

# A

## Linear predictor formula of the final model

$$Y = -1.5783 +$$
$$\text{Polymorphonuclear cells } (*x10^9/L)*0.0499 +$$
$$\text{Polymorphonuclear cells } (*x10^9/L)'*0.0010^3 +$$
$$\text{LDH (UI/L)*0.0046 +}$$
$$\text{LDH (UI/L)'}*-0.0089^3 +$$
$$\text{Albumin (g/dL)*-0.6165 +}$$
$$\text{Albumin (g/dL)'}*-0.3758^3 +$$
$$\text{If(ECOG = 2-3-4: 0.6623) +}$$
$$\text{If(ECOG = 0: 0) +}$$
$$\text{If(Last response = PD: 1.8577) +}$$
$$\text{If(Last response = SD: 1.3014) +}$$
$$\text{If(Last response = CR-PR: 0)}$$

**Probability of risk calculation:**  $\exp(Y)/(1+\exp(Y))$

# B

## CUTOFFS

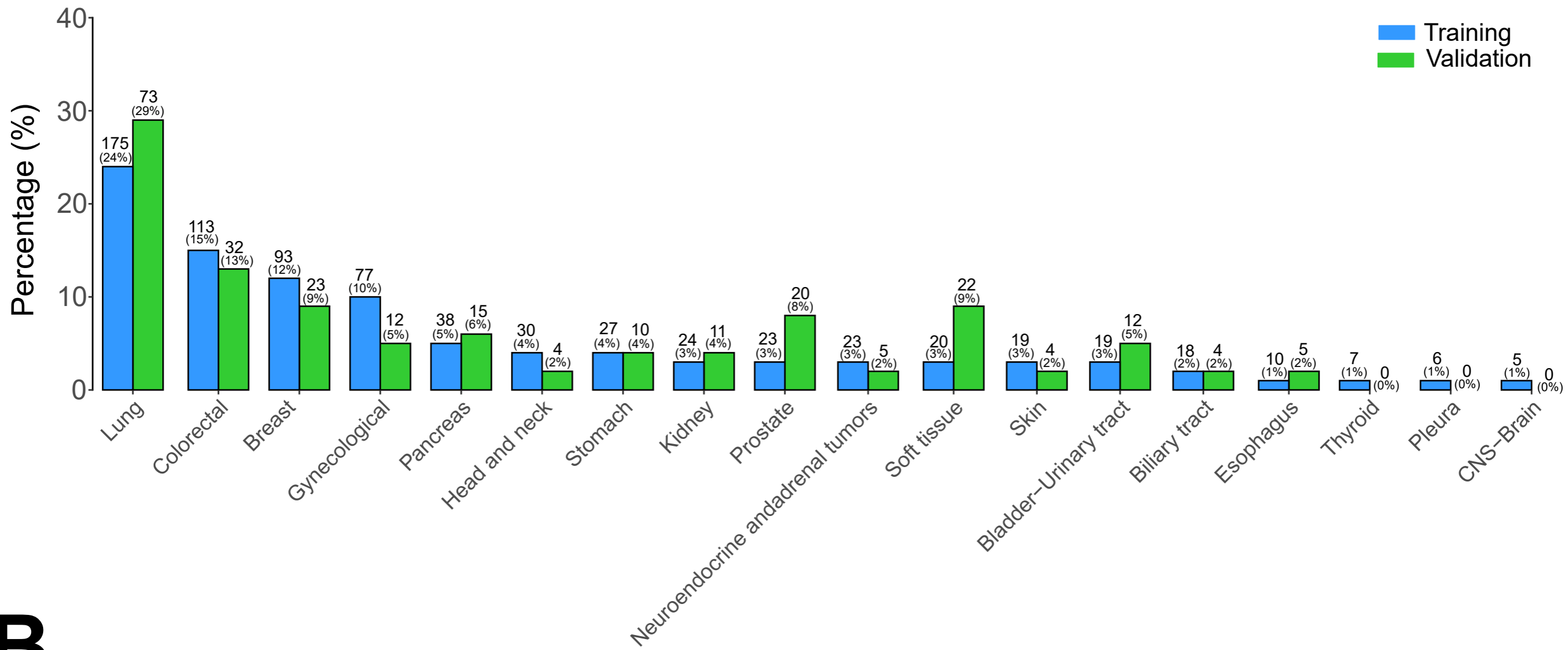
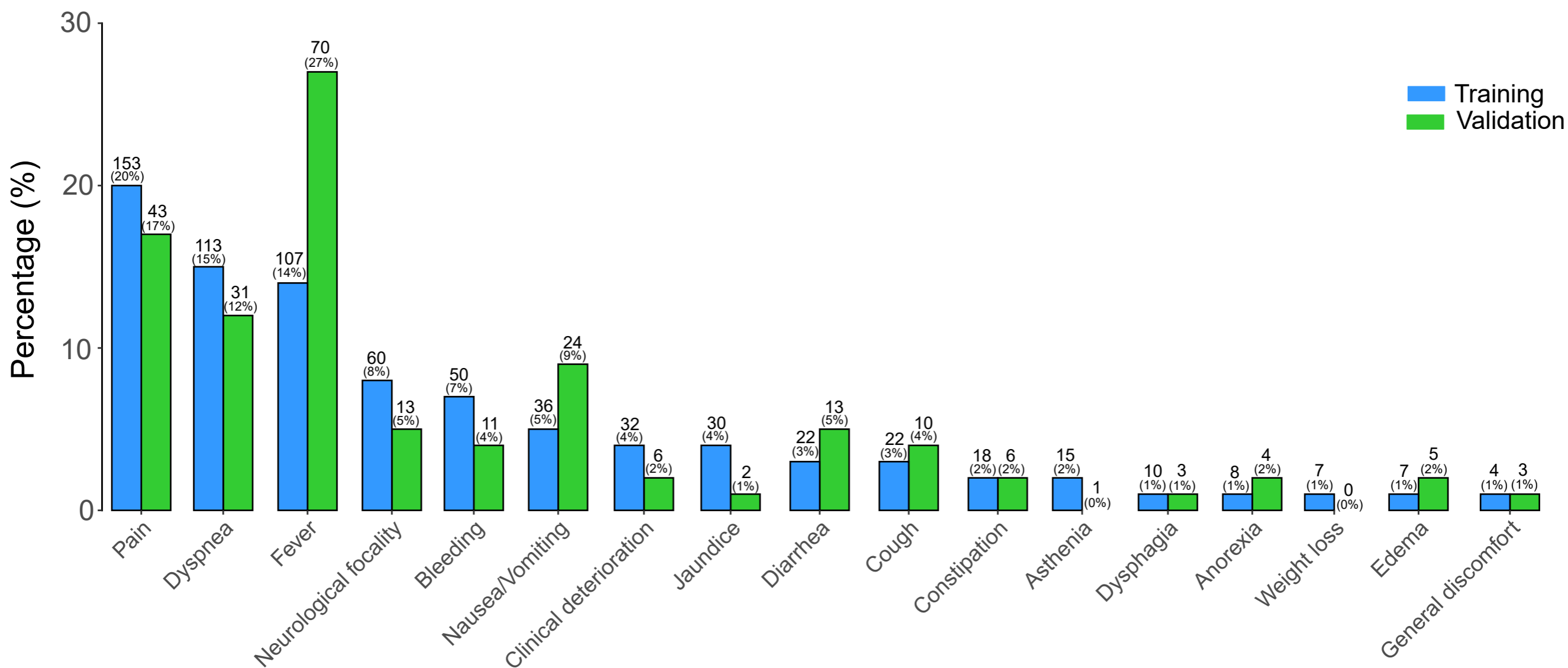
Low Risk  
<27.33%

Intermediate Risk  
≥27.33% & ≤53.04%

High Risk  
>53.04%

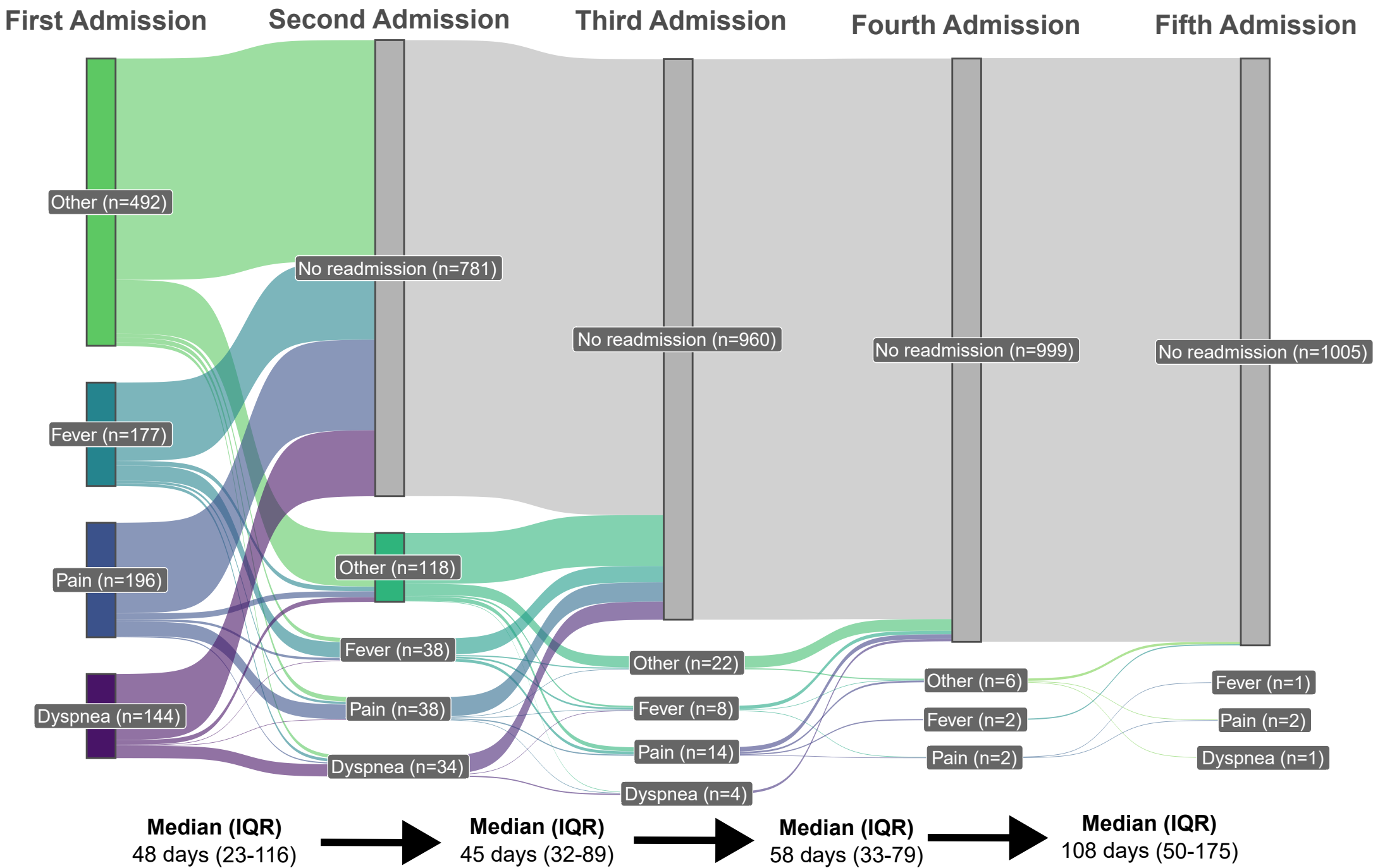
**Supplementary Figure 1:** Formula of the final PROMISE score (A), and cutoffs for risk groups (B).

Abbreviations: LDH: lactic acid dehydrogenase; cR: complete response; PR: partial response; SD: stable disease; PD: progressive disease.

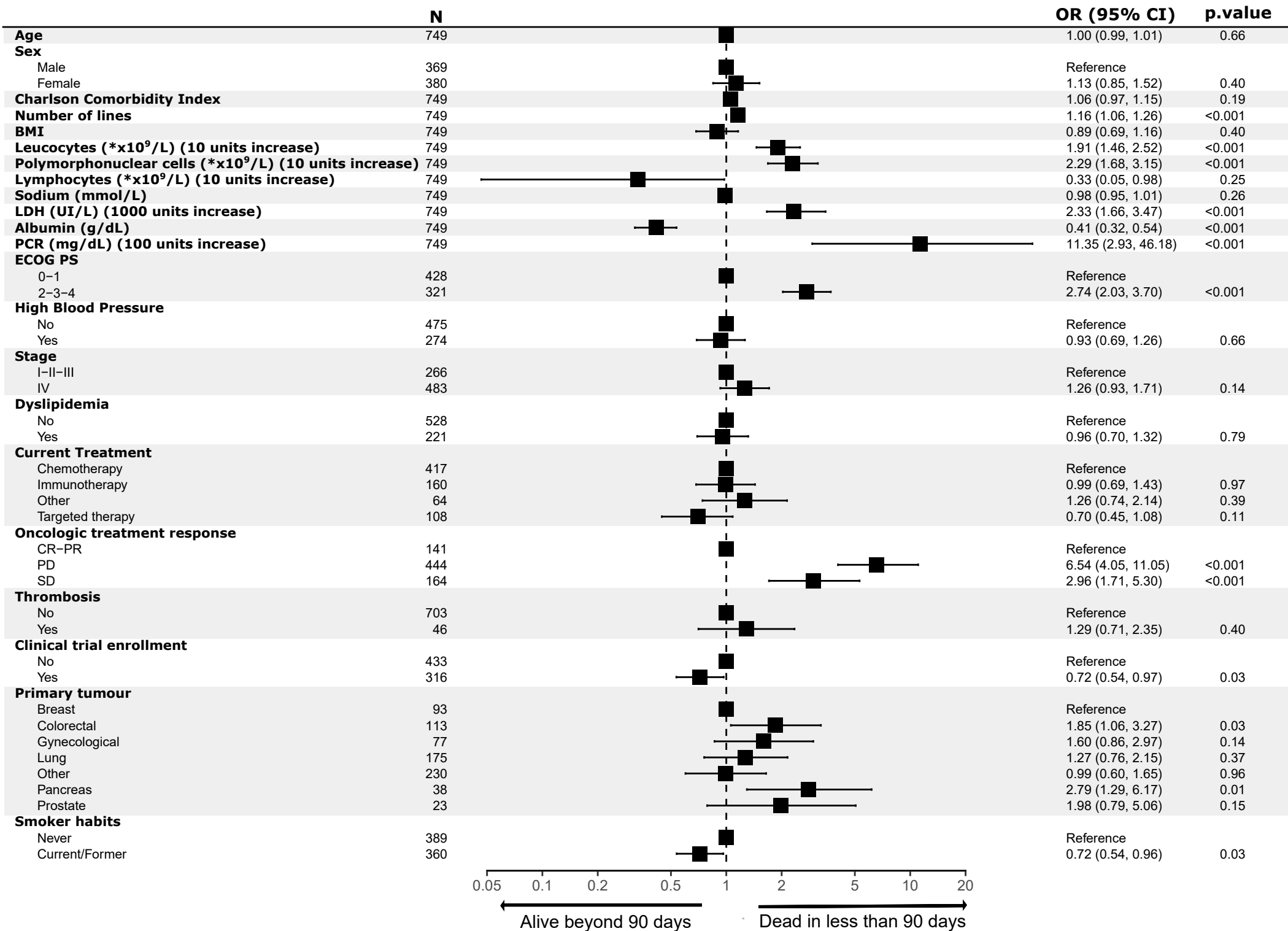
**A****B**

**Supplementary Figure 2:** Tumor type (A) and reason for unplanned hospital admission (B), in the training (blue) and validation cohorts (green).

Abbreviations: CNS: central nervous system.

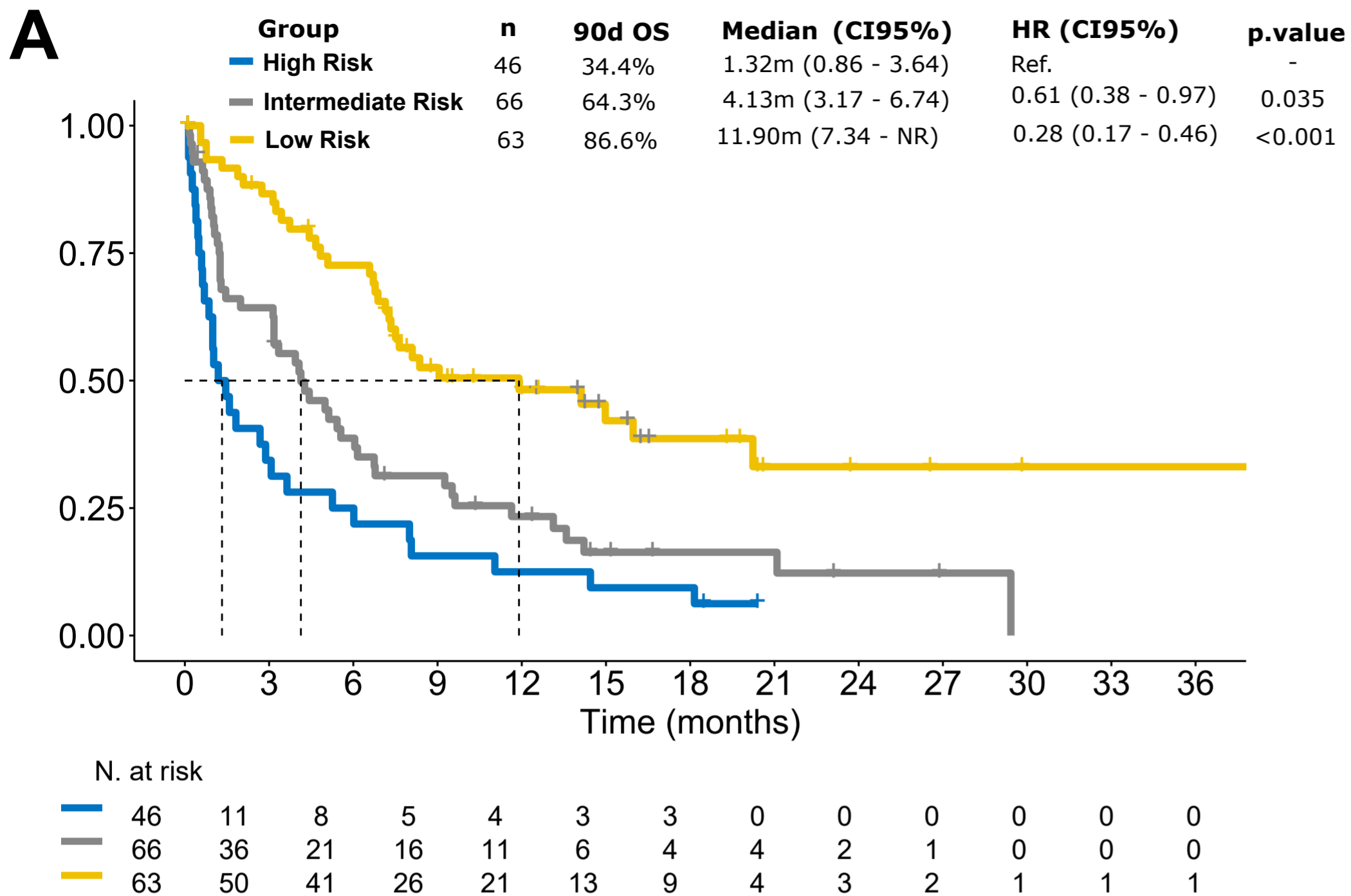


**Supplementary Figure 3:** Sankey plot depicting total admissions and median time (IQR) between consecutive admissions. Abbreviations: IQR: interquartile range; n: sample size.

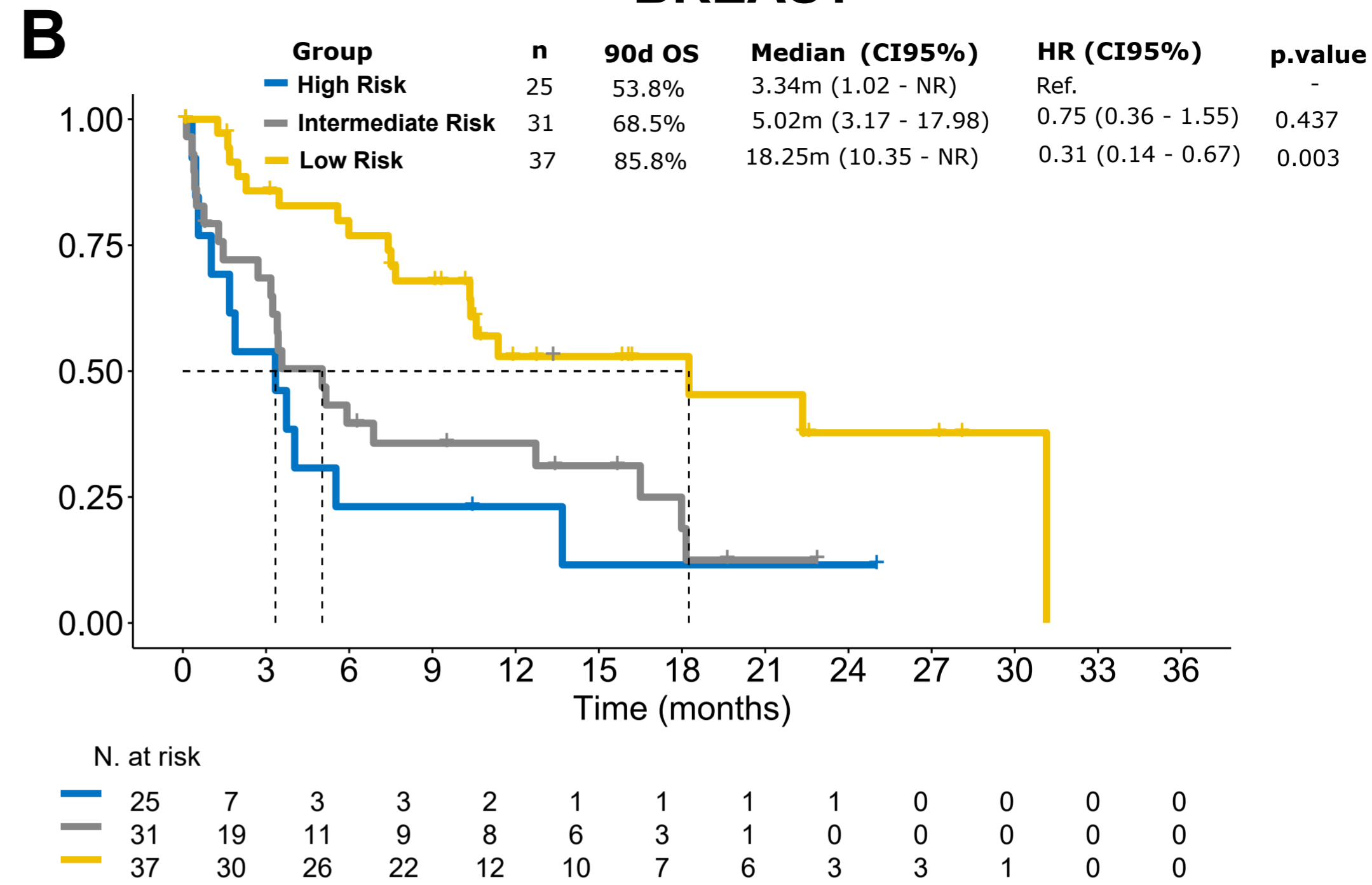


**Supplementary Figure 4:** Univariate analysis of PROMISE score variables influencing 90-day mortality after unplanned hospitalization in the training cohort. Abbreviations: BMI: body mass index; LDH: lactic acid dehydrogenase; PCR: polymerase chain reaction; CR: complete response; PR: partial response; SD: stable disease; PD: progressive disease; N: sample size; OR: odds ratio; CI: confidence interval.

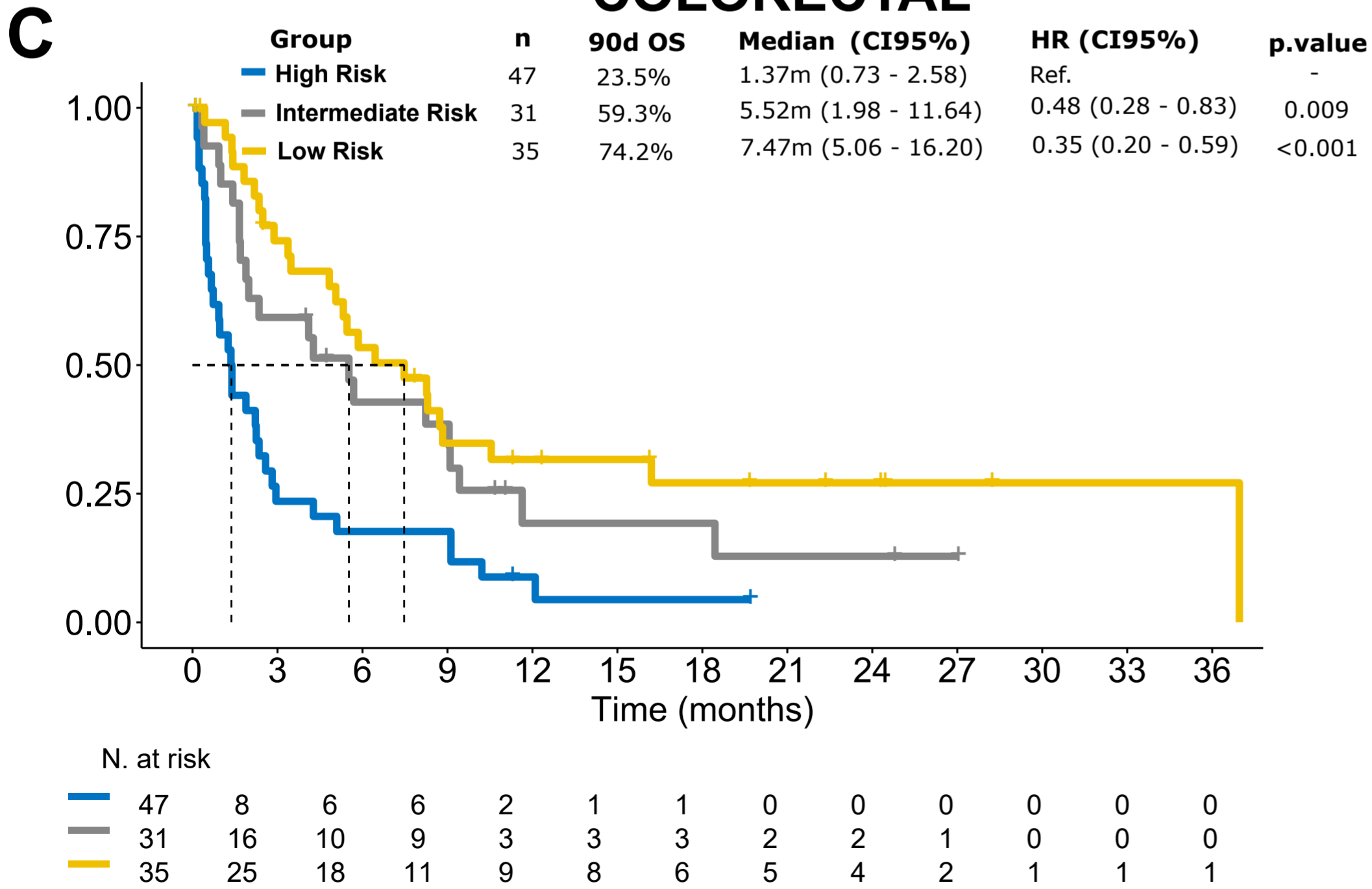
# LUNG



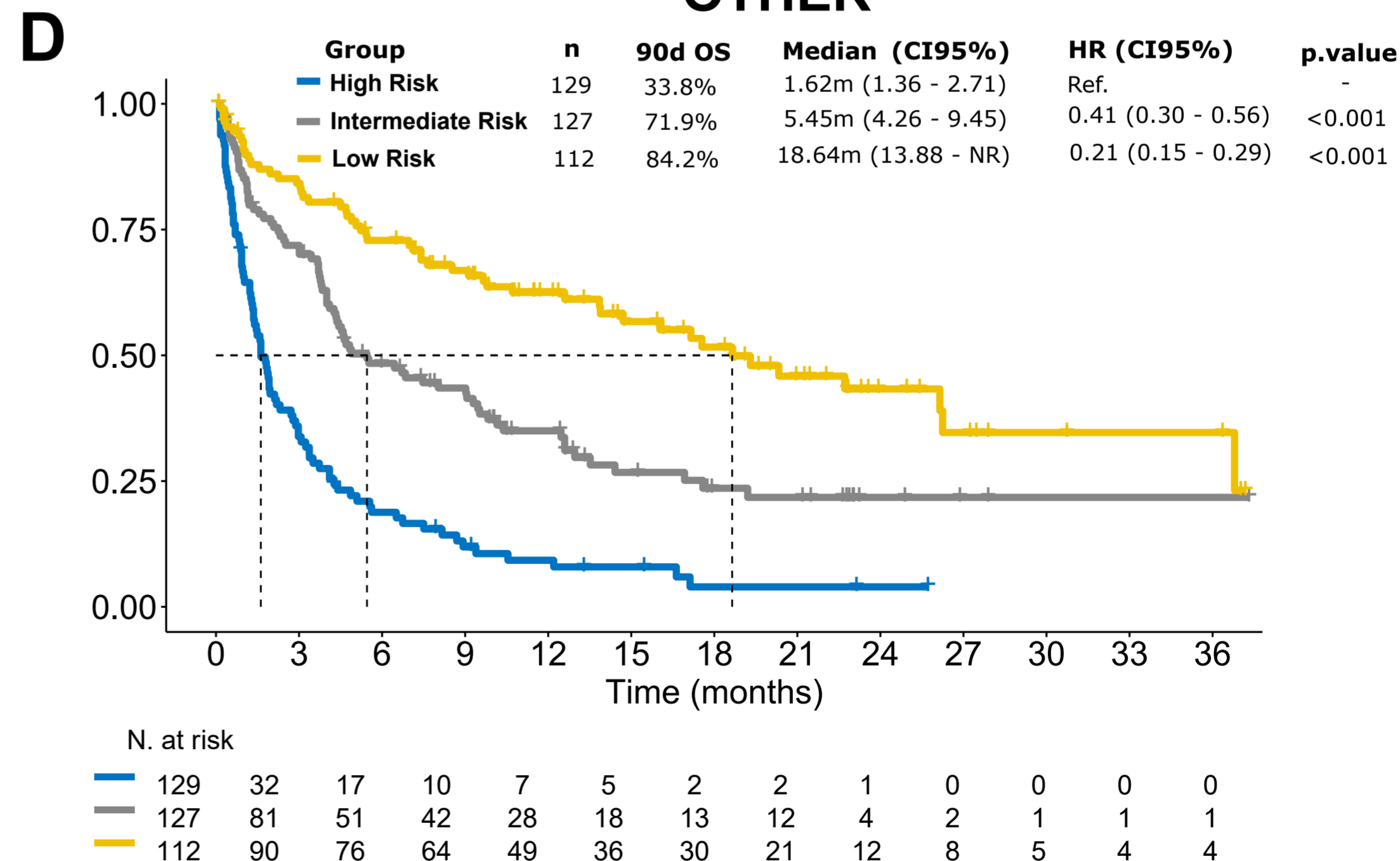
# BREAST



# COLORECTAL



# OTHER



**Supplementary Figure 5:** Kaplan-Meier curves for overall survival illustrate the 90-day survival rates in the training cohort, stratified by risk groups (high, intermediate, or low PROMISE score) for lung (A), breast (B), colorectal (C), and other tumor types (D).

Abbreviations: n: sample size; 90d OS: 90d percentage of Overall Survival; CI: confidence interval; HR: hazard ratio.