

ARTIFICIAL INTELLIGENCE IN PROGNOSTIC

Prediction of 2-year all-cause mortality for chronic kidney disease patients



Université Claude Bernard Lyon 1



TRAN Nu Thuy Dung¹, Margaux BALEZEAUX¹, Maelys GRANAL¹, Denis FOUQUE², Michel DUCHER³, Jean-Pierre FAUVEL¹

¹ UMR 5558 CNRS Lyon, Université Claude Bernard Lyon 1, Hospices Civils de Lyon, Hôpital Edouard Herriot, Service de Néphrologie, Lyon, France

² Université Claude Bernard Lyon 1, Carmen, Dept Nephrology, Nutrition and Dialysis, Hôpital Lyon Sud, Hospices Civils de Lyon, France

³ EMR3738 Ciblage thérapeutique en oncologie, Université Claude Bernard Lyon 1, Hospices Civils de Lyon, Pharmacie, Lyon, France

BACKGROUND

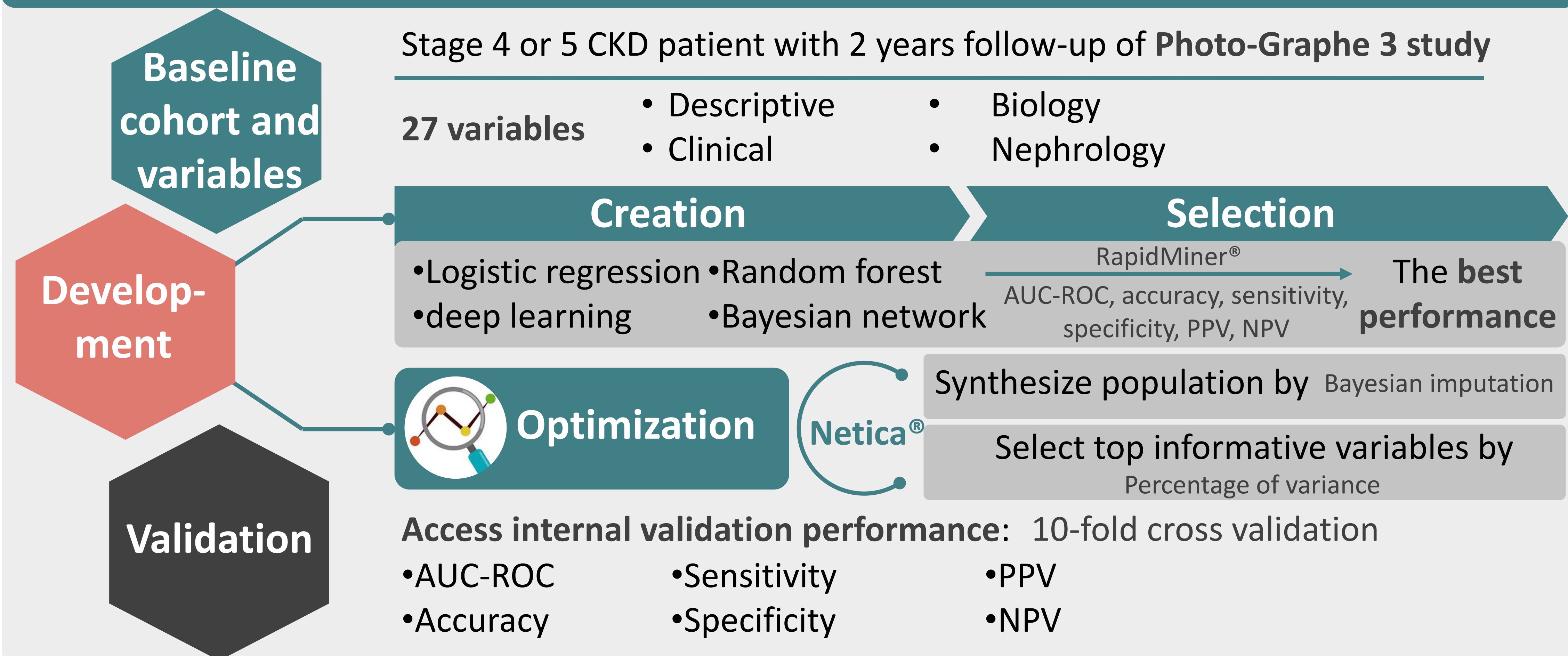
Context

The prediction tools developed from general population data to predict all-cause mortality are not adapted to chronic kidney disease (CKD) patients, because this population displays a higher risk.

Aim

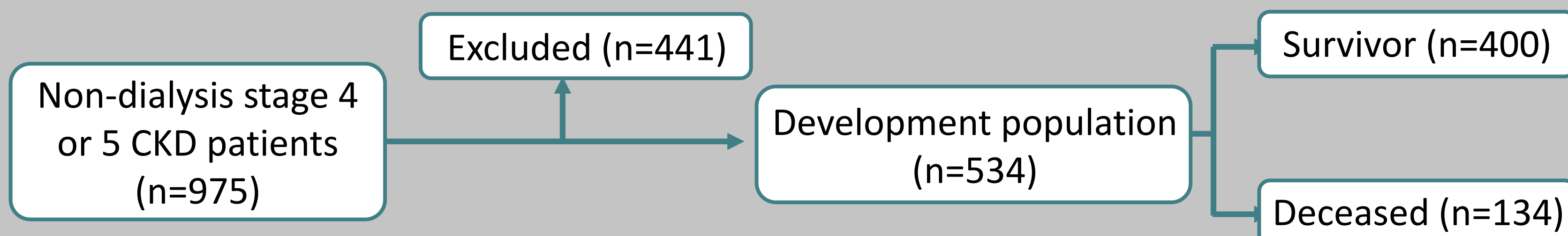
Create a prediction tool to predict the 2-year all-cause mortality of stage-4 or stage-5 CKD patients.

METHOD

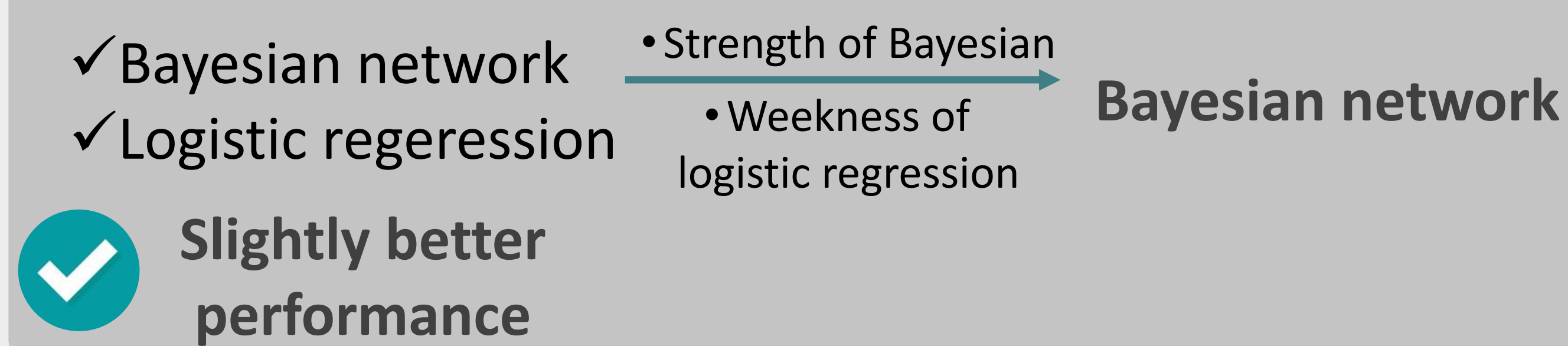


RESULTS

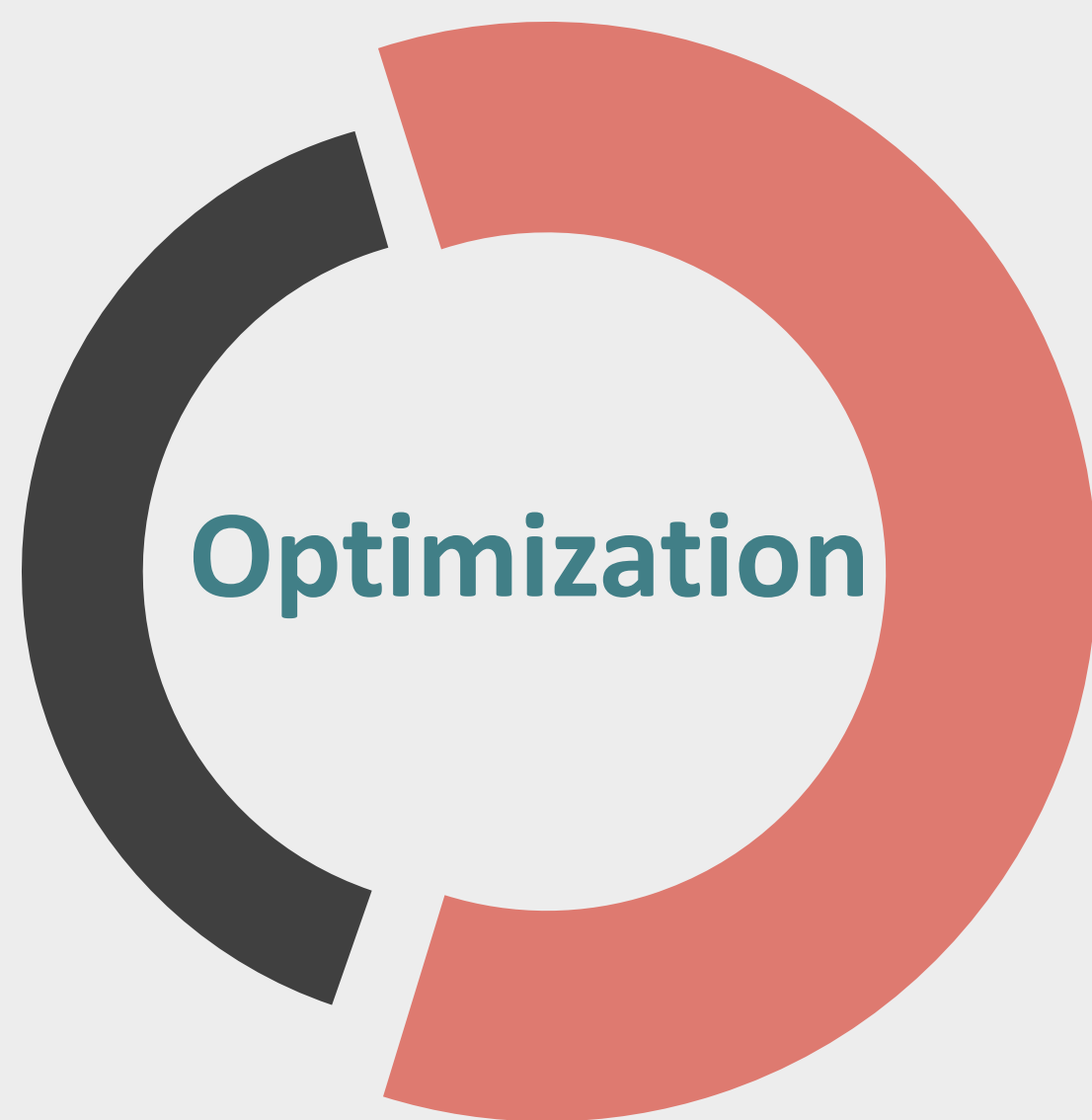
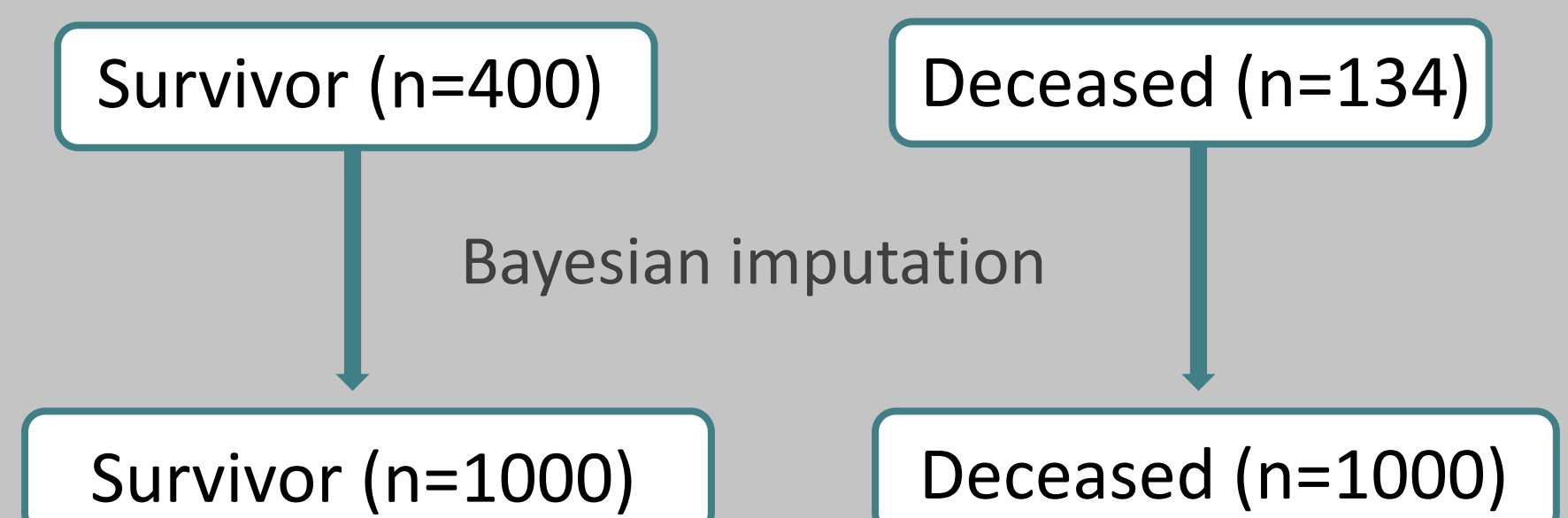
Population



Model selection

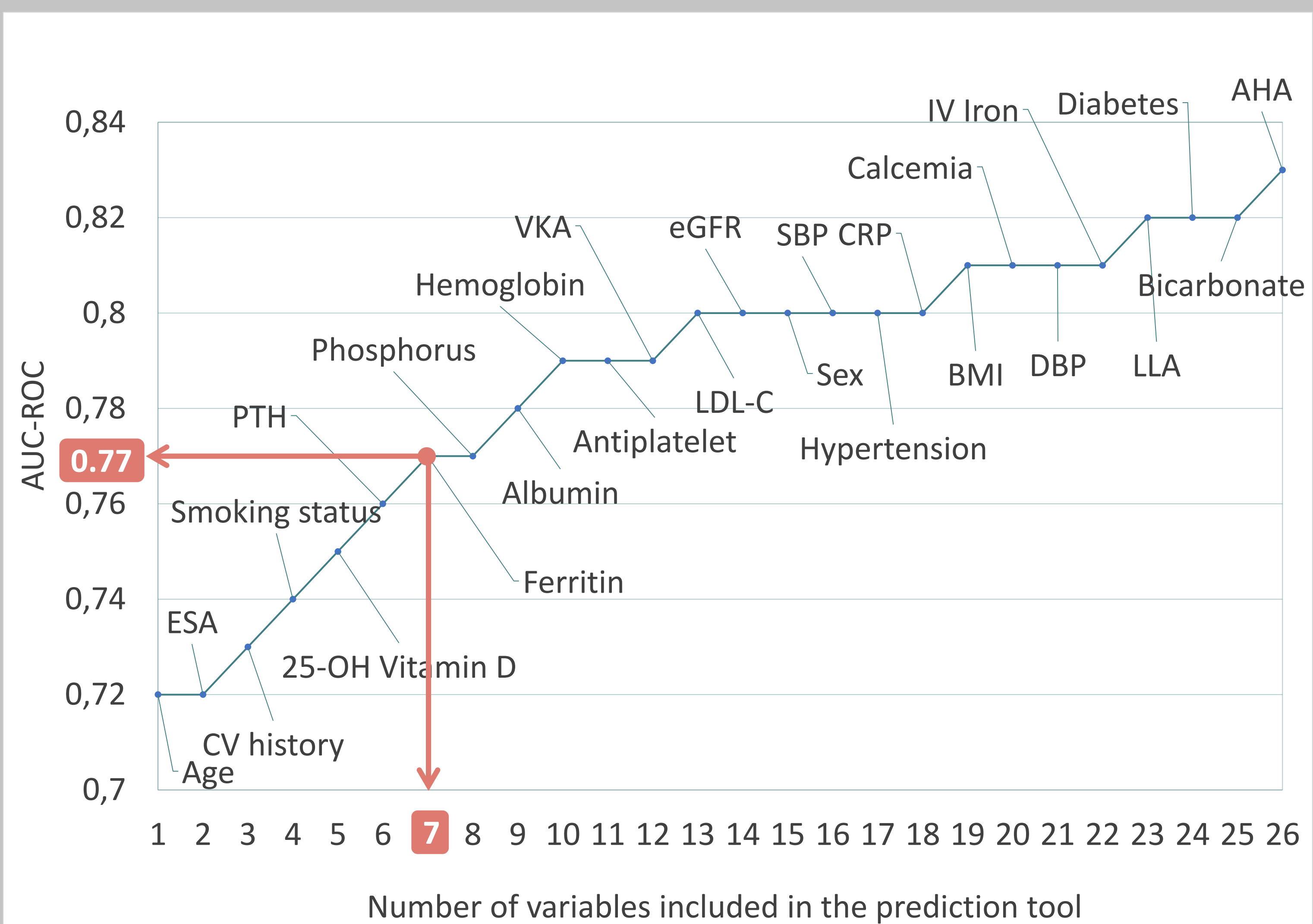


Synthetic population



Refined variables

7 variables: age, Erythropoietin Stimulating Agent (ESA), CV history, smoking status, 25-OH vitamin D level, PTH level, and ferritin level



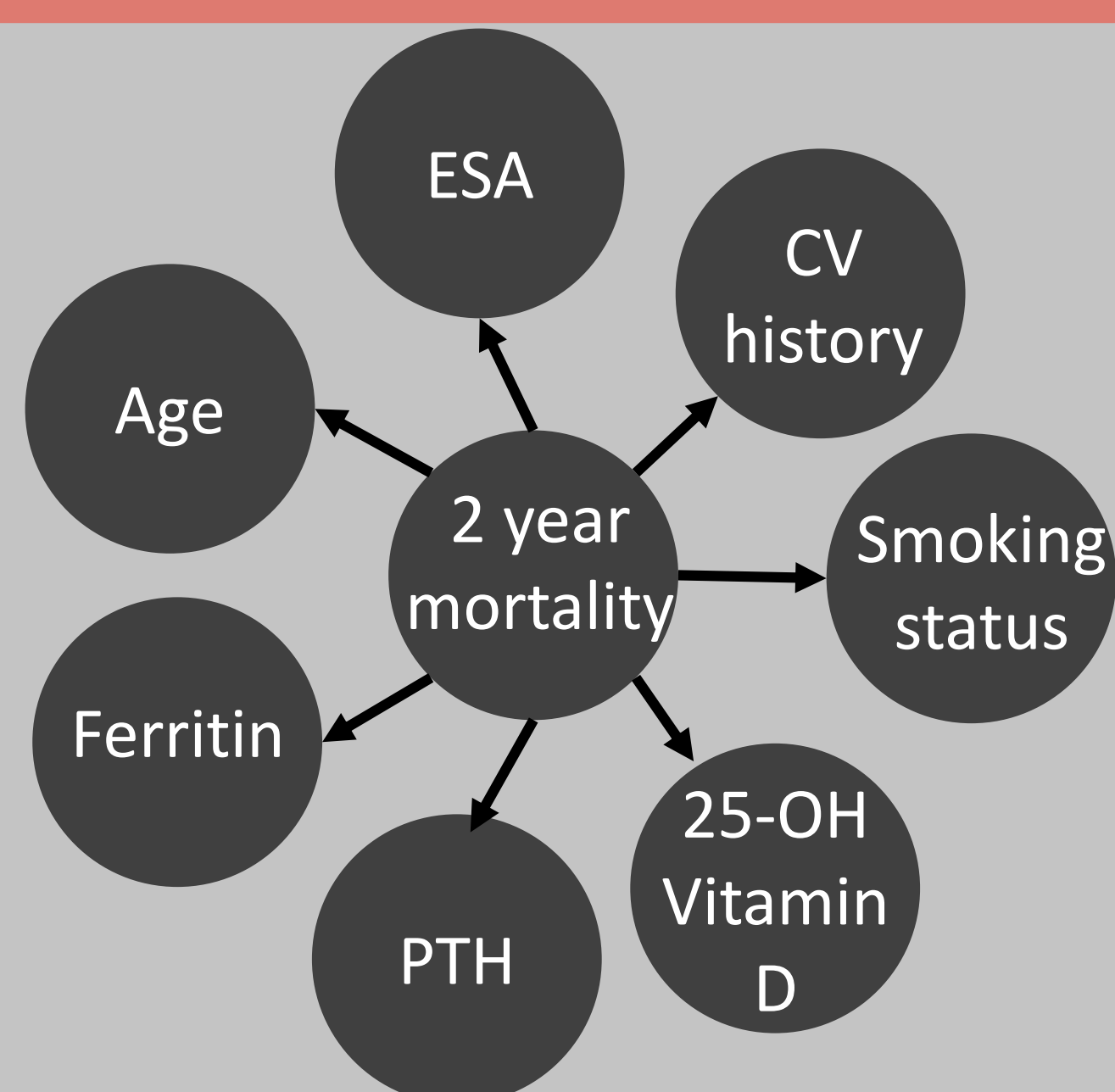
Final prediction tool

Internal validation results

Satisfactory internal performance

10-fold cross validation	
Accuracy	73.8±3.6
AUC-ROC	0.81±0.03
Sensitivity	71.0±5.4
Specificity	76.5±3.0
PPV	75.1±3.2
NPV	72.6±4.1

Naïve Bayesian network



CONCLUSION

A Bayesian network was used to create a 7-variable prediction tool to predict the 2-year all-cause mortality in patients with stage 4-5 CKD.

To test the tool
Scan me 😊

