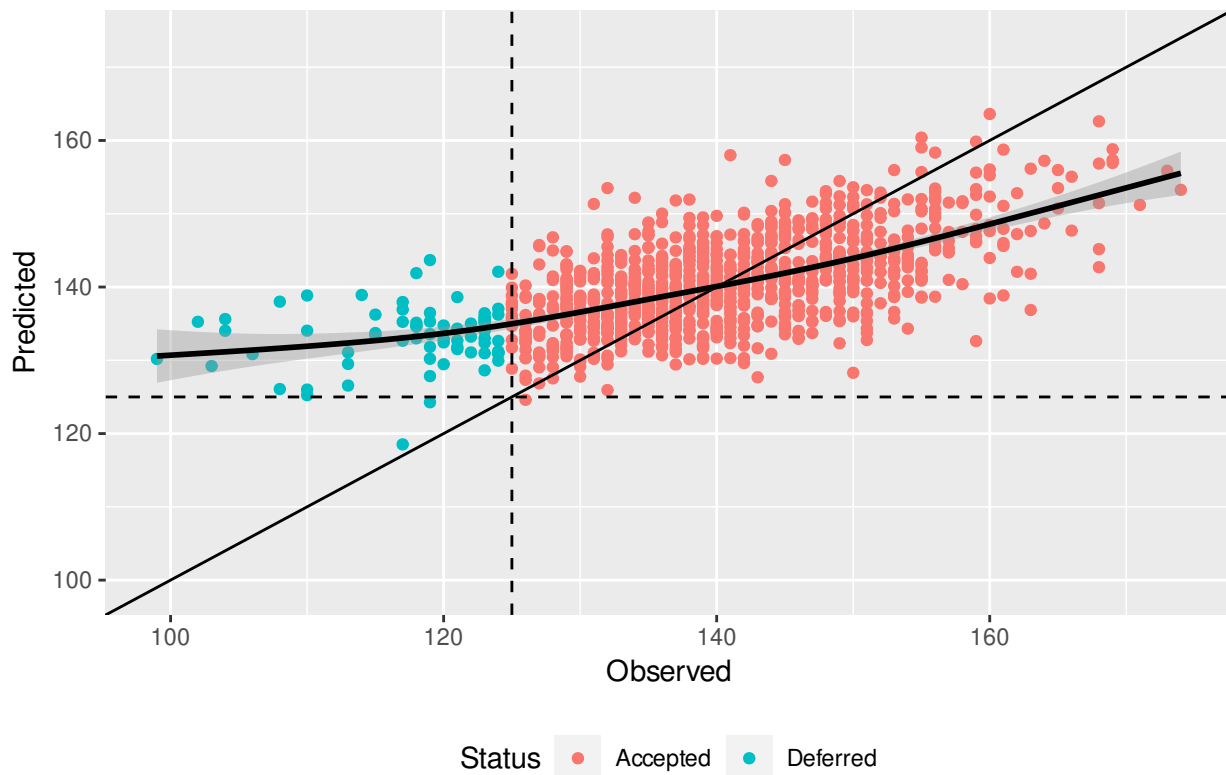


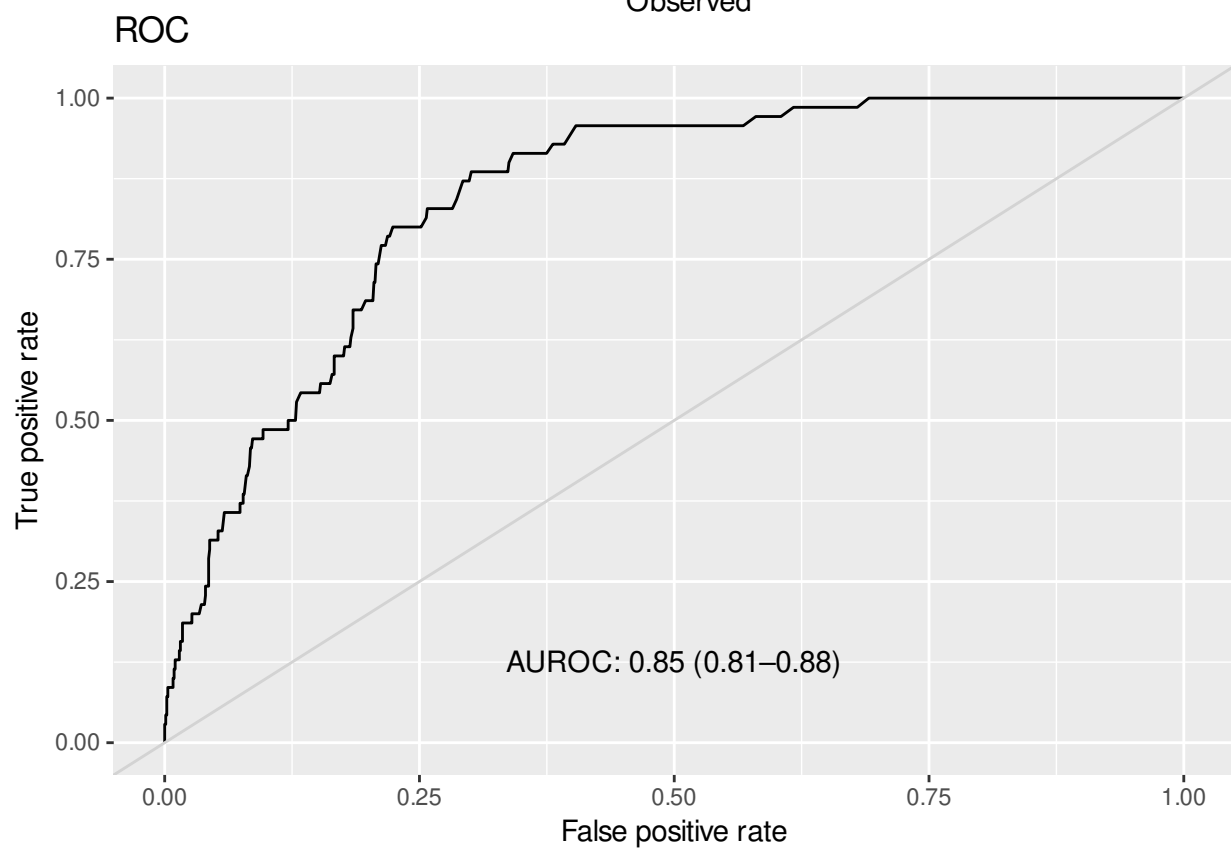
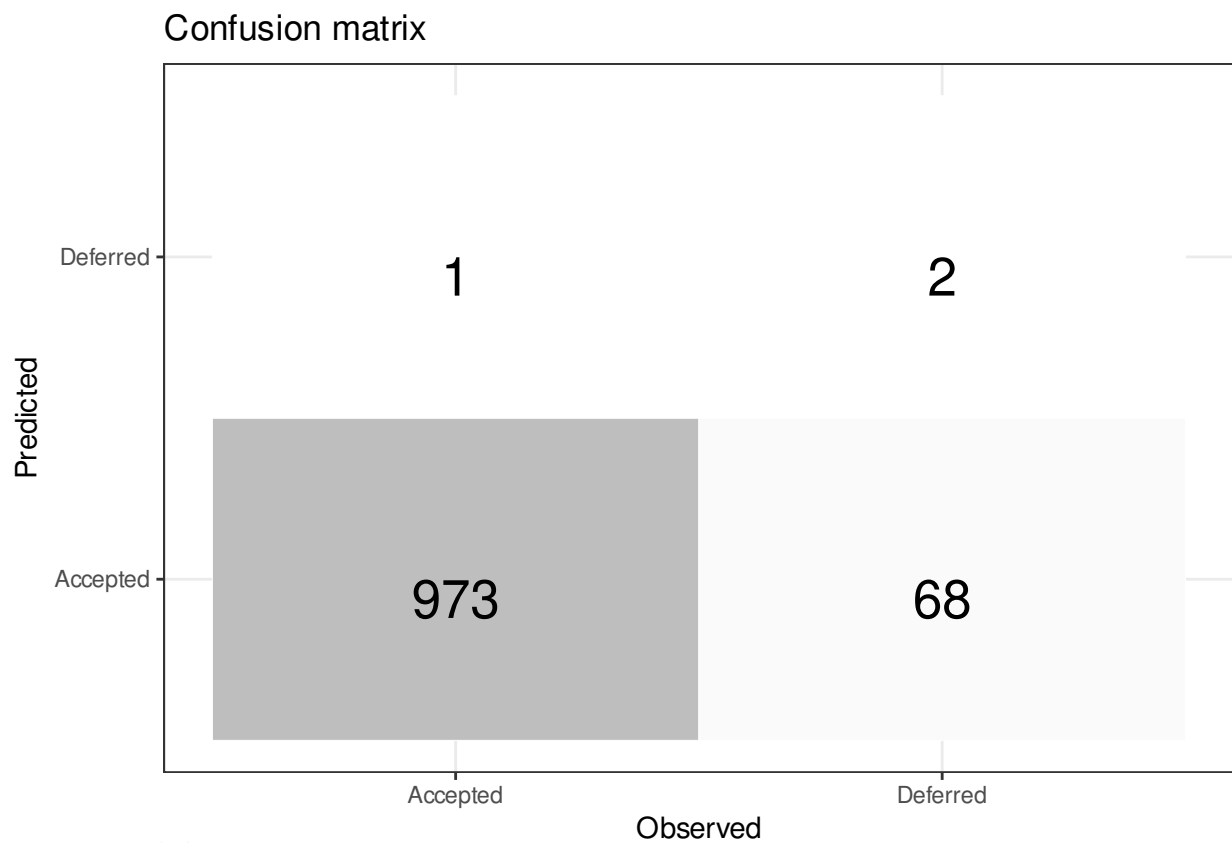
Dynamic linear mixed model

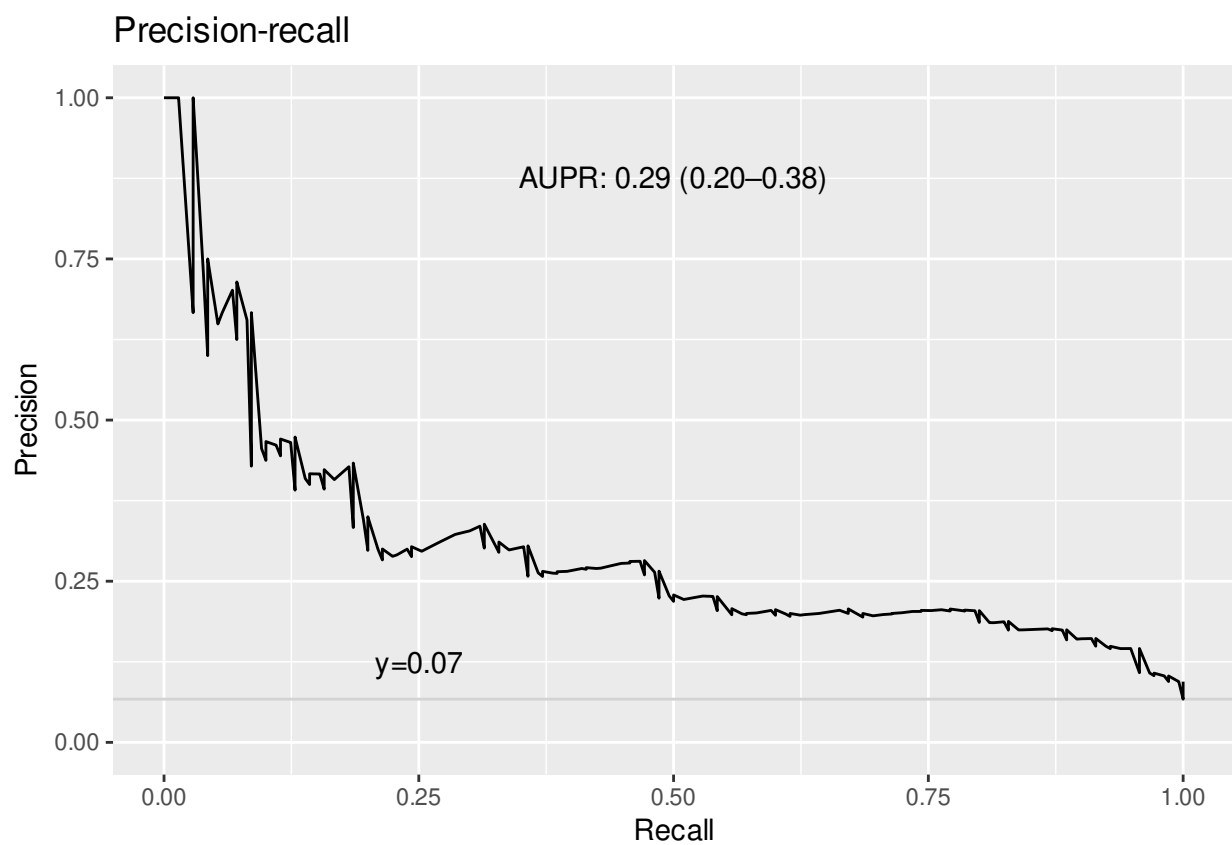
Effects sizes of variables on Hb prediction



Observed vs predicted Hb-values







Summary

Model	Sex	MAE (g / L)	RMSE (g / L)	MAE (mmol / L)	RMSE (mmol / L)	AUROC
Linear mixed model	female	6.71	8.60	0.416	0.533	0.844
Dynamic linear mixed model	female	6.72	8.61	0.417	0.534	0.847