

A NOVEL HCC WAITLIST
DROPOUT SCORE: BIOMARKER
INTEGRATED DROPOUT
GRADIENT ESTIMATION
(BRIDGE)

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BACKGROUND

- It has been suggested that high AFP-L3 and des-gamma-carboxyprothrombin (DCP) are associated with poor post-transplant and waitlist (WL) outcomes, but these biomarkers have not been widely used in clinical practice for patients with HCC listed for liver transplant (LT)
- The objective of this study was to develop a model that incorporates AFP-L3 and DCP into a novel WL dropout risk score

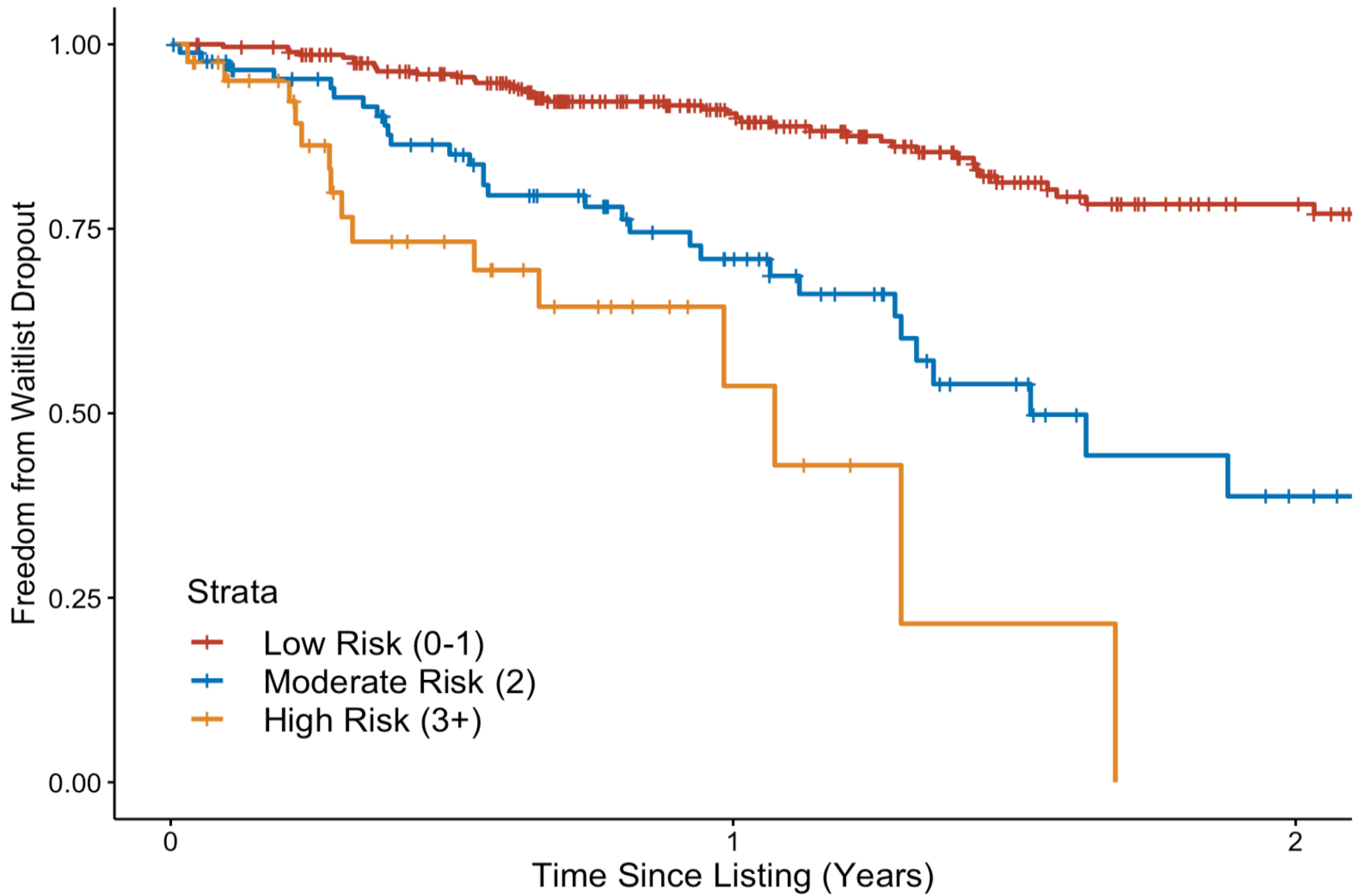
METHODS

- Included **507 patients** from **4 centers** listed for transplant with HCC exception and valid listing AFP, AFP-L3, and DCP measurements
- Used multivariable Cox proportional hazards regression to **identify predictors of waitlist dropout due to tumor progression, clinical deterioration, or death** based on data from 2 of 4 centers (development cohort)
- Created the BRIDGE Score based on final multivariable coefficients and assessed score on our remaining 2 centers (validation cohort)

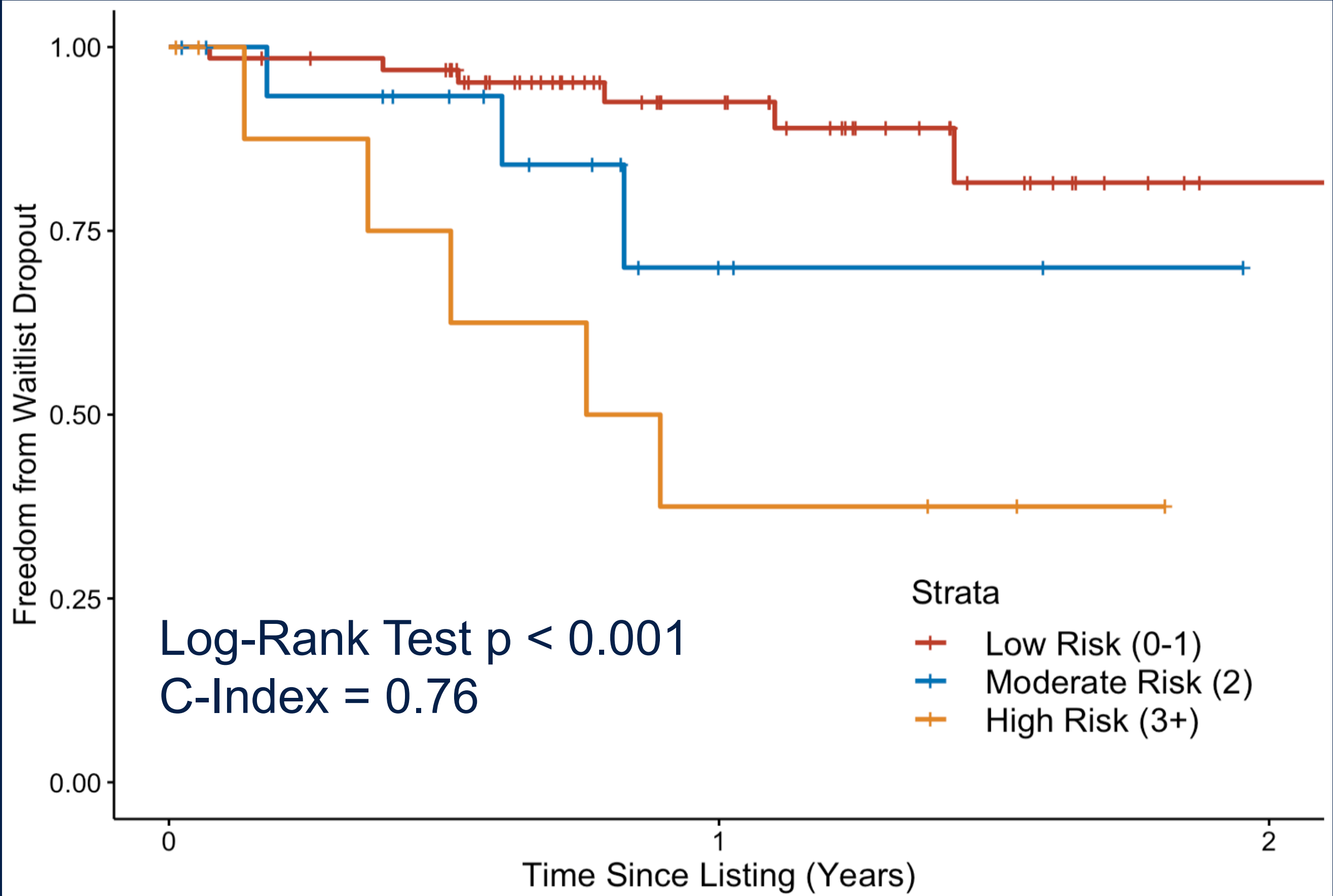
The BRIDGE Score uses biomarkers (AFP, AFP-L3, DCP), Milan Criteria, and Child Pugh Grade to accurately predict waitlist dropout.

Development

Variable	Hazard Ratio	p-value	BRIDGE Points
Beyond Milan	2.05	0.005	1
AFP > 100 ng/mL	2.40	0.007	1
AFP-L3 > 15%	2.17	0.001	1
DCP > 7.5 ng/mL	1.80	0.036	1
CP Score – A	-	-	0
CP Score – B	1.78	0.017	1
CP Score – C	3.06	0.003	2



Validation



Group	1-year Dropout Risk
Low Risk	7%
Medium Risk	30%
High Risk	62%



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RESULTS

Characteristic	Overall, N = 507 [†]	Development, N = 415 [†]	Validation, N = 92 [†]
Initial Diagnostic Criteria			
Within Milan	419 (83%)	349 (84%)	70 (76%)
Within UNOS-DS	57 (11%)	50 (12%)	7 (7.6%)
Beyond UNOS-DS	31 (6.1%)	16 (3.9%)	15 (16%)
Listing AFP > 100 ng/mL	38 (7.5%)	31 (7.5%)	7 (7.6%)
Listing AFP-L3 > 15%	96 (19%)	74 (18%)	22 (24%)
Listing DCP > 7.5 ng/mL	71 (14%)	61 (15%)	10 (11%)
Listing Child-Pugh Grade			
A	307 (61%)	248 (60%)	59 (64%)
B	142 (28%)	116 (28%)	26 (28%)
C	58 (11%)	51 (12%)	7 (7.6%)

- Overall WL dropout rate was 21% after a median follow-up of 1 year
- Addition of AFP-L3 and DCP showed improved model fit over a model with AFP as the only biomarker
- BRIDGE score stratified patients into low (0-1 points), medium (2 points) and high (3+ points) risk groups

DISCUSSION

- BRIDGE is a simple & accurate WL dropout risk score that incorporates complete listing biomarker data (AFP, AFP-L3, DCP), tumor burden and liver disease severity
- BRIDGE stratifies risk of waitlist dropout and may have important future implications for organ allocation policy

ACKNOWLEDGEMENTS

This work was supported by the UCSF Liver Center and funding source P30 DK026743 as well as the UCSF Yearlong Research Fellowship.