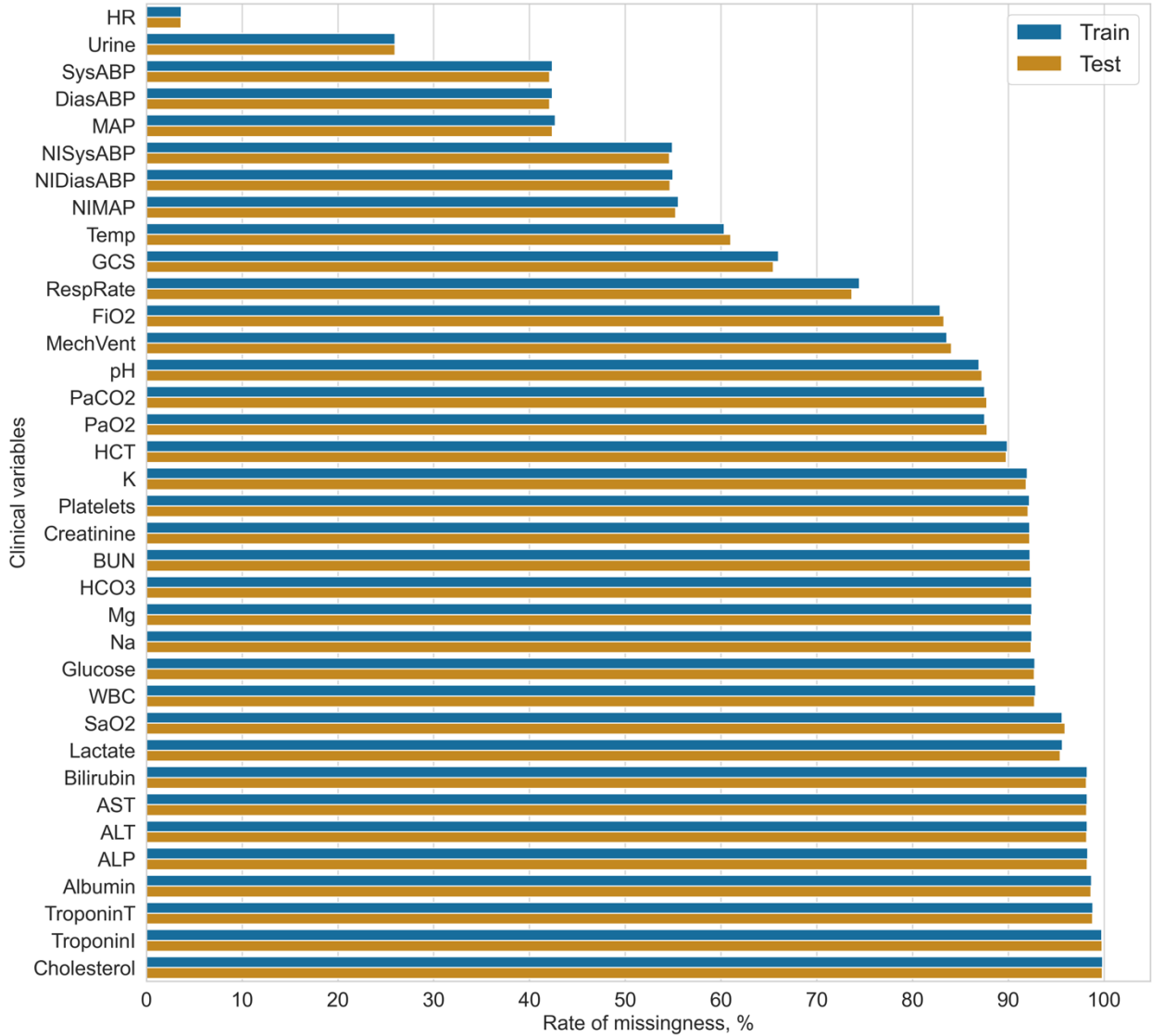
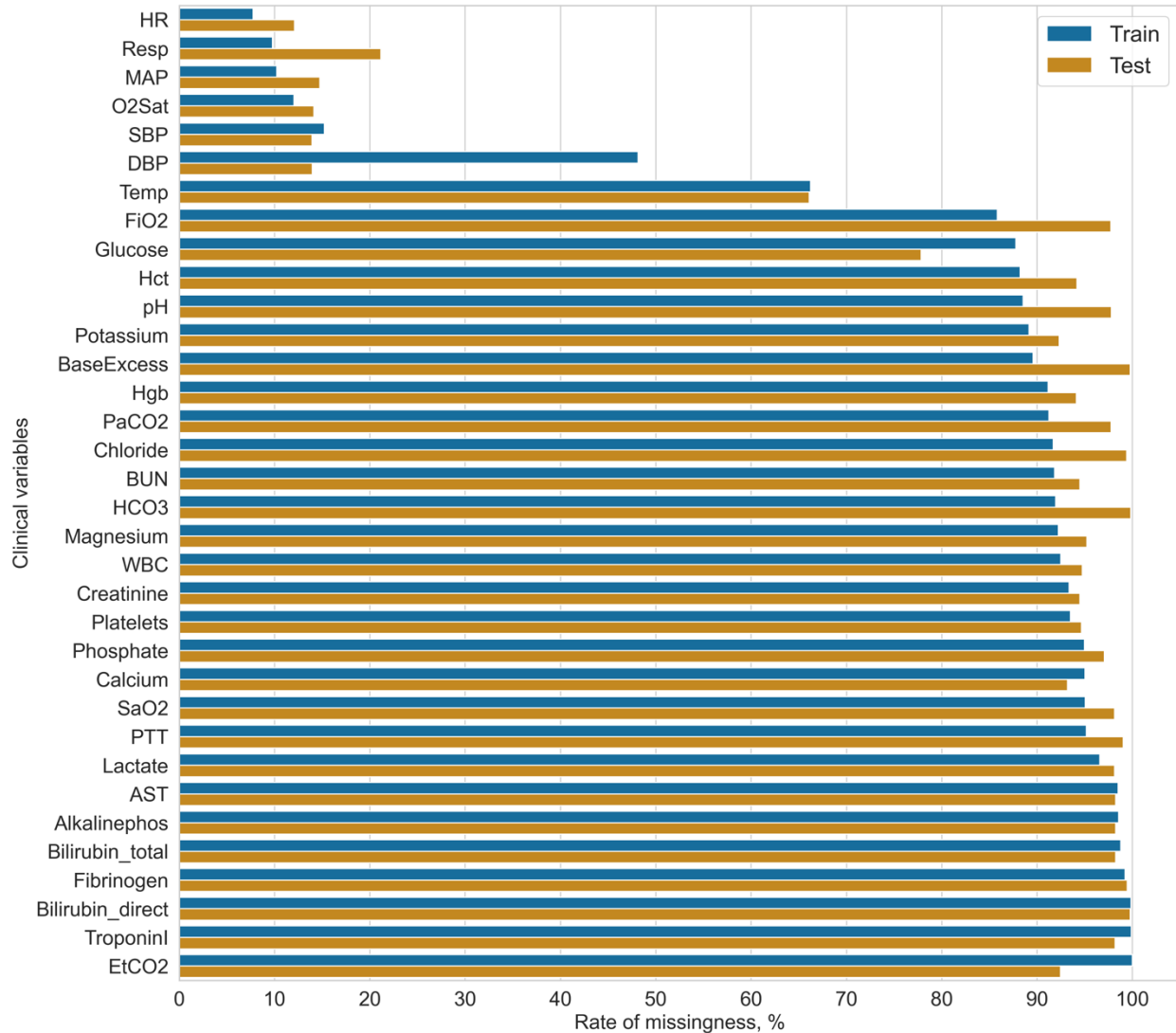


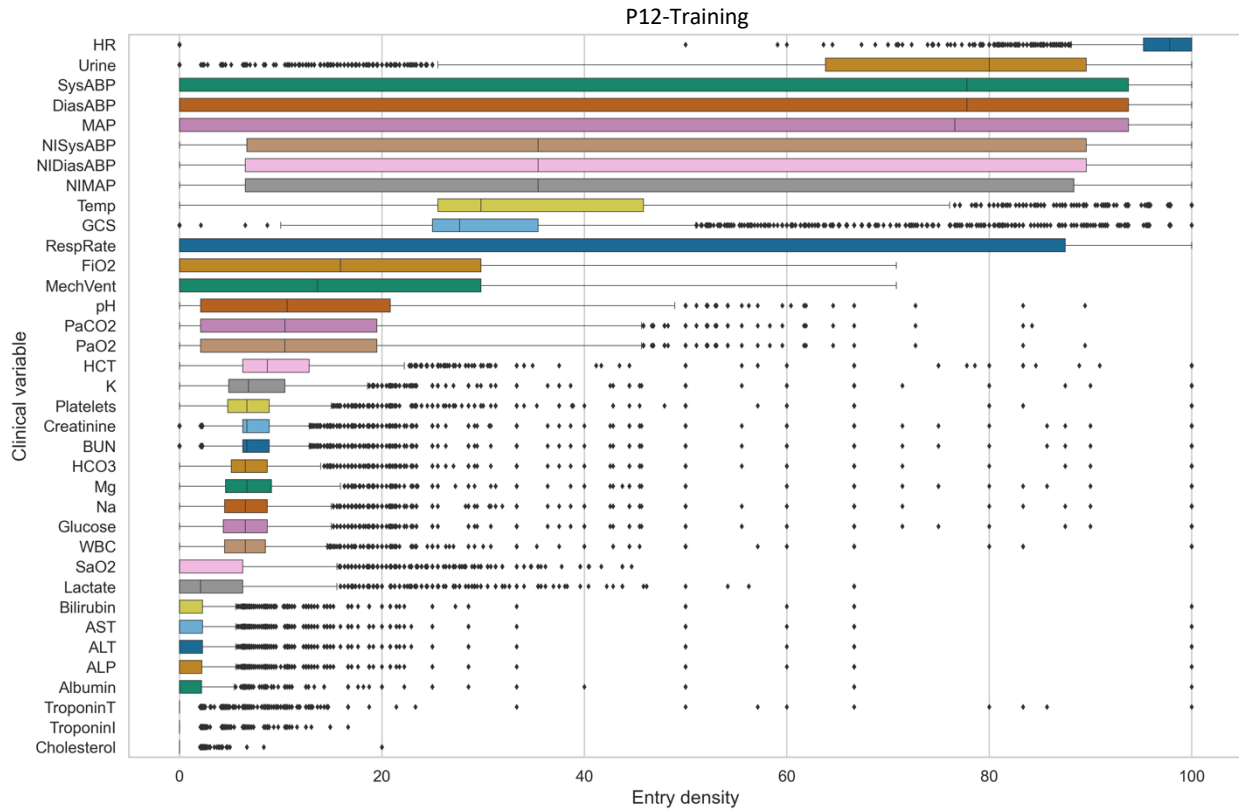
Multimedia Appendix 2: Further Data and Result Analysis



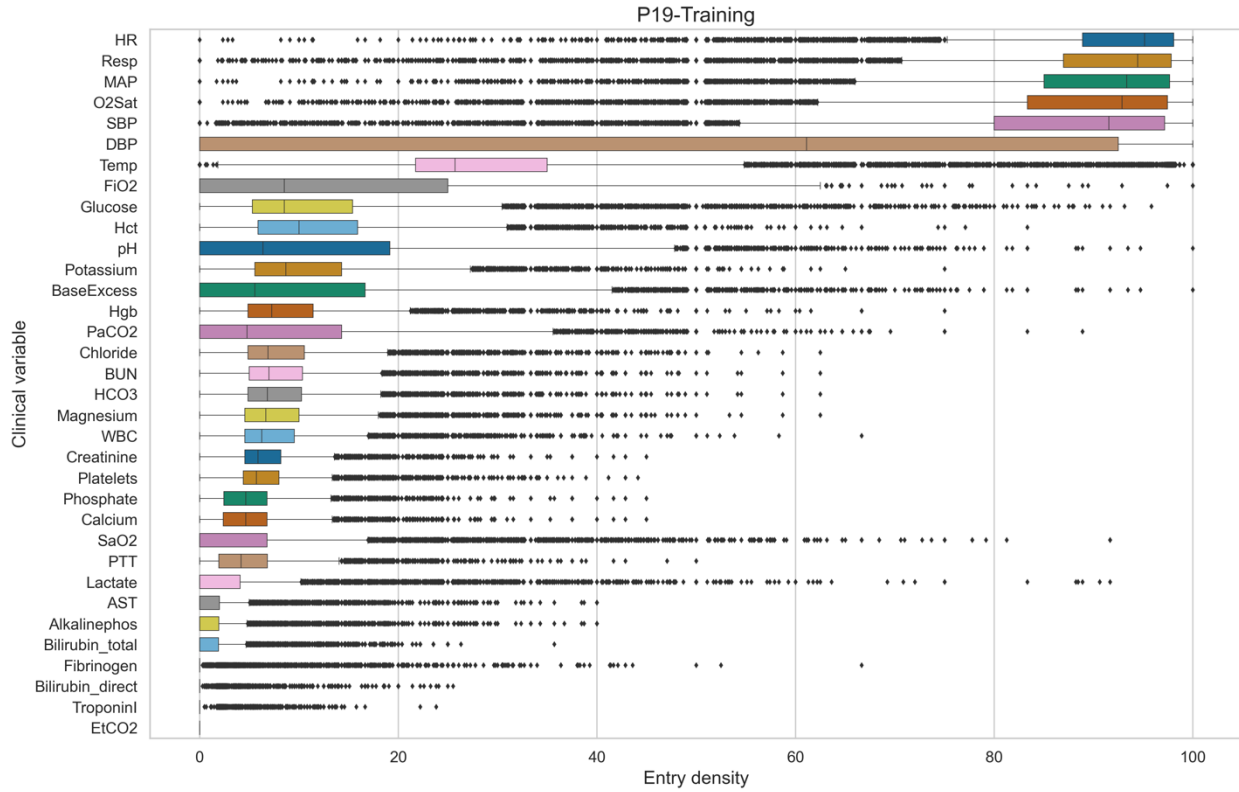
**Figure S1.** All clinical variables with rates of missingness for the P12 training and testing sets. Rate of missingness is the average rate at which a variable is missing across all patients. Since all data in P12 was from the same hospital, missing rates are very similar.



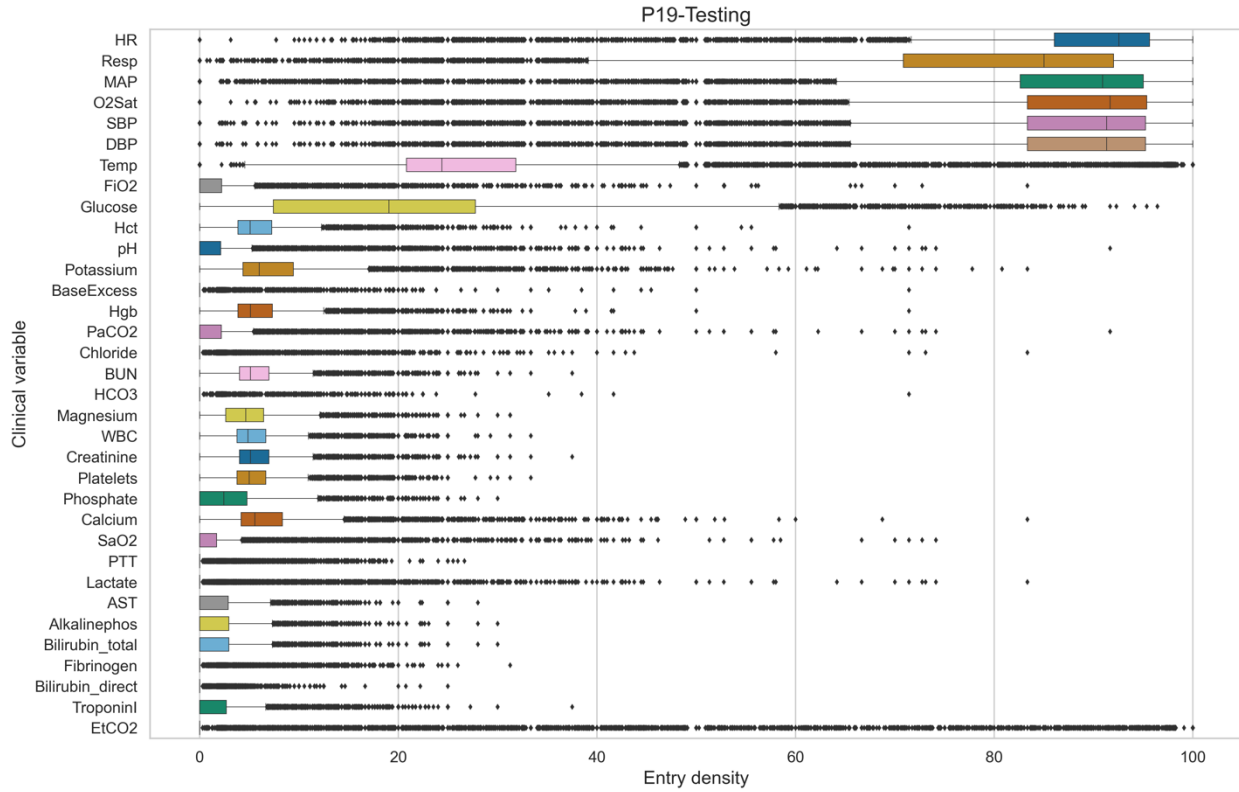
**Figure S2.** All clinical variables with rates of missingness for the **P19** training and testing sets. Rate of missingness is the average rate at which a variable is missing across all patients. Rates of missingness differ since each set is from distinct hospitals.



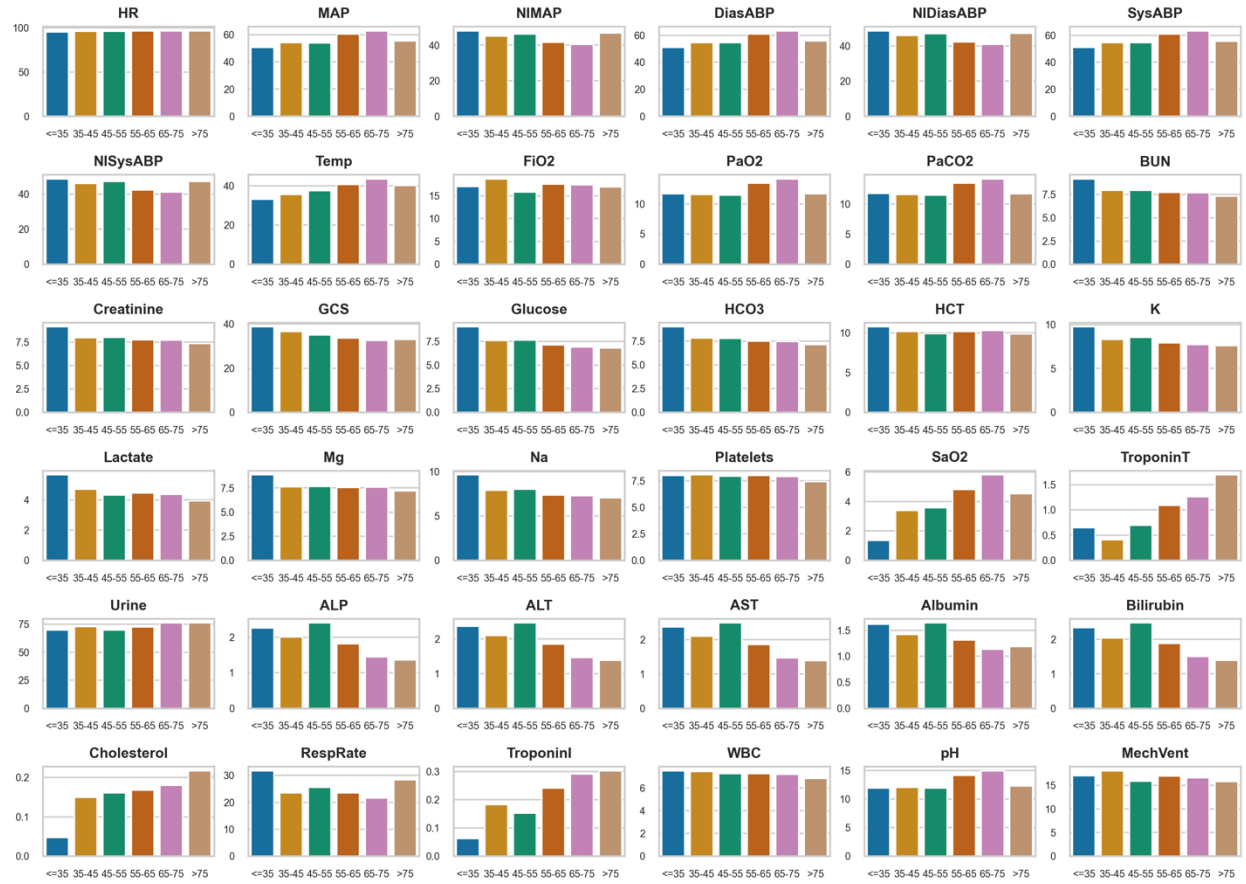
**Figure S3.** Distribution of entry densities (fraction of observations in a patient’s ICU stay) for each variable for the **P12** training set. Entry density is the distribution of the per-patient average observation rate. P12 testing set showed a very similar distribution.



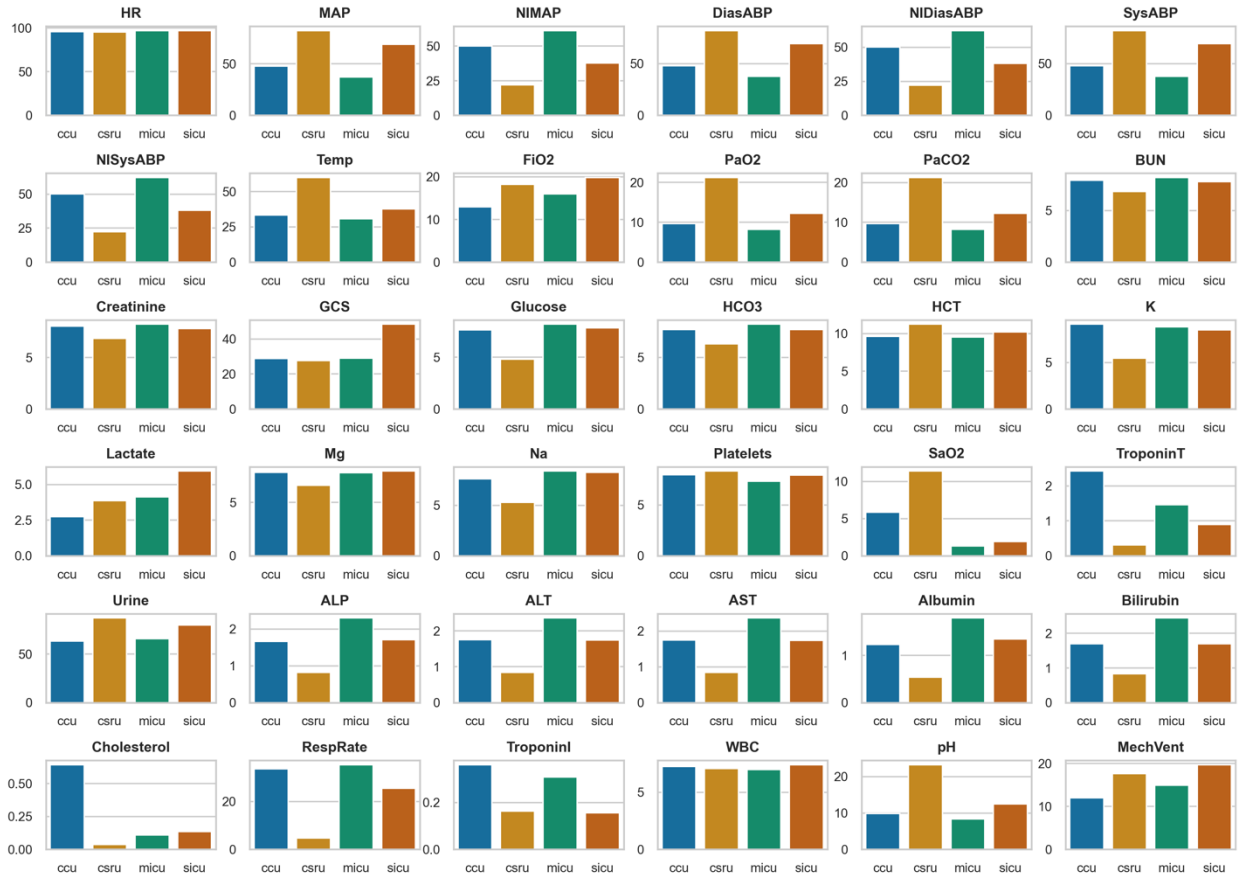
**Figure S4.** Distribution of entry densities (fraction of observations in a patient’s ICU stay) for each variable for the **P19** training set (Hospital A). Entry density is the distribution of the per-patient average observation rate.



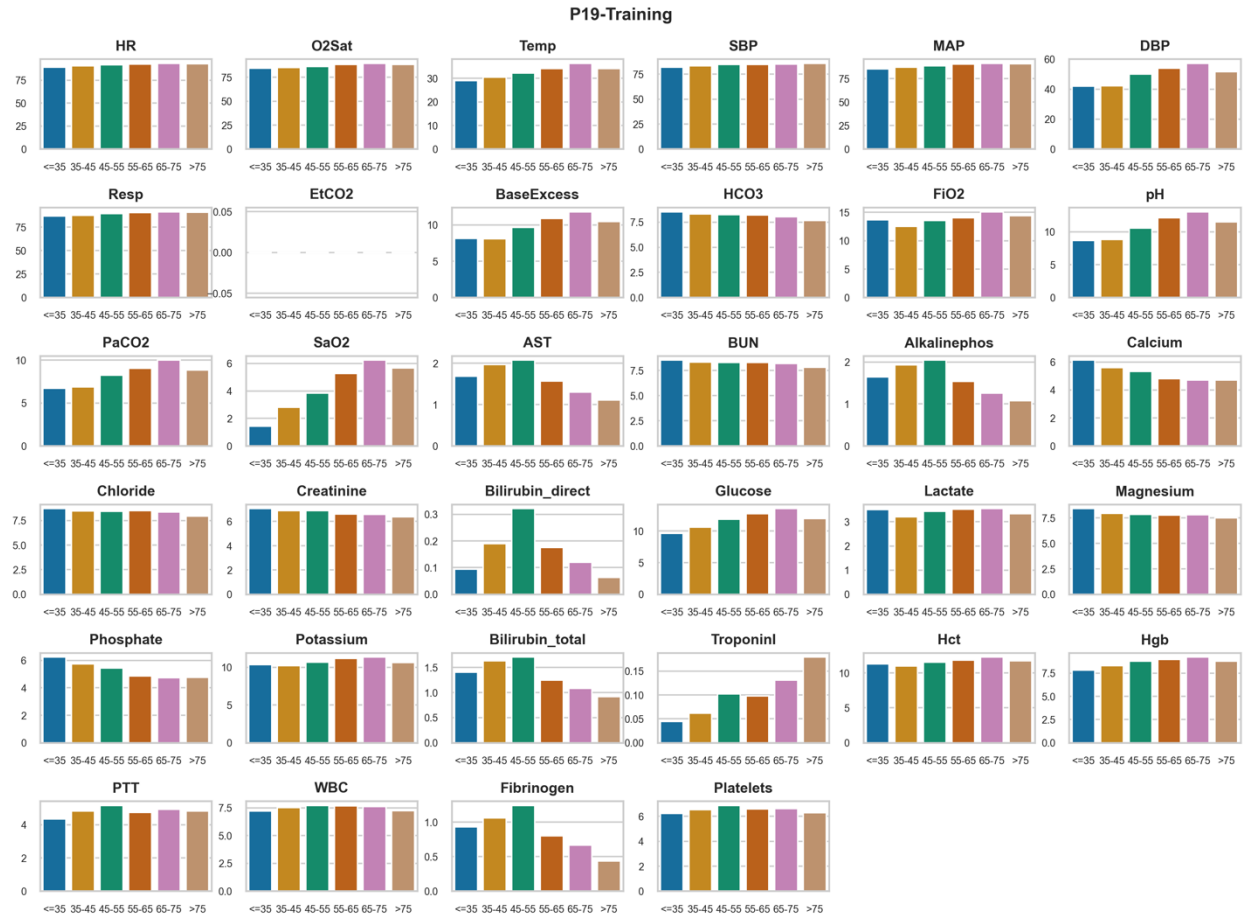
**Figure S5.** Distribution of entry densities (fraction of observations in a patient’s ICU stay) for each variable for the **P19** testing set (Hospital B). Entry density is the distribution of the per-patient average observation rate.



**Figure S6.** Variable observation rates by age group for the **P12** training set.

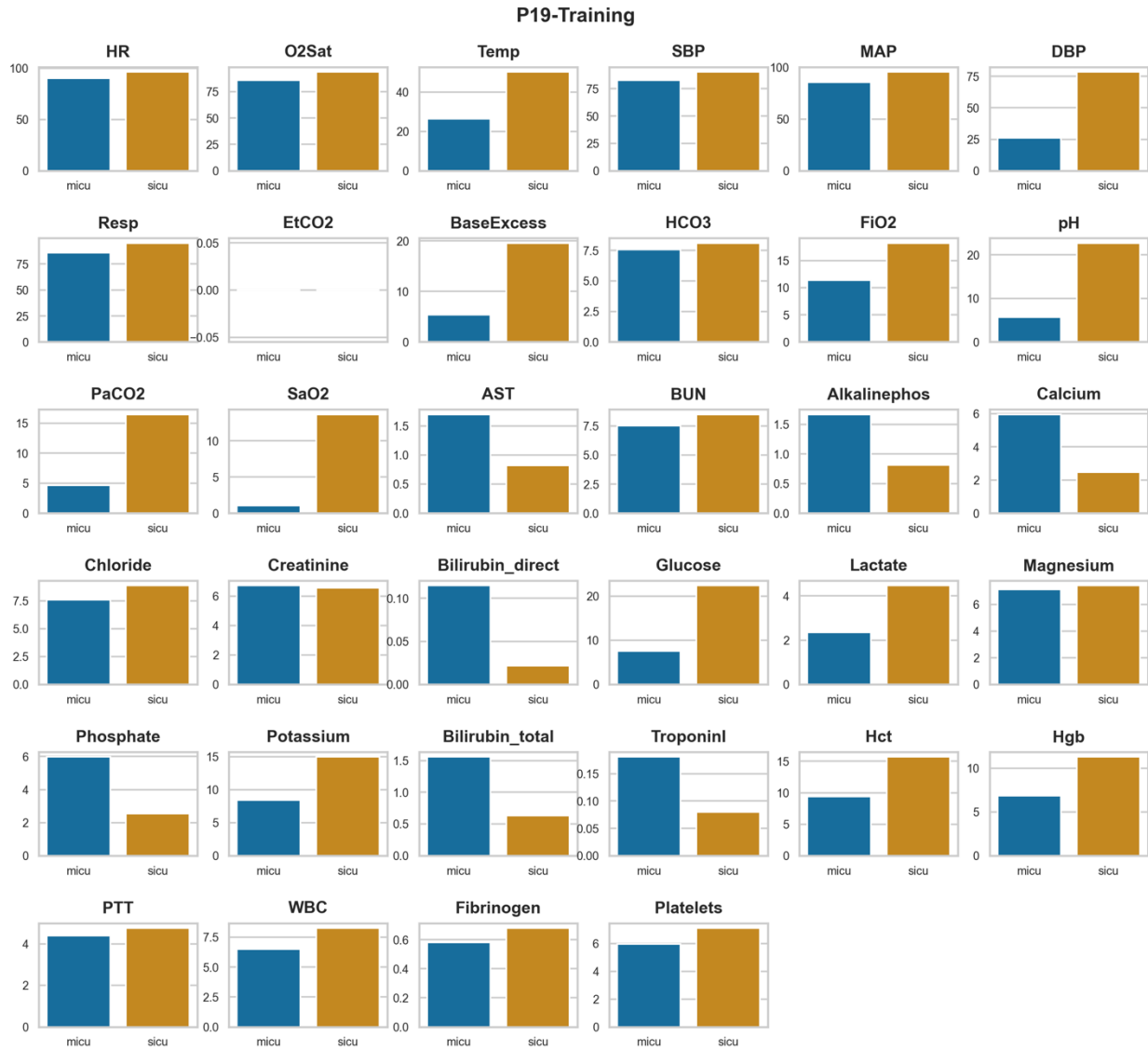


**Figure S7.** Variable observation rates by ICU types for the **P12** training set.

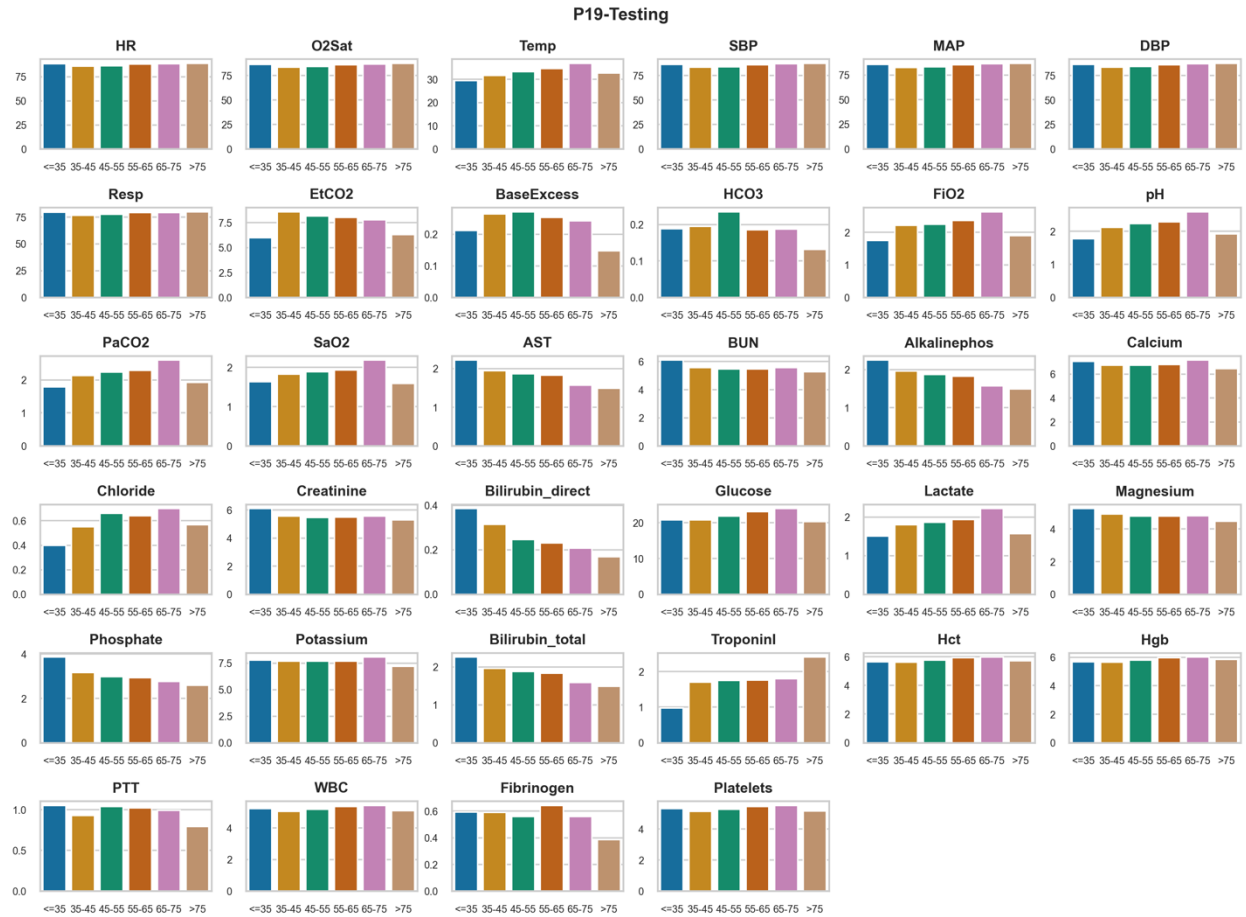


**Figure S8.** Variable observation rates by age group for the **P19** training set (Hospital A).

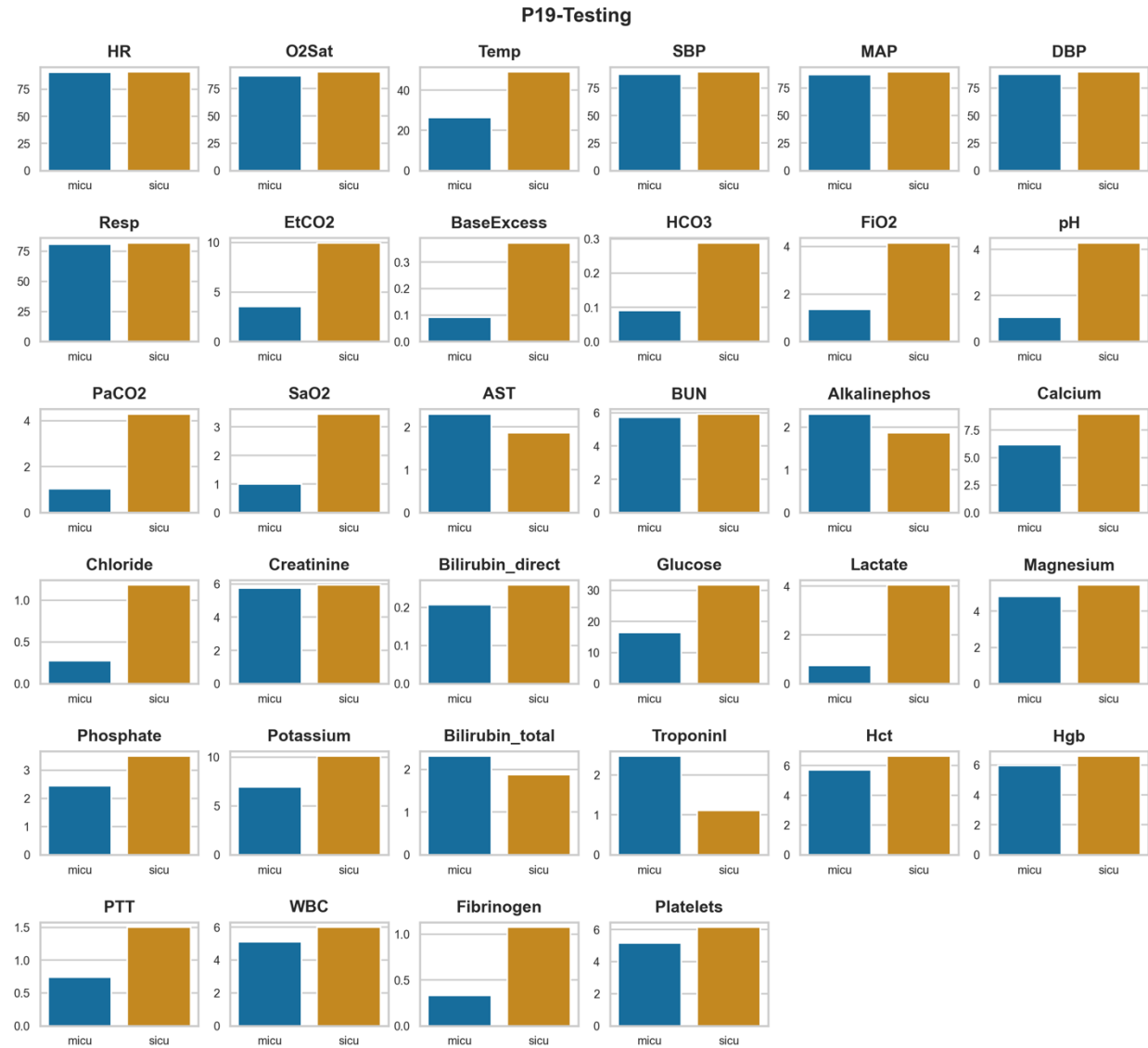




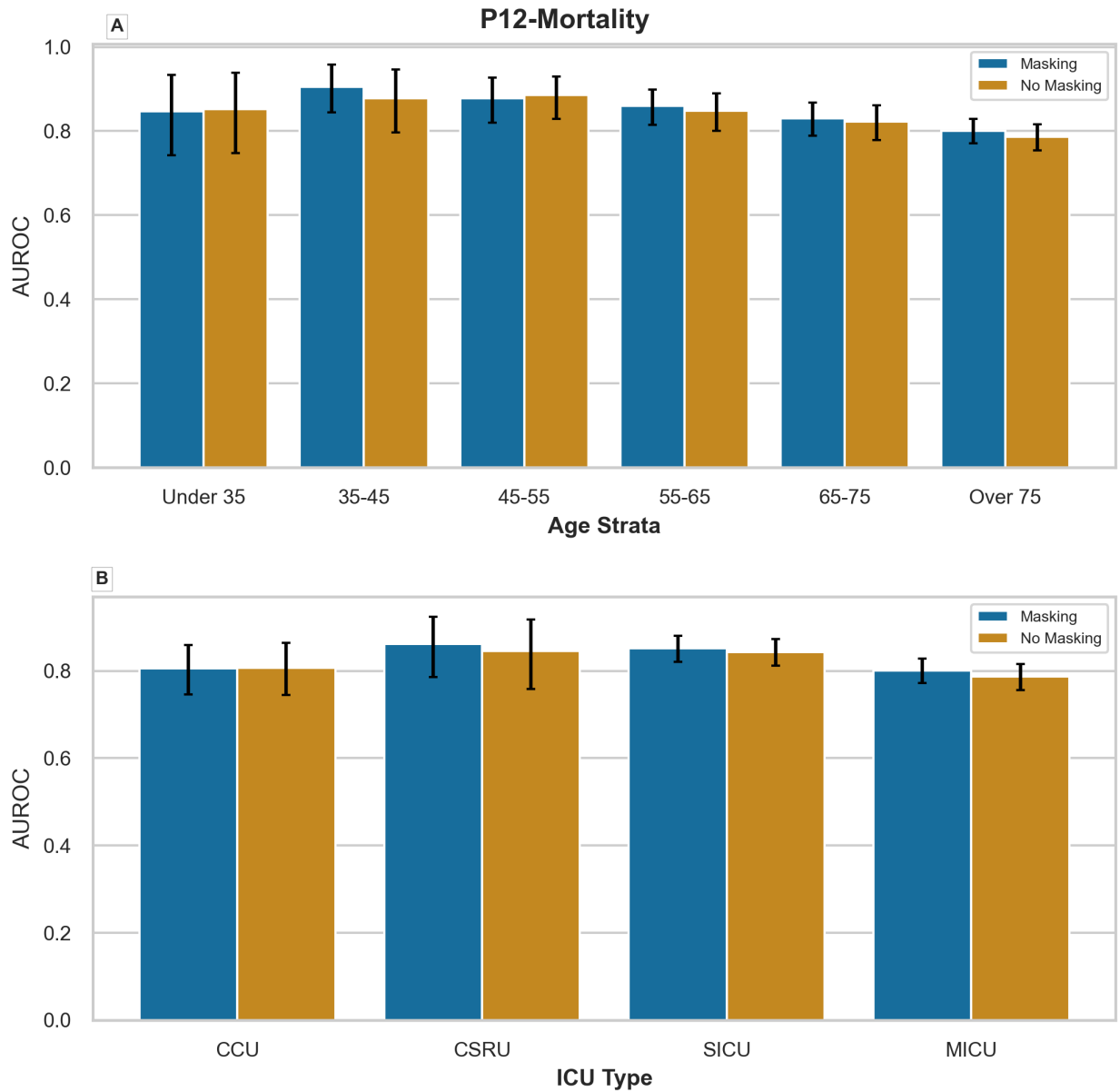
**Figure S9.** Variable observation rates by ICU types for the **P19** training set (Hospital A).



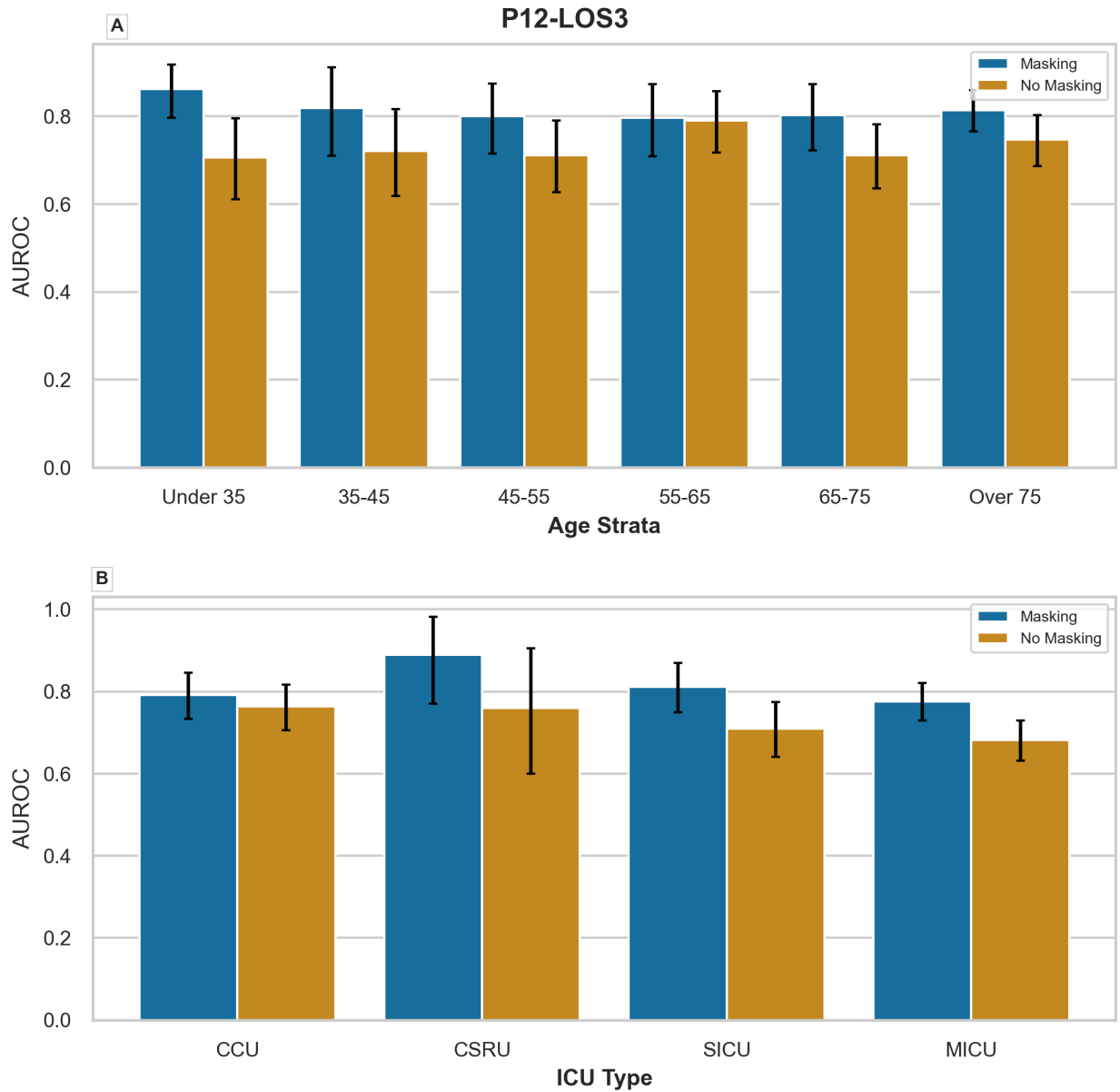
**Figure S10.** Variable observation rates by age group for the **P19** testing set (Hospital B).



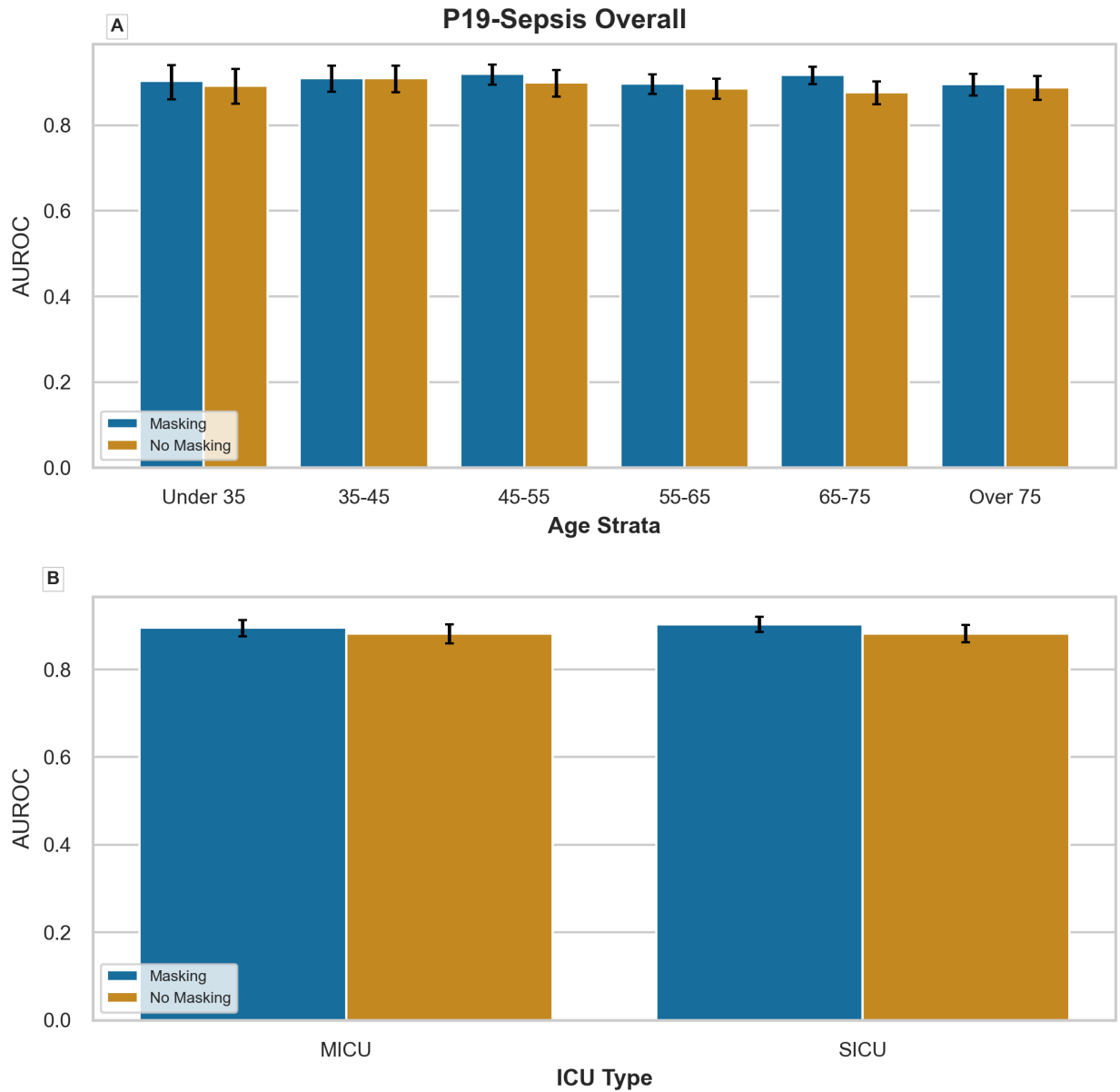
**Figure S11.** Variable observation rates by ICU types for the **P19** testing set (Hospital B).



**Figure S12.** Subgroup Analysis results for the **P12** Mortality Classification task. Error bars represent 95% confidence intervals obtained by bootstrapping. Numerical values are available in Table 2 in the main manuscript.



**Figure S13.** Subgroup Analysis results for the **P12** LOS Classification task. Error bars represent 95% confidence intervals obtained by bootstrapping. Numerical values are available in Table 3 in the main manuscript.



**Figure S14.** Subgroup Analysis results for the **P19** Sepsis-Overall Classification task. Error bars represent 95% confidence intervals obtained by bootstrapping. Numerical values are available in Table 4 in the main manuscript.